AGENDA
GRANT COUNTY PUBLIC UTILITY DISTRICT
Via Conference Call
+1 509-703-5291   Conference ID: 678 050 6#
COMMISSION MEETING
Tuesday, August 11, 2020

An Executive Session may be called at any time for purposes authorized by the Open Public Meetings Act

9:00 a.m.  Commission Convenes
Review and Sign Vouchers

10:00 a.m.  Reports from Staff

12:00 Noon  Lunch

1:00 p.m.  Safety Briefing
Pledge of Allegiance
Attendance
Public requests to discuss agenda items/non-agenda items
Correspondence
Business Meeting

1.  Consent Agenda

Approval of Vouchers
Meeting minutes of July 28, 2020

2.  Regular Agenda

8945 – Resolution Accepting a Bid and Awarding Contract 170-10049, for Supplying Power Transformers – Alternate Source.

8946 – Resolution Accepting a Bid and Awarding Contract 230-10377, for Priest Rapids Dam Turbine and Generator Rehabilitation Lead Abatements and Coatings.

8947 – Resolution of the Commission of Public Utility District No. 2 of Grant County, Washington, Providing for the Issuance of the Electric System Revenue and Refunding Bonds of the District in the Aggregate Principal Amount of not-to-exceed $175,000,000.00 for the Purpose of Financing Capital Improvements to the Electric System and Refunding Certain Outstanding Electric System Bonds; and Delegating Authority to Approve the Final Terms of the Bonds.

3.  Review Items For Next Business Meeting

XXXX – Resolution Authorizing the General Manager of Public Utility District No. 2 of Grant County, Washington to Enter into a Nearly Five-Year Exchange of Capacity for Energy with Morgan Stanley Capital Group.

XXXX – Resolution Providing for the Filing of a Proposed Budget for the Year 2021, Setting a Date for Public Hearing Theron and Authorizing Notice of Such Meeting.

4. Calendar

5. Reports from Staff (if applicable)

Adjournment
CONSENT AGENDA
REGULAR MEETING
OF PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY

July 28, 2020

The Commission of Public Utility District No. 2 of Grant County, Washington, convened at 8:00 a.m. via Microsoft Teams Meeting / +1 509-703-5291 Conference ID: 678 050 #6 with the following Commissioners present: Tom Flint, President; Larry Schaapman, Vice-President; Judy Wilson, Secretary; Dale Walker, Commissioner; and Nelson Cox, Commissioner.

An executive session was announced at 8:00 a.m. to last until 9:00 a.m. to discuss potential litigation with legal counsel present pursuant to RCW 42.30.110(1)(i). The executive session concluded at 9:00 a.m. and the regular session resumed.

The Commission convened to review vouchers and correspondence.

The Commission recessed at 9:08 a.m.

The Commission resumed at 9:30 a.m.

New employee, Melissa Leonard, Executive Assistant, was introduced to the Commission.

The Commission recessed at 9:45 a.m.

The Commission resumed at 9:50 a.m.

New employee, Ron Alexander, Senior Manager of Construction and Maintenance, was introduced to the Commission.

A round table discussion was held regarding the following topics: request from Commissioner Schaapman for further discussion and analysis on the proposed wheeling rate and associated questions raised by the Bureau of Reclamation and Irrigation Districts in their joint July 15, 2020 transmission and distribution rates proposal. In addition, Commissioner Cox raised a question related to when or where in-person meetings would be allowed.

Ron Roth, Senior Safety Coordinator, provided the Safety report.

Jeff Grizzel, Managing Director of Power Delivery, provided the Power Delivery Performance report.

Russ Brethower, Senior Manager of Wholesale Fiber, and Russ Seiler, Manager of PMO, provided the Wholesale Fiber Business report.
The Commission recessed at 12:20 p.m.

The Commission resumed at 1:00 p.m.

Correspondence was noted from Danna Dal Porto, Quincy, expressing appreciation for the fiber expansion project; especially during a time of online learning for local school children.

Consent agenda motion was made Mr. Cox and seconded by Mr. Schaapman to approve the following consent agenda items:

<table>
<thead>
<tr>
<th>Payment Number</th>
<th>103755 through 104102</th>
<th>$11,468,345.67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payroll Direct Deposit</td>
<td>162012 through 162720</td>
<td>$1,881,473.36</td>
</tr>
<tr>
<td>Payroll Tax and Garnishments</td>
<td>20200716A through 20200716B</td>
<td>$810,047.55</td>
</tr>
</tbody>
</table>

Meeting minutes of June 14, 2020.

After consideration, the above consent agenda items were approved by unanimous vote of the Commission and signatures were affirmed.

Motion was made by Mr. Schaapman and seconded by Mr. Cox authorizing the General Manager/CEO, on behalf of Grant PUD, to execute Change Order No. 3 to Contract 430–09950 with Arch Staffing & Consulting, increasing the not-to-exceed contract amount by $1,000,000.00 for a new contract total of $1,750,000.00 and resetting the delegated authority levels to the authority granted to the General Manager/CEO per Resolution No. 8609 for charges incurred as a result of Change Order No. 3. After consideration, the motion passed by unanimous vote of the Commission.

Motion was made by Mr. Cox and seconded by Mr. Walker authorizing the General Manager/CEO, on behalf of Grant PUD, to execute Change Order No. 3 to Contract 130–08756 with North Sky Communications, LLC, increasing the not-to-exceed contract amount by $13,400,000.00 for a new contract total of $33,900,000.00 and resetting the delegated authority levels to the authority granted to the General Manager/CEO per Resolution No. 8609 for charges incurred as a result of Change Order No. 3. After consideration, the motion passed by unanimous vote of the Commission.

Motion was made by Mr. Walker and seconded by Mr. Cox authorizing the General Manager/CEO, on behalf of Grant PUD, to execute Change Order No. 2 to Contract 130–09724 with Quanta Electric Power Construction, LLC, increasing the not-to-exceed contract amount by $3,442,954.31 for a new contract total of $5,736,295.26 and resetting the delegated authority levels to the authority granted to the General Manager/CEO per Resolution No. 8609 for charges incurred as a result of Change Order No. 2. After consideration, the motion passed by unanimous vote of the Commission.

The Commissioners reviewed future agenda items.

The Commission calendar was reviewed.
John Mertlich, Senior Manager of Forecasting, Planning and Analysis, presented the 2021 preliminary budget and provided a budget process overview.

Terry McKenzie, Senior Manager of Customer Solutions, reviewed proposed enhancements to the Share the Warmth program and discussed other customer assistance opportunities.

A public hearing was held to review and accept comment on the 2020 Integrated Resource Plan (IRP). No public comments were received.

The Commission recessed at 2:33 p.m.

The Commission resumed at 2:40 p.m.

Baxter Gillette, Large Power Solutions Manager, reviewed the Retail Load and Revenue Variance report.

Trade association / committee reports were reviewed.

There being no further business to discuss, the Commission adjourned at 2:56 p.m. on July 14 and reconvened on Friday, July 31 at 1:00 p.m. via conference call for the purpose of holding an executive session and any other business that may come before the Commission with the following Commissioners present: Tom Flint, Larry Schaapman, Judy Wilson, Dale Walker and Nelson Cox. A copy of the notice of adjournment was posted to the Grant PUD website.

An executive session was announced at 1:00 p.m. to last until 2:40 p.m. to review performance of a public employee with legal counsel present pursuant to RCW 42.30.110(1)(g). The executive session concluded at 2:40 p.m. and the regular session resumed.

There being no further business to discuss, the July 28 meeting officially adjourned at 2:40 p.m. on July 31, 2020.

______________________________  ______________________________
Tom Flint, President          Larry Schaapman, Vice President

ATTEST:

______________________________  ______________________________
Judy Wilson, Secretary         Tom Flint, President
Dale Walker, Commissioner

Nelson Cox, Commissioner
REGULAR AGENDA
RESOLUTION NO. 8945

A RESOLUTION ACCEPTING A BID AND AWARDING CONTRACT 170-10049, FOR SUPPLYING POWER TRANSFORMERS – ALTERNATE SOURCE

Recitals

1. Bids were publicly opened on May 21, 2020 for Contract 170-10049, for Supplying Power Transformers – Alternate Source;

2. Bid proposals were received from the following suppliers/contractors and evaluated by Grant PUD’s staff;
   
   - Delta Star Inc. (Quebec factory) $25,761,358.00
   - WEG Transformers USA LLC $28,276,871.00
   - Delta Star, Inc. (California factory) $28,429,866.00
   - Pennsylvania Transformer Technology $31,125,135.00
   - SPX Transformer Solutions $35,219,080.00

3. The District’s Power Delivery engineers, in accordance with the Bid Evaluation criteria contained in the contract documents, have applied evaluation factors for various energy efficiencies which were intended to compare the bids fairly:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Original Total Bid Price</th>
<th>Evaluated Total Bid Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Star QC</td>
<td>$25,761,358</td>
<td>$37,352,305</td>
</tr>
<tr>
<td>WEG Transformers USA</td>
<td>$28,276,871</td>
<td>$53,569,494</td>
</tr>
<tr>
<td>Delta Star CA</td>
<td>$28,429,866</td>
<td>$37,995,833</td>
</tr>
<tr>
<td>Pennsylvania Transformer Technologies</td>
<td>$31,125,135</td>
<td>$43,396,988</td>
</tr>
<tr>
<td>SPX Transformer Solutions</td>
<td>$35,219,080</td>
<td>$46,462,457</td>
</tr>
</tbody>
</table>

4. The Bid submitted by Delta Star, Inc. (Quebec factory) is commercially non-compliant;

5. The second low bid, submitted by WEG Transformers USA LLC is both commercially and technically compliant with Grant PUD’s contract requirements;

6. The bid is less than the Engineer’s Estimate of $31,033,442.86; and

7. Grant PUD’s Senior Manager of Power Delivery and Managing Director of Power Delivery concur with staff and recommend award to WEG Transformers USA LLC as the lowest responsible and best bid based on Grant PUD’s plan and specifications.

NOW, THEREFORE, BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington, that the General Manager is authorized to enter into a contract, Contract 170-10049, for Supplying Power Transformers – Alternate Source with WEG Transformers USA LLC of Washington, Missouri in the amount of $28,276,871.00 plus applicable sales tax, upon receipt of the required payment and performance bond in a manner satisfactory to Grant PUD’s Counsel.
PASSED AND APPROVED by the Commission of Public Utility District No. 2 of Grant County, Washington, this 11th day of August, 2020.

________________________________________
President

ATTEST:

________________________________________
Secretary

________________________________________
Vice President

________________________________________
Commissioner

________________________________________
Commissioner
MEMORANDUM

July 9, 2020

TO: Kevin Nordt, General Manager/Chief Executive Officer

VIA: Richard Wallen, Chief Operations Officer
Jeff Grizzel, Managing Director of Power Delivery
Jesus Lopez, Senior Manager of Power Delivery Engineering
Trung Tran, Manager Engineering

FROM: Rudy Perez, Project Manager

SUBJECT: Award of Contract 170-10049 for Supplying Power Transformers - Alternate Source

Purpose: To request Commission approval to award Contract 170-10049 to WEG Transformers USA to supply power transformers for a not-to-exceed contract price of $28,276,871 plus sales tax.

Discussion: The purpose of Contract 170-10049 is to provide the District with an alternate source for procuring power transformers thus mitigating any quality and schedule risks associated with having only one source or being ‘single threaded’.

Currently, the District has Contract 170-07303 for supplying power transformers which was awarded to Virginia Transformer Corporation in February 2018.

The District allowed just over three weeks for potential bidders to respond following advertisement. The District held an optional call-in session allowing potential bidders to ask questions, concerning both the technical and commercial terms of the contract, as a means of providing clarifications. Bid submittals were required by May 19, 2020 and a virtual bid opening via Microsoft Teams was held on May 21, 2020. The District received the following five bids from four different bidders.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Initial Unevaluated Total Bid Price</th>
<th>Evaluated Total Bid Price*</th>
<th>Technically Compliant</th>
<th>Commercially Compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEG Transformers USA</td>
<td>$28,276,871</td>
<td>$53,569,494</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Delta Star CA</td>
<td>$28,429,866</td>
<td>$37,995,833</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Delta Star QC</td>
<td>$25,761,358</td>
<td>$37,352,305</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pennsylvania Transformer Technologies</td>
<td>$31,125,135</td>
<td>$43,396,988</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SPX</td>
<td>$35,219,080</td>
<td>$46,462,457</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

* Evaluated Total Bid Price used for life cycle cost comparison purposes only as described in Financial Considerations section

Contract 170-10049 was structured to meet current customer service requests and anticipated growth over the next five years. Upon award of the contract, the District shall be committed to purchase two 117kV 25MVA power transformers for reconstruction/expansion at Royal Substation and one 235kV 41MVA power transformer for expansion at Baird Springs Substation. The District shall have the option, but not be obligated, to purchase additional transformers specified in the Bid Form via purchase order through the term of the contract, which expires on December 31, 2025.
The District elected to require bidders proposed manufacturing facilities be located on the North American continent. Procurement, Legal, and Power Delivery Engineering evaluated the bids for contract compliance, losses, acceptance of the District’s warranties, delivery, off-loading, and unit cost.

A team from Power Delivery Engineering and Construction & Maintenance performed pre-award audits of the two proposed WEG plants, one in Missouri, USA and the other (audit performed virtually via Microsoft Teams) in Mexico. The intent of these audits was to confirm the bidder’s capabilities to competently manufacture and deliver power transformers by ascertaining its manufacturing, logistics, supply chain, testing and engineering processes as well as its overall safety and health culture.

The lowest-cost commercially and technically compliant bidder is WEG Transformers USA which proposes manufacturing power transformers at two different facilities: 117kV power transformers from its Washington, Missouri plant and 235kV power transformers from its Huehuetoca, Mexico plant.

**Justification:** Power transformers are used in District substations to convert transmission level nominal voltages (115 and 230kV) to distribution level nominal voltage (13.2kV). Each substation requires at least one power transformer. Power Delivery Engineering specifies using power transformers designed to be energized at 117kV or 235kV respectively, as these voltages are closer to the actual transmission voltage levels seen throughout the District’s service area. This eliminates additional internal circuitry associated with de-energized tap changers (DETC) that requires manual adjustment of a power transformer’s high side voltage to align with the transmission voltage source.

Transformers purchased under this contract are required to meet customer requests for additional electrical service at new and existing substations. The first two transformers shall be placed into service at Royal Substation as part of reconstructing and expanding an aging substation yard in support of growth seen in the area. A third transformer is required for expansion at Baird Springs Substation, for an industrial customer. Funds for these first three transformer purchases are budgeted in the 2021/2022 Capital Plan.

Due to the load growth expected over the next five plus years with a projected need of twenty-seven power transformers, Power Delivery determined the best means of mitigating schedule and quality risks was to execute a second power transformer procurement contract and thus, have multiple sources at our disposal.

The District has met its contractual obligations for procuring power transformers from Virginia Transformer Corporation under Contract 170-07303 and now orders additional units only as needed. Executing Contract 170-10049 provides the District with another compliant source for power transformers.

By establishing a not-to-exceed contract price of $28,276,871, with the option to buy as many as twenty-seven power transformers, the District can respond more quickly to customer needs as they arise by issuing purchase orders, rather than going through a lengthy change order process for each additional purchase. This contract model has worked well for the District over the past ten years as we have experienced an ongoing period of rapid growth.

**Financial Considerations:** The Engineer’s estimate for Contract 170-10049 is $31,033,443. The initial unevaluated total bid price, evaluated total bid price, technical and commercial compliance to the District’s contract terms for each bidder are listed in the table above.
The initial unevaluated total bid prices are the actual costs the District shall pay per power transformer. Evaluated total bid prices incorporate:

- Transformer losses (energy used by the transformer) as a cost of energy consumed over the assumed life cycle of the power transformer. Transformers inherently have losses and this quantity varies per manufacturer’s design
- A cost adder should the Bidder propose delivery elsewhere from the District’s requested location
- A cost adder should the Bidder propose supplying equipment other than what the District has standardized on its power transformers
- A cost adder for power transformers manufactured outside of the United States

WEG Transformers USA is the second lowest initial unevaluated total bid price among three technically compliant bids. Its initial unevaluated total bid price is $28,276,871 and its evaluated total bid price is $53,569,494. Upon award of the contract, the District shall be obligated to purchase two 25MVA power transformers of Bid Item 6 and one 41MVA power transformer of Bid Item 2 for a cost of $2,620,905.

<table>
<thead>
<tr>
<th>Bid Item Number</th>
<th>Transformer kV</th>
<th>Transformer MVA</th>
<th>Initial Unevaluated Bid Price</th>
<th>Evaluated Bid Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>235 x 117</td>
<td>41</td>
<td>$1,160,464</td>
<td>$2,229,820</td>
</tr>
<tr>
<td>2</td>
<td>235</td>
<td>41</td>
<td>$1,104,289</td>
<td>$2,166,465</td>
</tr>
<tr>
<td>3</td>
<td>117</td>
<td>41</td>
<td>$1,024,966</td>
<td>$2,020,098</td>
</tr>
<tr>
<td>4</td>
<td>235 x 117</td>
<td>25</td>
<td>$1,015,837</td>
<td>$1,708,378</td>
</tr>
<tr>
<td>5</td>
<td>235</td>
<td>25</td>
<td>$990,073</td>
<td>$1,671,140</td>
</tr>
<tr>
<td>6</td>
<td>117</td>
<td>25</td>
<td>$758,308</td>
<td>$1,476,756</td>
</tr>
</tbody>
</table>

The District has the option, but is not obligated, to purchase an additional twenty-four power transformers over the five-year contract term. The total contract provides for purchase of up to twenty-seven power transformers with a not-to-exceed price of $28,276,871.

Delta Star submitted two separate bids for supplying power transformers from either California with a total evaluated bid price of $37,995,833 or Quebec, Canada with a total evaluated bid price of $37,352,305. Although both Delta Star bids were technically compliant, both bids along with the bids from Pennsylvania Transformer Technologies and SPX were all deemed commercially non-compliant as all took exceptions to District language or submitted their own terms and conditions regarding limitations of liability, indemnification and price adjustments on future units.

**Contract Specifics:** Contract 170-10049 contains six bid items consisting of power transformers of different primary voltage and MVA ratings, and three bid items for training of District personnel and for on-site vendor technical support during transformer commissioning. The contract also has an Additive Bid Item for a four-year extended warranty per power transformer which the District may execute as it deems necessary. Power Delivery Engineering estimates a need for as many as twenty-seven power transformers during the five-year contract term. The District shall be obligated to purchase a minimum of three power transformers, with two to be delivered in April 2021 and the other by March 2022. Any additional power transformer purchases shall only be dependent on the needs of the District to meet load growth or replace aging units. Bidders are required to have their proposed manufacturing plants located on the North American continent. They must also meet minimum transformer manufacturing experience requirements and be ISO certified. The contract specifies standard criteria for bid evaluation.
Commercial terms are set by the District’s Procurement department in consultation with the Risk department. These commercial terms are intended to mitigate District liability and reduce its risk exposure by setting commercial terms all bidders must agree with in order to be deemed compliant.

The Procurement Officer performed the initial commercial evaluation of the five bids and confirmed the results with our Legal department. Both Delta Star bids and the bids from Pennsylvania Transformer Technologies and SPX were all deemed commercially non-compliant as all took exceptions to District language or submitted their own terms and conditions regarding limitations of liability, indemnification and price adjustments on future units. The following is a table of the notable commercially non-compliant items per bidder.

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Reasons for Deeming Bidder Commercially Non-Compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Star – California and Quebec Bids</td>
<td>• Bidder did not include the cost of offload in their Bid.</td>
</tr>
<tr>
<td></td>
<td>• Bidder states payment of Net 10, 90% upon order acknowledgement and 10% upon shipment.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their own Cancellation Policy</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their own Warranty Policy</td>
</tr>
<tr>
<td></td>
<td>• Bidder has taken exceptions to the District’s Indemnity language</td>
</tr>
<tr>
<td></td>
<td>• Bidder has taken exceptions to the District’s language in Limitation of Liability</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their own price adjustment language</td>
</tr>
<tr>
<td></td>
<td>• Bidder has added an escalation of 3% per year after the first year of field services.</td>
</tr>
<tr>
<td></td>
<td>• Bidder did not sign as Principle on the Bid Bond.</td>
</tr>
<tr>
<td></td>
<td>• Bidder did not provide pricing for Bid Item No. 10.</td>
</tr>
<tr>
<td>Pennsylvania Transformer Technologies</td>
<td>• No Bid Security provided with Bid.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has attached their Standard Terms &amp; Conditions that is noted to apply to all sales. These Terms &amp; Conditions contain conflicting language to the District’s solicitation documents.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has included two payment options that do not meet Section GC-11.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their own Warranty language.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their Indemnification clause.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted their Limitation of Liability clause.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted a Cancellation Schedule that does not meet the requirements of Section GC-3.</td>
</tr>
<tr>
<td>SPX</td>
<td>• Bidder has submitted their Price Adjustment clause.</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>• Bidder states that pricing is valid for 30 months and at that time pricing can be reviewed and adjusted if necessary.</td>
</tr>
<tr>
<td></td>
<td>• Bidder has submitted payment terms with Milestones that does not meet Section GC-11.</td>
</tr>
<tr>
<td></td>
<td>• Bidder requests negotiations on the terms of Limitation of Liability Section GC-19.</td>
</tr>
<tr>
<td></td>
<td>• Bidder proposes adjustments to the Liquidated Damages language.</td>
</tr>
<tr>
<td></td>
<td>• Bidder is adjusting the time period for the Base Indices in Section SR-7.</td>
</tr>
<tr>
<td></td>
<td>• Bidder requests that each District issued purchase order state: “Unit(s) will be Designed, Manufactured, Tested, Shipped, Sold and Invoiced in accordance with SPX Transformer Solutions’ Quotation 70010267, dated 5/19/20.” Doing so would incorporate all of the conflicting issues noted above.</td>
</tr>
<tr>
<td></td>
<td>• Bidder states that their Bid is good for 60 days but extensions may be considered. Bids are to be irrevocable for 90 days following Bid opening.</td>
</tr>
<tr>
<td></td>
<td>• Bidder did not provide pricing for Bid Item No. 10.</td>
</tr>
</tbody>
</table>

**Recommendation:** Recommend Commission awarding Contract 170-10049 Supplying Power Transformers – Alternate Source to WEG Transformers USA for a not-to-exceed contract price of $28,276,871, plus sales tax.

**Legal Review:** See attached e-mail(s).
Thanks Rudy, I’m okay with it, just seemed odd. Appreciate you helping me learn something new today!

Good work again and thanks for the prompt turnaround.

Rich

Technically, yes but I can reword to make the memo cleaner.
lossy
/ law-see, los-ee /

DEFINITION FOR LOSSY (1 OF 1)

adjective Electricity.

1 (of a material or transmission line) causing appreciable loss or dissipation of energy.

ORIGIN OF LOSSY

First recorded in 1945–50; loss + -y1

Rudy Perez
On Jul 21, 2020, at 9:09 AM, Richard Wallen <rwallen@gcpud.org> wrote:

Thanks Rudy for this prompt turn around. Overall I appreciate how you incorporated the additional information. The only comment I have is “lossy” a word? Guessing we are just trying to say that power and distribution transformers have losses, just wondering if that could be worded differently? Great job again!

Rich

From: Rudy Perez <Rperez1@gcpud.org>
Sent: Tuesday, July 21, 2020 9:00 AM
To: Richard Wallen <rwallen@gcpud.org>
Cc: Jesus Lopez <Jlopez@gcpud.org>; Jeff Grizzel <Jgrizzel@gcpud.org>
Subject: Re: Memo update needed

Rich,

Please review the latest revision of the 170-10049 award memo.

Also, after reviewing, please let us know if you still wish to meet this afternoon.
COMMERCIAL EVALUATION

<table>
<thead>
<tr>
<th>Contract No.:</th>
<th>170-10049</th>
<th>Contract Title:</th>
<th>Supplying Power Transformers - Alternate Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid Opening Date</td>
<td>May 19, 2020</td>
<td>Total No. of Bidders:</td>
<td>4</td>
</tr>
<tr>
<td>Was prequalification required for bidding?</td>
<td>No</td>
<td>No of potential Bidders notified via ProcureWare of Bid opportunity:</td>
<td>N/A</td>
</tr>
<tr>
<td>No. of potential Bidders who obtained the Bid documents:</td>
<td>64</td>
<td>Was this Bid advertised in the newspaper?</td>
<td>Yes</td>
</tr>
<tr>
<td>If yes, where?</td>
<td>Spokane and Moses Lake, WA</td>
<td>Addenda issued?</td>
<td>Yes</td>
</tr>
<tr>
<td>If yes, how many</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Information

Cost Estimate: $31,033,442.86

Bidders

<table>
<thead>
<tr>
<th>Name of Bidder:</th>
<th>Delta Star, Inc. (from Saint-Jean, Quebec factory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bid Price:</td>
<td>$25,986,358.00</td>
</tr>
<tr>
<td>Bid Security:</td>
<td>Bid Bond</td>
</tr>
<tr>
<td>Signature Certification:</td>
<td>NA</td>
</tr>
<tr>
<td>Delivery / Completion:</td>
<td>As required</td>
</tr>
<tr>
<td>Addendum Received:</td>
<td>Yes</td>
</tr>
<tr>
<td>Bidder's Data Provided:</td>
<td>Required data provided</td>
</tr>
<tr>
<td>Commericially Compliant?</td>
<td>No (see below)</td>
</tr>
<tr>
<td>Technically Compliant?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Additional Information:
- Bidder did not include the cost of offload in their Bid.
- Bidder states payment of Net 10, 90% upon order acknowledgement and 10% upon shipment. These terms do not comply with Payment Section GC-11.
- Bidder has submitted their own Cancellation Policy which conflicts with Section GC-3.
- Bidder has submitted their own Warranty Policy which conflicts with Section GC-9.
- Bidder has taken exceptions to the District's language in Indemnity Section GC-6.
- Bidder has taken exceptions to the District's language in Limitation of Liability Section GC-19.
- Bidder has submitted their own price adjustment language which conflicts with Section SR-7.
- Bidder has added an escalation of 3% per year after the first year of field services.
- Bidder did not sign as Principle on the Bid Bond.
- Bidder did not provide pricing for Bid Item No. 10.

<table>
<thead>
<tr>
<th>Name of Bidder:</th>
<th>WEG Transformers USA LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bid Price:</td>
<td>$28,276,871.00</td>
</tr>
<tr>
<td>Bid Security:</td>
<td>Bid Bond</td>
</tr>
<tr>
<td>Signature Certification:</td>
<td>NA</td>
</tr>
<tr>
<td>Delivery / Completion:</td>
<td>No (see add'l information)</td>
</tr>
</tbody>
</table>
Addendum Received: Yes | Bidder's Data Provided: Required data provided
---|---
Commercially Compliant?: Yes | Technically Compliant?: Yes

**Additional Information:**
- Bidder states that delivery of Bid Item No. 6 will be 38–40 weeks which is unlikely to meet the requirements of Section SR-2 of between 3/5/21 & 3/19/21. **PD Engineering will accept.**
- Bidder does not meet the delivery requirements of Section SR-3 of 40 weeks for Bid Item Nos. 1 & 2 (49–51 weeks), and 4 & 5 (48–50 weeks). **PD Engineering will accept.**
- Bidder has added an additional $11,000.00 crane pick fee to Supplemental Bid Data Sheet IX which is in addition to the daily storage fee referenced in Bid Item No. 10. **PD Engineering will accept.**
- Bidder states that their Bid does not include any import tariffs from units that ship from their Mexico factory. **Bidder states that no tariffs are in effect at this time. Should new tariffs arise during processing of orders from the Mexico factory, Bidder may consider a request for an adjustment.**
- Bidder states that payment terms would be 100% at time of delivery. Bidder then states invoices are due Net 30 days which conflicts. **Bidder clarifies Net 30.**
- Bidder states in their Bid “Our prices are subject to revision as per WEG standards. Please see our escalation methodology attached to this offer”. It is unclear what “WEG standards” are and I am unable to find an escalation methodology with the Bid. **Bidder agrees to the District’s price adjustment language.**

**Name of Bidder:** Delta Star, Inc. (from San Carlos, California factory)

<table>
<thead>
<tr>
<th>Total Bid Price: $28,654,886.00</th>
<th>Bid Security: Bid Bond</th>
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<tbody>
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<td>Signature Certification: NA</td>
<td>Delivery / Completion: As required</td>
</tr>
<tr>
<td>Addendum Received: Yes</td>
<td>Bidder's Data Provided: Required data provided</td>
</tr>
<tr>
<td>Commercially Compliant?: No (see below)</td>
<td>Technically Compliant?: Yes</td>
</tr>
</tbody>
</table>

**Additional Information:**
- Bidder did not include the cost of offload in their Bid.
- Bidder states they will meet the required delivery on the Bid Form but in a separate document Bidder states 40-46 week delivery. **SR-3 requires 40 weeks.**
- Bidder states payment of Net 10. 90% upon order acknowledgement and 10% upon shipment. These terms do not comply with Payment Section GC-11.
- Bidder has submitted their own Cancellation Policy which conflicts with Section GC-3.
- Bidder has submitted their own Warranty Policy which conflicts with Section GC-9.
- Bidder has taken exceptions to the District’s language in Indemnity Section GC-6.
- Bidder has taken exceptions to the District’s language in Limitation of Liability Section GC-19.
- Bidder has submitted their own price adjustment language which conflicts with Section SR-7.
- Bidder has added an escalation of 3% per year after the first year of field services.
- Bidder did not sign as Principle on the Bid Bond.
- Bidder did not provide pricing for Bid Item No. 10.

**Name of Bidder:** Pennsylvania Transformer Technology, Inc.

<table>
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<th>Total Bid Price: $31,450,135.00</th>
<th>Bid Security: Did not provide</th>
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<td>Delivery / Completion: As required</td>
</tr>
<tr>
<td>Addendum Received: Yes</td>
<td>Bidder's Data Provided: Required data provided</td>
</tr>
</tbody>
</table>
Commercially Compliant? No (see below)  
Technically Compliant? No (see add'l information)

Additional Information:
- No Bid Security provided with Bid.
- Bidder has attached their Standard Terms & Conditions that is noted to apply to all sales. These Terms & Conditions contain conflicting language to the District’s solicitation documents.
- Bidder has included two payment options that do not meet Section GC-11.
- Bidder has submitted their own Warranty language.
- Bidder has submitted their Indemnification clause.
- Bidder has submitted their Limitation of Liability clause.
- Bidder has submitted a Cancellation Schedule that does not meet the requirements of Section GC-3.
- Bidder has submitted their Price Adjustment clause.

<table>
<thead>
<tr>
<th>Name of Bidder:</th>
<th>SPX Transformer Solutions</th>
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<tr>
<td>Total Bid Price:</td>
<td>$35,219,080.00</td>
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<td>Bidder's Data Provided:</td>
<td>Required data provided</td>
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<tr>
<td>Commercally Compliant?</td>
<td>No (see below)</td>
</tr>
<tr>
<td>Technically Compliant?</td>
<td>No (see add'l information)</td>
</tr>
</tbody>
</table>

Additional Information:
- Bidder states that pricing is valid for 30 months and at that time pricing can be reviewed and adjusted if necessary.
- Bidder has submitted payment terms with Milestones that does not meet Section GC-11.
- Bidder requests negotiations on the terms of Limitation of Liability Section GC-19.
- Bidder proposes adjustments to the Liquidated Damages language.
- Bidder is adjusting the time period for the Base Indices in Section SR-7.
- Bidder requests that each District issued purchase order state: “Unit(s) will be Designed, Manufactured, Tested, Shipped, Sold and Invoiced in accordance with SPX Transformer Solutions’ Quotation 70010267, dated 5/19/20.” Doing so would incorporate all of the conflicting issues noted above.
- Bidder states that their Bid is good for 60 days but extensions may be considered. Bids are to be irrevocable for 90 days following Bid opening.
- Bidder did not provide pricing for Bid Item No. 10.
RESOLUTION NO. 8946

A RESOLUTION ACCEPTING A BID AND AWARDING CONTRACT 230-10377, FOR PRIEST RAPIDS DAM TURBINE AND GENERATOR REHABILITATION LEAD ABATEMENT AND COATINGS

Recitals

1. Bids were publicly opened on July 8, 2020 for Contract 230-10377, for Priest Rapids Dam Turbine and Generator Rehabilitation Lead Abatement and Coatings;

2. Bid proposals were received from the following contractors and evaluated by Grant PUD’s staff;
   - Hancock Sandblast & Paint LLC
   - Champion Liberty JV

3. The low bid, submitted by Hancock Sandblast & Paint LLC is both commercially and technically compliant with Grant PUD’s contract requirements;

4. The bid is less than the Engineer’s Estimate of $5,051,758.00 plus 15%; and

5. Grant PUD’s Senior Manager of Power Production Engineering and Managing Director of Power Production concur with staff and recommend award to Hancock Sandblast & Paint LLC as the lowest responsible and best bid based on Grant PUD’s plan and specifications.

NOW, THEREFORE, BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington, that the General Manager is authorized to enter into a contract, Contract 230-10377, for Priest Rapids Dam Turbine and Generator Rehabilitation Lead Abatement and Coating with Hancock Sandblast & Paint LLC of Pasco, Washington in the amount of $5,554,796.00 plus applicable sales tax, upon receipt of the required payment and performance bond in a manner satisfactory to Grant PUD’s Counsel.

PASSED AND APPROVED by the Commission of Public Utility District No. 2 of Grant County, Washington, this 11th day of August, 2020.

________________________________________
President

ATTEST:

________________________________________
Secretary

________________________________________
Vice President

________________________________________
Commissioner

________________________________________
Commissioner
MEMORANDUM

TO: Kevin Nordt, General Manager/Chief Executive Officer

VIA: Richard Wallen, Chief Operations Officer
Ty Ehrman, P.E., Managing Director of Power Production
Dale Campbell, P.E., Senior Manager of Power Production Engineer
Rebecca Simpson, Manager of Civil and Dam Safety Engineering

FROM: Gerry McFaul, P.E., Power Production Civil Engineer/Project Manager

SUBJECT: Award of Contract 230-10377, PR Dam T&G Rehab, Lead Abatement and Coatings

Purpose: To request Commission approval to award Contract 230-10377 Priest Rapids Dam Turbine & Generator Rehabilitation (T/G Rehab) Lead Abatement and Coatings to Hancock Sand Blast and Paint, LLC.

Discussion: The previous painting contracts were bid for a limited number of units. This contract allows us to apply lessons learned on the first three units by selecting a more abrasive resistant coating inside the scroll case and consolidate all painting service into one contract. The T/G Rehab project at Priest Rapids is currently commissioning the third unit and starts the fourth unit on July 27th. The contract will need to be started by September 1, 2020 to be employed on the next unit.

The Engineer’s Estimate and the bids received are summarized below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer’s Estimate</td>
<td>$5,051,758</td>
</tr>
<tr>
<td>Hancock Sand Blast and Coating, Pasco, WA</td>
<td>$5,554,796</td>
</tr>
<tr>
<td>Liberty Maintenance, New York</td>
<td>$13,146,706.40</td>
</tr>
</tbody>
</table>

The high bid was found to exceed the Engineer’s Estimate by more than 15% and is thus not commercially compliant. The low bid was found to be commercially and technically compliant.

Justification: Turbine-generator staff originally organized lead abatement and coating work into two contracts, one for the on-site work and one for the off-site work. One contract was bid for only 3 units. This was to allow processes to be worked out and to determine how much more work needed to be included that wasn’t foreseen at the outset of the project. Now that the current condition of the unit is understood the scope going forward has been well defined, staff agrees with the request from management to consolidate this work into one contract.

Staff has also identified a superior coating for inside the water passageway to reduce the coating loss due to erosion caused by high flows and turbidity inside the scroll case. These products will increase the life of the coating, reducing future maintenance costs and increasing the time between recoating work. These new coatings would require different equipment for application and would be provided by a different supplier. These changes would mean additional change orders to the existing contract if we didn’t consolidate and rebid the contract.
If this contract is not approved, the District would need to continue with the existing contracts, change orders and multiple purchase orders. This would not be in the District’s best interest. Due to the number of current contracts there is an additional burden on project management, procurement and on-site oversight with the current approach.

**Financial Considerations:** The Engineer’s estimate was based upon similar construction projects, materials, equipment and labor prices.

There are three major reasons for the cost being above the engineer’s estimate:
1. Inflation occurs annually and this year the painters received a significant increase for both hourly wages and benefits. The low bidder’s hourly rates for the painters on the touch up painting was $157,780 higher than the Engineer’s Estimate.
2. The low bidder estimated a higher cost for the non-embedded parts. The bid summary shows their bid for this work was $412,450 higher than the Engineer’s Estimate.
3. COVID-19 and Grant County’s improved safety policies have been noted by the bidders and are being included, which increases costs for all on site-work.

The advanced coating used in the scroll cases is designed to last 30 to 40 years. This is in comparison to the earlier product which is lasting 12 to 14 years before needing to be recoated. This was a major driver in rebidding the embedded parts work.

This project is budgeted under capital PID’s 101750 through 101756 and 101761 through 101767 and is expected to be paid out in 2020 through 2030.

The low bid has been reviewed by the District and found to be acceptable.

**Contract Specifics:** The only deviation from the standard contract requirement was an increase in the required submittals from contractors with the bid submission. The submission requirement was expanded in order to prove compliance to the many requirements in the technical specification.

**Recommendation:** Commission approval to award Contract 230-10377 for the Priest Rapids Dam Turbine and Generator Rehabilitation Lead Abatement and Coatings Project to Hancock Sandblast and Paint, LLC in the amount of $5,554,796.00.

**Legal Review:** See attached e-mail(s).
# COMMERCIAL EVALUATION

<table>
<thead>
<tr>
<th>Contract No.:</th>
<th>230-10377</th>
<th>Contract Title:</th>
<th>Priest Rapids Dam Turbine and Generator Rehabilitation Lead Abatement and Coatings</th>
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<table>
<thead>
<tr>
<th>Bid Opening Date</th>
<th>July 08, 2020</th>
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<tr>
<td>Total No. of Bidders:</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Was prequalification required for bidding?</th>
<th>No</th>
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<table>
<thead>
<tr>
<th>No. of potential Bidders notified via ProcureWare of Bid opportunity:</th>
<th>264</th>
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<tbody>
<tr>
<td>No. of potential Bidders who obtained the Bid documents:</td>
<td>84</td>
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<table>
<thead>
<tr>
<th>Was this Bid advertised in the newspaper?</th>
<th>Yes</th>
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<table>
<thead>
<tr>
<th>If yes, where?</th>
<th>Tri-City Herald, Columbia Basin Herald, and Spokesman Review</th>
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<tr>
<th>Addenda issued?</th>
<th>Yes</th>
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<table>
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<tr>
<th>If yes, how many</th>
<th>5</th>
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**Additional Information**

**Cost Estimate:** $5,051,758.00

## Bidders

<table>
<thead>
<tr>
<th>Name of Bidder:</th>
<th>Hancock Sandblast &amp; Paint LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bid Price:</td>
<td>$5,554,796.00</td>
</tr>
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<table>
<thead>
<tr>
<th>Bid Security:</th>
<th>Bid Bond</th>
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</thead>
<tbody>
<tr>
<td>Delivery / Completion:</td>
<td>As required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Addendum Received:</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bidder's Data Provided:</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Commerially Compliant?:</th>
<th>Yes</th>
</tr>
</thead>
</table>

**Additional Information:**

Correct Total Bid Price is reflected above. Bid Form Total Bid Price written in by Bidder was off by $5.00.

<table>
<thead>
<tr>
<th>Name of Bidder:</th>
<th>Champion Liberty JV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bid Price:</td>
<td>$13,146,706.40</td>
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<table>
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<tr>
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<th>Yes</th>
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<table>
<thead>
<tr>
<th>Bidder's Data Provided:</th>
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</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Commerially Compliant?:</th>
<th>No (see below)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technically Compliant?:</th>
<th>No (see add'l information)</th>
</tr>
</thead>
</table>

**Additional Information:**

Bidder's Bid exceeded the Engineer's Estimate by more than 15%. No further evaluation was done. See Technical Evaluation for technical information.
PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON

RESOLUTION NO. 8947

A RESOLUTION OF THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON, PROVIDING FOR THE ISSUANCE OF ELECTRIC SYSTEM REVENUE AND REFUNDING BONDS OF THE DISTRICT IN THE AGGREGATE PRINCIPAL AMOUNT OF NOT TO EXCEED $175,000,000 FOR THE PURPOSE OF FINANCING CAPITAL IMPROVEMENTS TO THE ELECTRIC SYSTEM AND REFUNDING CERTAIN OUTSTANDING ELECTRIC SYSTEM BONDS; AND DELEGATING AUTHORITY TO APPROVE THE FINAL TERMS OF THE BONDS.

PASSED AUGUST 11, 2020

PREPARED BY:

PACIFICA LAW GROUP LLP
Seattle, Washington
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<td>Gross Revenue Sufficient</td>
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<td>Section 4.2</td>
<td>Form of Bonds</td>
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<td>Section 4.3</td>
<td>Execution and Authentication of Bonds</td>
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<tr>
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<tr>
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<td>Section 5.2</td>
<td>Bond Fund; Parity Bond Reserve Funds</td>
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<tr>
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<tr>
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<td>Rate Stabilization Account</td>
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<tr>
<td>Section 5.5</td>
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<td>Section 6.1</td>
<td>Application of Bond Proceeds; Plan of Refunding</td>
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<td>Section 7.1</td>
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<td>Section 7.2</td>
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<td>Section 7.5</td>
<td>Derivative Products</td>
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<td>Section 7.6</td>
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</thead>
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Appendix A:  Form of Bonds
RESOLUTION NO. 8947

A. RESOLUTION OF THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON, PROVIDING FOR THE ISSUANCE OF ELECTRIC SYSTEM REVENUE AND REFUNDING BONDS OF THE DISTRICT IN THE AGGREGATE PRINCIPAL AMOUNT OF NOT TO EXCEED $175,000,000 FOR THE PURPOSE OF FINANCING CAPITAL IMPROVEMENTS TO THE ELECTRIC SYSTEM AND REFUNDING CERTAIN OUTSTANDING ELECTRIC SYSTEM BONDS; AND DELEGATING AUTHORITY TO APPROVE THE FINAL TERMS OF THE BONDS.

WHEREAS, Public Utility District No. 2 of Grant County, Washington (the “District”), owns and operates an electric utility system (as further defined herein, the “Electric System”) for the transmission and distribution of electric energy; and

WHEREAS, the District has issued and has outstanding certain senior parity lien obligations of the Electric System described herein (as defined herein, the “Outstanding Parity Bonds”); and

WHEREAS, the resolutions authorizing the Outstanding Parity Bonds authorize the District to issue Future Parity Bonds (as hereinafter defined) for the purpose of financing costs of the Electric System and refunding outstanding Electric System obligations if certain conditions are met; and

WHEREAS, the District has issued the following outstanding Electric System obligations:

<table>
<thead>
<tr>
<th>Series</th>
<th>Authorizing Resolution</th>
<th>Issue Date</th>
<th>Outstanding Principal Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric System Revenue Bond, 2017-M (the “2017-M Junior Lien Bond”)</td>
<td>No. 8855 adopted on September 12, 2017</td>
<td>September 19, 2017</td>
<td>$50,000,000</td>
</tr>
<tr>
<td>Electric System Revenue Refunding Bonds, Series 2017-N (Mandatory Put Bonds) (the 2017-N Bonds”)</td>
<td>No. 8862 adopted on November 24, 2017</td>
<td>November 29, 2017</td>
<td>$49,865,000</td>
</tr>
</tbody>
</table>

; and

WHEREAS, the 2017-M Junior Lien Bond is subject to prepayment prior to maturity (September 18, 2020), at the option of the District on the first business day of any month, at a price of par plus accrued interest to the date of prepayment; and

WHEREAS, the 2017-N Bonds are subject to redemption at the option of the District on any business day on or after September 1, 2020, at a price of par plus accrued interest to the date of redemption; and
WHEREAS, the District finds that the 2017-M Junior Lien Bond and the 2017-N Bonds (the “Refunding Candidates”) may be prepaid or refunded with proceeds of electric system revenue refunding bonds and available funds of the District; and

WHEREAS, the District has adopted a capital plan for the Electric System which includes certain additions, improvements and extensions to and the equipping of the Electric System as described therein (the “Projects”); and

WHEREAS, the Commission of the District (the “Commission”) deems it in the best interest of the District to issue one or more series of electric system revenue and refunding bonds in the aggregate principal amount of not to exceed $175,000,000 (the “Bonds”) to be used, with available funds of the District, to redeem all or a portion of the Refunding Candidates (as described herein, the “Refunded Bonds”), to pay and/or reimburse the District for costs of the Projects, and to pay costs of issuing each series of Bonds; and

WHEREAS, the Commission wishes to delegate authority to the General Manager, Chief Financial Officer, and Treasurer of the District (each, a “Designated Representative”) for a limited time, to select the Refunding Candidates to be refunded and to approve the initial interest rate mode, interest rates, maturity dates, redemption terms, principal maturities and other terms for each series of Bonds within the parameters set by this resolution; and

WHEREAS, the Bonds shall be sold by negotiated sale as set forth herein;

NOW, THEREFORE, BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington:

ARTICLE I
DEFINITIONS

Section 1.1 Definitions. As used in this resolution, the following terms shall have the following meanings:

“Adjusted SIFMA Rate” means the SIFMA Index plus the Index Floating Rate Spread.

“Alternate Credit Facility” means a letter of credit, insurance policy, line of credit, surety bond or other security issued as a replacement or substitute for any Credit Facility then in effect.

“Annual Debt Service” for any Fiscal Year means the sum of the amounts required to be paid into the Bond Fund, in such Fiscal Year, to pay:

(a) the interest due in such Fiscal Year on all outstanding Parity Bonds, excluding interest to be paid from the proceeds of the sale of Parity Bonds; and

(b) the principal of all outstanding Serial Bonds due in such Fiscal Year; and

(c) the Sinking Fund Requirement, if any, for such Fiscal Year; and

(d) any regularly scheduled District Payments, adjusted by any regularly scheduled Reciprocal Payments, during such Fiscal Year.
For purposes of computing Annual Debt Service on any Parity Bonds which constitute Balloon Indebtedness, it shall be assumed that the principal of such Balloon Indebtedness, together with interest thereon at the rate applicable to such Balloon Indebtedness, shall be amortized in equal annual installments over a term equal to the least of (1) 25 years or (2) the average weighted useful life (expressed in years and rounded to the next highest integer) of the properties and assets constituting the project (if any) financed out of the proceeds of such Balloon Indebtedness.

In calculating the Annual Debt Service, the District may exclude the direct payment the District is expected to receive in respect of any Future Parity Bonds for which the federal government will provide the District with a direct payment of a portion of the interest from the interest portion of Annual Debt Service.

“Authorized Denominations” means (a) with respect to any Fixed Rate Bonds and any Bonds bearing interest at the Term Interest Rate or Index Floating Rate, $5,000 or any integral multiple thereof within a series and maturity, and (b) with respect to any Bonds bearing interest in the Daily Interest Rate or Weekly Interest Rate, $100,000 or any integral multiple of $5,000 in excess of $100,000 within a series and maturity.

“Balloon Indebtedness” means any series or maturity of Parity Bonds that are specifically designated by the District as “Balloon Indebtedness.” The principal amount maturing on any date shall be the amount of bonds scheduled to be amortized by prepayment or redemption prior to their stated maturity date.

“Bank Bond” means a Bond that is purchased by the Registrar with amounts paid or provided by a Credit Provider under a Credit Facility.

“Bank Rate” means that rate of interest borne by a Bank Bond, as specified and/or determined in accordance with a Credit Facility.

“Beneficial Owner” means any person that has or shares the power, directly or indirectly to make investment decisions concerning ownership of any Bonds (including persons holding Bonds through nominees, depositories or other intermediaries).

“Bloomberg Page BBAM1” means the display designated on page “BBAM1” on the Bloomberg Service (or such other page as may replace the BBAM1 page on that service, any successor service or such other service or services as may be nominated by the Intercontinental Exchange (“ICE”) Benchmark Administration for the purpose of displaying London Interbank offered rates for U.S. dollar deposits.

“Bond Fund” means the Electric System Revenue Bond Fund created by Resolution No. 4744 of the District.

“Bond Purchase Contract” means for each series of Bonds, the contract for the purchase of such Bonds between the applicable Underwriter and the District.

“Bond Purchase Fund” means the fund established with the Registrar pursuant to this resolution.

“Bondowners’ Trustee” means a trustee appointed pursuant to this resolution.
“Bond Register” means the records kept by the Registrar on behalf of the District containing the name and mailing address of each owner of the Bonds or nominee of such owner, and such other information as the Registrar shall determine.

“Bonds” mean the Electric System revenue and refunding bonds authorized to be issued in one or more series pursuant to the terms of this resolution.

“Business Day” means any day other than a Saturday or Sunday that is (a) neither a legal holiday nor a day on which banking institutions are authorized or required by law or regulation to close in the City of New York, New York, or Ephrata, Washington, and (b) a London Business Day.

“Call Date” means the date or dates specified by a Designated Representative for the refunding of the Refunded Bonds.

“Closing Memorandum” means for each series of Bonds, the closing memorandum prepared by the Underwriter and delivered on the Issuance Date for such Bonds.

“Code” means the Internal Revenue Code of 1986, as amended, and shall include all applicable regulations and rulings relating thereto.

“Commission” means the general legislative authority of the District, as duly constituted from time to time.

“Construction Fund” has the meaning set forth in Section 6.1 of this resolution.

“Continuing Disclosure Certificate” means for each series of Bonds, a written undertaking for the benefit of the owners and Beneficial Owners of such Bonds as required by Section (b)(5) of the Rule.

“Conversion” means a conversion of a series of Variable Rate Bonds or a portion of a series of Variable Rate Bonds from one Interest Rate Period to another Interest Rate Period (including the establishment of a new Term Interest Rate or Index Floating Rate).

“Conversion Date” means the effective date of a Conversion of a series of Variable Rate Bonds or a portion of Variable Rate Bonds.

“Credit Facility” means any letter of credit, insurance policy, line of credit, surety bond or other security, if any, to be issued by the Credit Provider in connection with the Conversion of Variable Rate Bonds to a Weekly Interest Rate, a Daily Interest Rate, or other interest rate mode, that secures the payment when due of the principal and Purchase Price of and interest on the Variable Rate Bonds, including any Alternate Credit Facility, or any extensions, amendments or replacements thereof pursuant to its terms.

“Credit Facility Purchase Account” means each account with that name established within the Bond Purchase Fund pursuant to this resolution.

“Credit Provider” means any bank, insurance company, pension fund or other financial institution which provides a Credit Facility or Alternate Credit Facility for Variable Rate Bonds.
“Daily Interest Rate” means a variable interest rate for the Variable Rate Bonds established in accordance with this resolution.

“Daily Interest Rate Period” means each period during which a Daily Interest Rate is in effect.

“Delayed Remarketing Period” means the period during which some or all of the Variable Rate Bonds bearing interest at an Index Floating Rate or all of the Variable Rate Bonds bearing interest at a Term Interest Rate are not remarketed as set forth in this resolution.

“Derivative Facility” means a letter of credit, an insurance policy, a surety bond or other credit enhancement device, given, issued or posted as security for the District’s obligations under one or more Derivative Products.

“Derivative Payment Date” means any date specified in the Derivative Product on which a District Payment is due and payable under the Derivative Product.

“Derivative Product” means a written contract or agreement between the District and the Reciprocal Payor that has (or whose obligations are unconditionally guaranteed by a party that has) as of the date of the Derivative Product at least an investment grade rating from a rating agency, which provides that the District’s obligations thereunder will be conditioned on the performance by the Reciprocal Payor of its obligations under the agreement; and

(a) under which the District is obligated to pay, on one or more scheduled and specified Derivative Payment Dates, the District Payments in exchange for the Reciprocal Payor’s obligation to pay or to cause to be paid to the District, on scheduled and specified Derivative Payment Dates, the Reciprocal Payments;

(b) for which the District’s obligations to make District Payments may be secured by a pledge of and lien on the Gross Revenue on an equal and ratable basis with the outstanding Parity Bonds;

(c) under which Reciprocal Payments are to be made directly into the Bond Fund;

(d) for which the District Payments are either specified to be one or more fixed amounts or are determined as provided by the Derivative Product; and

(e) for which the Reciprocal Payments are either specified to be one or more fixed amounts or are determined as set forth in the Derivative Product.

“Designated Representative” means the General Manager, Chief Financial Officer, and Treasurer of the District, and any successor to the functions of such offices. The signature of one Designated Representative shall be sufficient to bind the District.

“District” means Public Utility District No. 2 of Grant County, Washington, a municipal corporation duly organized and existing under the laws of the State.
“District Payment” means any regularly scheduled payment designated as such by resolution and required to be made by or on behalf of the District under a Derivative Product and which is determined according to a formula set forth in the Derivative Product.

“DTC” means The Depository Trust Company, New York, New York, a limited purpose trust company organized under the laws of the State of New York, as depository for the Bonds pursuant to this resolution.

“Electric System” means the electric utility and telecommunications properties, rights and assets, real and personal, tangible and intangible, now owned and operated by the District and used or useful in the generation, transmission, distribution and sale of electric energy, telecommunication services, and the business incidental thereto, and all properties, rights and assets, real and personal, tangible and intangible, hereafter constructed or acquired by the District as additions, betterments, improvements or extensions to said electric utility and telecommunications properties, rights and assets, including, but not limited to, the contract interest of the District in the P.E.C. Headworks Powerplant Project and in the Quincy Chute Project, but shall not include the Priest Rapids Project or any additions thereto, or any other generating, conservation, transmission or distribution facilities which heretofore have been or hereafter may be acquired or constructed by the District as a utility system that is declared by the Commission, at the time of financing thereof, to be separate from the Electric System, the revenues of which may be pledged to the payment of bonds issued to purchase, construct or otherwise acquire or expand such separate utility system or are otherwise pledged to the payment of the bonds of another such separate utility system of the District other than the Electric System. The Electric System does not include any interest of the District in contracts for the sale to other parties of power and energy from the Priest Rapids Project, but does include the right of the District to receive power and energy from the Priest Rapids Project. The Commission may, by resolution, elect to combine with and include as a part of the Electric System any other separate utility system of the District, provided that full provision for the payment of any outstanding indebtedness of such separate system shall first be made in the manner set forth herein or such indebtedness shall be refunded with bonds issued in accordance with this resolution.

“Event or Events of Default” means those events described as Events of Default in this resolution.

“Favorable Opinion of Bond Counsel” means a written legal opinion of bond counsel and/or tax counsel to the District, as applicable, addressed to the District, the Registrar, the Credit Provider, if any, and the Remarketing Agent, if any, as applicable, to the effect that (a) such action is permitted under this resolution and (b) will not impair the exclusion of interest on the Tax-Exempt Bonds of such series from gross income for purposes of federal income taxation (subject to customary exceptions).

“Fiscal Year” means the Fiscal Year used by the District at any time. At the time of the adoption of this resolution, the Fiscal Year is the 12-month period beginning January 1 of each year.

“Fixed Rate Bonds” means, Parity Bonds, which may include one or more series of the Bonds, that bear interest at a fixed rate(s) of interest for the term of such bonds from the Issuance Date to the date of maturity or payment in full. Fixed Rate Bonds shall not be subject to Conversion to a different interest rate mode while such Bonds are outstanding.

“Future Parity Bonds” means any note, bonds or other obligations for borrowed money of the District issued after the date of issuance of the Bonds which will have a lien upon the Gross
Revenue of the Electric System for the payment of the principal thereof and interest thereon equal to the lien upon the Gross Revenue of the Electric System for the payment of the principal of and interest on the Bonds and the Outstanding Parity Bonds.

“Government Obligations” mean those obligations now or hereafter defined as such in chapter 39.53 RCW constituting direct obligations of the United States or obligations unconditionally guaranteed by the United States, as such chapter may be hereafter amended or restated.

“Gross Revenue” means all income and revenues received by the District from the sale of electric energy through the ownership or operation of the Electric System and all other commodities, services and facilities sold, furnished or supplied by the District through the ownership or operation of the Electric System, together with the proceeds received by the District directly or indirectly from the sale, lease or other disposition of any of the properties, rights or facilities of the Electric System, and together with the investment income earned on money held in any fund or account of the District, including any bond redemption funds and the accounts therein, and federal credit payments for interest on bonds, in connection with the ownership and operation of the Electric System (but exclusive of income derived from investments irrevocably pledged to the payment of any specific revenue bonds of the District, such as bonds heretofore or hereafter refunded, or any Bonds defeased pursuant to this resolution or other bonds defeased, or the payment of which is provided for, under any similar provision of any other bond resolution of the District, exclusive of investment income earned on money in any arbitrage rebate account, grants for capital purposes, assessments in any local utility district, any Reciprocal Payments and any ad valorem tax revenues).

“Index” means any of (a) One Month LIBOR, (b) Three Month LIBOR, (c) the SIFMA Index, or (d) any other index chosen by the District.

“Index Floating Rate” means a variable interest rate for a series of Variable Rate Bonds established in accordance with this resolution.

“Index Floating Rate Percentage” means the percentage of One Month LIBOR or Three Month LIBOR determined by a Designated Representative pursuant to this resolution.

“Index Floating Rate Period” means each period during which an Index Floating Rate is in effect for a series of Variable Rate Bonds.

“Index Floating Rate Spread” means, for any Bonds issued hereunder as Variable Rate Bonds initially bearing interest at the Index Floating Rate, initially the amount specified in the Bond Purchase Contract, and with respect to any Conversion to an Index Floating Rate Period, the spread determined by the Remarketing Agent on or prior to the Conversion Date pursuant to this resolution.

“Initial Index Floating Rate Period” means, if any, the period commencing on the Issuance Date and ending on the first Purchase Date.

“Initial Term Interest Rate” means, if any, the initial fixed rate(s) of interest for any series of Variable Rate Bonds issued hereunder initially bearing interest at a Term Interest Rate.

“Initial Term Interest Rate Period” means, if any, the period commencing on the Issuance Date and ending on the first Purchase Date or at the end of a Delayed Remarketing Period, if applicable.
“Interest Accrual Date” with respect to any Bonds of a series issued as Variable Rate Bonds means:

(a) for any Weekly Interest Rate Period, the first day thereof and, thereafter, the first Wednesday of each calendar month during such Weekly Interest Rate Period;

(b) for any Daily Interest Rate Period, the first day thereof and, thereafter, the first day of each calendar month during such Daily Interest Rate Period;

(c) for each Term Interest Rate Period, the first day thereof and, thereafter, each January 1 and July 1 during that Term Interest Rate Period; and

(d) for each Index Floating Rate Period, the first day thereof and, thereafter, the first Business Day of each calendar month during such Index Floating Rate Period.

“Interest Determination Date” means:

(a) for any Initial Index Floating Rate Period and any Index Floating Rate Period during which the Index is the SIFMA Index, the first day of such Index Floating Rate Period and, thereafter, each Wednesday during such Index Floating Rate Period or, if any such Wednesday is not a Business Day, the succeeding Business Day;

(b) for any Index Floating Rate Period during which the Index is One Month LIBOR or Three Month LIBOR, the second London Business Day preceding the first day of such Index Floating Rate Period and, thereafter, each Interest Reset Date during such Index Floating Rate Period; and

(c) for any Index Floating Rate Period during which a different Index is selected by the District, the date selected by a Designated Representative and, thereafter, each Interest Reset Date during such Index Floating Rate Period.

“Interest Payment Date” means:

(a) for any Variable Rate Bonds issued hereunder, interest accrued in:

(1) any Weekly Interest Rate Period, the first Wednesday of each calendar month, or, if the first Wednesday is not a Business Day, the next succeeding Business Day;

(2) any Daily Interest Rate Period, the fifth Business Day of the next succeeding calendar month;

(3) any Term Interest Rate Period, each January 1 and July 1, or if any January 1 or July 1 is not a Business Day, the next succeeding Business Day;

(4) any Index Floating Rate Period, the first Business Day of each month; and

(5) each Interest Rate Period, without duplication, the first Business Day succeeding the last day thereof; and

(b) for any Fixed Rate Bonds issued hereunder, each January 1 and July 1, or if any January 1 or July 1 is not a Business Day, the next succeeding Business Day.
“Interest Rate Period” means, for any Bonds of a series issued as Variable Rate Bonds, each Daily Interest Rate Period, Weekly Interest Rate Period, Term Interest Rate Period or Index Floating Rate Period.

“Interest Reset Date” with respect to any Bonds of a series issued as Variable Rate Bonds means:

(a) for each Index Floating Rate Period during which the Index is One Month LIBOR or Three Month LIBOR, the first Business Day of each month during such Index Floating Rate Period;

(b) for each Index Floating Rate Period during which the Index is the SIFMA Index, each Thursday during such Index Floating Rate Period; and

(c) for each Index Floating Rate Period during which an Index other than as set forth in (a) or (b) is selected, the date selected by the Designated Representative during such Index Floating Rate Period.

“Issuance Date” means the date the Bonds of a series are initially delivered to the applicable Underwriter.

“Junior Lien Bonds” means, as of the date of this resolution, the 2017-M Junior Lien Bond and the 2019-P Junior Lien Bond, and shall include any debt issued on a parity of lien on Gross Revenue of the Electric System with such bonds.

“Letter of Representation” means a blanket issuer letter of representations from the District to DTC, as amended from time to time.

“London Business Day” means a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealings in foreign exchange and foreign currency deposits) in London.

“Maximum Interest Rate” means, (a) with respect to any Bonds of a series issued as Variable Rate Bonds, 12% per annum, calculated in the same manner as interest is calculated for the interest rate on such Bonds then in effect, and (b) with respect to any particular Variable Rate Bond other than the Bonds issued hereunder, a numerical rate of interest, which shall be set forth in any Parity Bond resolution authorizing such bond, that shall be the maximum rate of interest such bond, including any bond registered in the name of the liquidity provider, may at any time bear.

“Minimum Interest Rate” means, (a) with respect to any Bonds of a series issued as Variable Rate Bonds, 0% per annum, and (b) with respect to any particular Variable Rate Bond other than the Bonds issued hereunder, a numerical rate of interest, which shall be set forth in any Parity Bond resolution authorizing such bond, that shall be the minimum rate of interest such bond may at any time bear.

“MSRB” means the Municipal Securities Rulemaking Board or any successors to its functions.

“Net Revenue” means, for any period, the excess of Gross Revenue over Operating Expenses for such period, excluding from the computation of Gross Revenue (a) any profit or loss derived from the sale or other disposition, not in the ordinary course of business, of properties, rights or facilities of
the Electric System, or resulting from the early extinguishment of debt and (b) insurance proceeds other than proceeds to replace lost revenue.

“Official Statement” means for each series of Bonds, the one or more final official statement(s) delivered in connection with the sale of such Bonds.

“One Month LIBOR” means, on each Interest Determination Date, (a) the rate determined by the ICE Benchmark Administration ("ICE LIBOR") for deposits in U.S. dollars for a one-month maturity which appears on Bloomberg Page BBAM1 as of 11:00 a.m., London time, on such Interest Determination Date, or, from and after such date as ICE LIBOR is no longer calculated and published, the Registrar shall use instead a substitute index that the Registrar, after consultation with the Remarketing Agent, if any, and the District determines most closely approximates ICE LIBOR, and such substitute index shall remain in effect until the end of the applicable Index Floating Rate Period (or until such substitute Index is no longer calculated and published); or (b) if a rate is not available on such Interest Determination Date from the selected index, One Month LIBOR shall mean a rate determined on the basis of the rates at which deposits in U.S. dollars for a one-month maturity and in a principal amount of at least U.S. $1,000,000 are offered at approximately 11:00 a.m., London time, on such Interest Determination Date, to prime banks in the London interbank market by three Reference Banks. The Registrar shall request the principal London office of each of such Reference Banks to provide a quotation of its rate. If at least two such quotations are provided, One Month LIBOR will be the arithmetic mean of such quotations. If fewer than two quotations are provided, One Month LIBOR will be the arithmetic mean of the rates quoted by three (if three quotations are not provided, two or one, as applicable) major banks in New York City, selected by the District, at approximately 11:00 a.m. on the Interest Determination Date for loans in U.S. dollars to leading European banks in a principal amount of at least U.S. $1,000,000 having a one-month maturity. If none of the banks in New York City selected by the District is then quoting rates for such loans, then One Month LIBOR will mean One Month LIBOR as determined for the preceding Interest Determination Date.

“Operating Expenses” means the District’s expenses for operation and maintenance of the Electric System and shall include ordinary repairs, renewals, replacements and reconstruction of the Electric System, all costs of delivering electric power and energy and payments into reasonable reserves in the Revenue Fund for items of Operating Expenses the payment of which is not immediately required, and shall include, without limiting the generality of the foregoing, costs of purchased power (including costs of power and energy required by any resolution or contract of the District to be taken by the District from the Priest Rapids Project for the account of the Electric System); costs of transmission and distribution operation and maintenance expenses; rents; administrative and general expenses; engineering expenses; legal and financial advisory expenses; required payments to pension, retirement, health and hospitalization funds; insurance premiums; and any taxes, assessments, payments in lieu of taxes or other lawful governmental charges, all to the extent properly allocable to the Electric System; and the fees and expenses of the Registrar. Operating Expenses shall not include any costs or expenses for new construction, interest, amortization, any allowance for depreciation and District Payments.

“Outstanding Parity Bond Resolutions” mean the resolutions authorizing the Outstanding Parity Bonds, as applicable.

“Outstanding Parity Bonds” mean, as of the date of this resolution, the outstanding 2017-N Bonds, the 2017-O Bonds, and the 2020-Q Bonds.
“Par Call Date” for any Variable Rate Bonds issued hereunder:

(a) during any Initial Index Floating Rate Period or Initial Term Interest Rate Period and subsequent Term Interest Rate Periods, the first Business Day on which the Bonds are subject to call for optional redemption at a price of 100% of the principal amount thereof plus interest accrued to the date fixed for redemption, if and as set forth in the applicable Bond Purchase Contract;

(b) during any other Index Floating Rate Period that is two years or longer in duration, the first Business Day that is on or after the date that is six months prior to the end of such Index Floating Rate Period or the date established by a Designated Representative with a Favorable Opinion of Bond Counsel; and

(c) during any other Index Floating Rate Period, the first Business Day after the end of such Index Floating Rate Period.

“Parity Bond Reserve Funds” mean the reserve funds and/or accounts created by the District to secure the payment of principal of and interest on one or more series of Parity Bonds.

“Parity Bonds” mean the Outstanding Parity Bonds, the Bonds and any Future Parity Bonds.

“Parity Lien Obligations” means all charges and obligations against Gross Revenue ranking on a parity of lien with the Parity Bonds, including but not limited to reimbursement agreement obligations so designated, any regularly scheduled District Payments, adjusted by any regularly scheduled Reciprocal Payments, and Resource Obligations for any month such Obligations are not eligible for payment as Operating Expenses. Parity Lien Obligations do not include Parity Bonds.

“Permitted Investments” mean any investments or investment agreements permitted under the laws of the State as amended from time to time.

“Preliminary Official Statement” means for each series of Bonds, the one or more preliminary official statements prepared and delivered in connection with the negotiated sale, issuance and delivery of such Bonds.

“Priest Rapids Development” means the utility system of the District acquired and constructed pursuant to the provisions of Resolution No. 313, adopted by the Commission on June 19, 1956, including a dam at the Priest Rapids Development, all generating and transmission facilities associated therewith, and all additions, betterments and improvements to and extensions of such system, but shall not include any additional generation, transmission and distribution facilities hereafter constructed or acquired by the District as a part of the Electric System, or any other utility properties of the District acquired as a separate utility system, the revenues of which may be pledged to the payment of bonds issued to purchase, construct or otherwise acquire such separate utility system.

“Priest Rapids Project” means the Priest Rapids Development and the Wanapum Development, which were consolidated pursuant to Resolution No. 8475.

“Professional Utility Consultant” means the independent person(s) or firm(s) selected by the District having a favorable reputation for skill and experience with electric systems of comparable size and character to the Electric System in such of the following as are relevant to the purposes for which they are retained: (a) engineering and operations and (b) the design of rates.
“Projects” mean additions, improvements and extensions to and the equipping of the Electric System as set forth in the capital plan for the Electric System, as supplemented and amended.

“Purchase Date” means each date on which Bonds issued as Variable Rate Bonds are required to be purchased pursuant to this resolution.

“Purchase Price” means the purchase price to be paid to the Registered Owners of Bonds issued as Variable Rate Bonds and purchased pursuant to this resolution, which shall be equal to the principal amount thereof tendered for purchase, without premium, plus accrued interest from the immediately preceding Interest Accrual Date to the Purchase Date (if the Purchase Date is not an Interest Payment Date); provided, however, that in the case of a proposed Conversion from a Term Interest Rate Period on a date on which the Variable Rate Bonds being converted would otherwise be subject to optional redemption pursuant to this resolution if such Conversion did not occur, the Purchase Price shall also include the optional redemption premium, if any, provided for such date under this resolution.

“Qualified Insurance” means any noncancelable municipal bond insurance policy or surety bond issued by any insurance company licensed to conduct an insurance business in any state of the United States (or by a service corporation acting on behalf of one or more such insurance companies), which insurance company or companies, as of the time of issuance of such policy or surety bond, are rated in one of the two highest rating categories by Moody’s Investors Service or S&P Global Ratings or their comparably recognized business successors.

“Qualified Letter of Credit” means any irrevocable letter of credit issued by a financial institution for the account of the District on behalf of the owners of any Parity Bonds, which institution maintains an office, agency or branch in the United States and as of the time of issuance of such letter of credit, is rated in one of the two highest rating categories by Moody’s Investors Service or S&P Global Ratings or their comparably recognized business successors.

“R&C Fund” means the Reserve and Contingency Fund of the District created by Resolution No. 4112.

“Rate Stabilization Account” means the account within the R&C Fund.

“Rebate Amount” means the amount, if any, determined to be payable with respect to the Tax-Exempt Bonds by the District to the United States of America in accordance with Section 148(f) of the Code.

“Reciprocal Payment” means any payment, designated as such by resolution, to be made to, or for the benefit of, the District under a Derivative Product by the Reciprocal Payor.

“Reciprocal Payor” means a party to a Derivative Product that is obligated to make one or more Reciprocal Payments thereunder.

“Record Date” means (a) with respect to any Interest Payment Date in a Daily Interest Rate Period, the last Business Day of each calendar month or, in the case of the last Interest Payment Date in a Daily Interest Rate Period, the Business Day immediately preceding such Interest Payment Date, (b) with respect to any Interest Payment Date for Fixed Rate Bonds or during in any Index Floating Rate Period or any Term Interest Rate Period, the 15th day immediately preceding that Interest
Payment Date, and (c) with respect to any Interest Payment Date in any Weekly Interest Rate Period, the Business Day preceding the Interest Payment Date.

“Redemption Price” means, when used with respect to any Bonds issued as Variable Rate Bonds hereunder, the principal amount thereof plus the applicable premium, if any, plus accrued interest, if any, payable upon redemption thereof pursuant to this resolution.

“Reference Bank” means any of the four largest U.S. Banks with an office in London, based upon consolidated total asset size, as listed by the Federal Reserve in its most current statistical release on its website with respect thereto.

“Refunded Bonds” mean those Refunding Candidates designated by a Designated Representative for refunding pursuant to this resolution.

“Refunding Agent” means the escrow agent or paying agent, if any, selected by a Designated Representative to perform the duties described herein and under the applicable Refunding Agreement.

“Refunding Agreement” means the agreement, if any, between the District and the Refunding Agent and executed pursuant to this resolution to facilitate the refunding of the Refunded Bonds.

“Refunding Candidates” mean the 2017-M Junior Lien Bond and the 2017-N Bonds.

“Registered Owner” means the person named as the registered owner of a Bond in the Bond Register. For so long as the Bonds are held in book-entry only form, DTC (or its nominee) shall be deemed to be the sole Registered Owner.

“Registrar” means the registrar, authenticating agent, paying agent, calculation agent and transfer agent appointed pursuant to this resolution, its successor or successors and any other entity which may at any time be substituted in its place pursuant to this resolution.

“Reimbursement Agreement” means any agreement between the District and a Credit Provider, pursuant to which a Credit Facility is issued by the Credit Provider, as the same may be amended or supplemented.

“Remarketing Account” means each account with that name established within the Bond Purchase Fund pursuant to this resolution.

“Remarketing Agent” means each remarketing firm qualified under the terms of this resolution to act as Remarketing Agent for the Bonds and appointed by a Designated Representative.

“Remarketing Agreement” means any Remarketing Agreement between the District and the Remarketing Agent whereby the Remarketing Agent undertakes to perform the duties of the Remarketing Agent under this resolution.

“Reserve Fund Requirement” means the amount, if any, determined by a Designated Representative, which shall not to exceed an amount equal to the least of (A) 125% of average Annual Debt Service, (B) maximum Annual Debt Service or (C) 10% of the initial principal amount of the Bonds.
“Resource Obligation” means an obligation of the District to pay the following costs associated with a resource from Gross Revenue as:

(a) Operating Expenses for any month in which any power and energy or other goods and services from such resource were made available to the Electric System during such month (regardless of whether or not the Electric System actually scheduled or received energy from such resource during such month) and

(b) at all other times as an indebtedness of the Electric System payable from Gross Revenue on a parity of lien with Parity Bonds and any Parity Lien Obligation:

(i) costs associated with facilities or resources for the generation of power and energy or for the conservation, transformation, transmission or distribution of power and energy (including any common undivided interest therein) hereafter acquired, purchased or constructed by the District and declared by the Commission to be a separate system, which such costs shall include but are not limited to costs of normal operation and maintenance, renewals and replacements, additions and betterments and debt service on the bonds or other obligations of such separate system but shall exclude costs paid or to be paid from the proceeds of the sale of bonds or other obligations of such separate system, or

(ii) costs associated with the purchase of energy, capacity, capability, reserves, conservation or services under a contract.

“Revenue Fund” means the revenue fund of the District created by Section 6 of Resolution No. 75 of the District.

“Rule” means Rule 15c2-12 of the SEC promulgated under the Securities and Exchange Act of 1934, as the same may be amended from time to time.

“SEC” means the Securities and Exchange Commission.

“Serial Bonds” mean Parity Bonds other than Term Bonds.


“SIFMA Index” means the seven-day high grade market index of tax-exempt variable rate demand obligations produced by Municipal Market Data and published or made available by SIFMA or any person acting in cooperation with or under the sponsorship of SIFMA. If such index is no longer published or otherwise not available, the SIFMA Rate for any day will mean the level of the “S&P Weekly High Grade Index” (formerly the J.J. Kenny Index) maintained by Standard & Poor’s Securities Evaluations Inc. for a 7-day maturity as published on the Interest Reset Date or most recently published prior to the Interest Reset Date. If at any time neither such index is available, the Registrar shall use instead an index that the Registrar, after consultation with the Remarketing Agent, if any, and the District, determines most closely approximates the SIFMA Index.

“SIFMA Rate” means for any day the level of the most recently effective index rate which is compiled from the weekly interest rate resets of tax-exempt variable rate issues included in a database maintained by Municipal Market Data which meet specific criteria established from time to time by SIFMA and is issued on Wednesday of each week, or if any Wednesday is not a Business Day, the next succeeding Business Day.
“Sinking Fund Requirement” means, for any Fiscal Year, the principal amount and premium, if any, of Term Bonds required to be purchased, redeemed or paid at maturity in such Fiscal Year as established by the resolution of the District authorizing the issuance of such Term Bonds.

“State” means the state of Washington.

“Stepped Interest Rate” means, for the period beginning on the applicable Purchase Date, a per annum interest rate or rates set forth in the applicable Bond Purchase Contract.

“Supplemental Resolution” means any resolution amending, modifying or supplementing the provisions of this resolution.

“Tax Certificate” means the tax certificate executed by a Designated Representative pertaining to the Tax-Exempt Bonds, as supplemented and amended.

“Taxable Bonds” means any Bonds determined to be issued on a taxable basis pursuant to this resolution.

“Tax-Exempt Bonds” means any Bonds determined to be issued on a tax-exempt basis under the Code pursuant to this resolution.

“Term Bonds” means Parity Bonds of any principal maturity which are subject to mandatory distribution or redemption or for which mandatory sinking fund payments are required.

“Term Interest Rate” means a term, non-variable interest rate established in accordance with this resolution.

“Term Interest Rate Period” means each period during which a Term Interest Rate is in effect.

“Three Month LIBOR” means, on each Interest Determination Date, (a) the rate determined by the ICE Benchmark Administration (“ICE LIBOR”) for deposits in U.S. dollars with a three-month maturity as published by Reuters (or such other service as may be nominated by the ICE Benchmark Administration, for the purpose of displaying London interbank offered rates for U.S. dollar deposits) as of 11:00 a.m., London time, on the Interest Determination Date, or, from and after such date as ICE LIBOR is no longer calculated and published, the Registrar shall use instead a substitute index that the Registrar, after consultation with the Remarketing Agent, if any, and the District determines most closely approximates ICE LIBOR and such substitute index shall remain in effect until the end of the applicable Index Floating Rate Period (or until such substitute Index is no longer calculated and published); or (b) except that, if a rate is not available on the Interest Determination Date from the selected index, Three Month LIBOR shall mean a rate determined on the basis of the rates at which deposits in U.S. dollars for a three-month maturity and in a principal amount of at least U.S. $1,000,000 are offered at approximately 11:00 a.m., London time, on the Interest Determination Date, to prime banks in the London interbank market by three Reference Banks. The Registrar shall request the principal London office of each of such Reference Banks to provide a quotation of its rate. If at least two such quotations are provided, Three Month LIBOR will be the arithmetic mean of such quotations. If fewer than two quotations are provided, Three Month LIBOR will be the arithmetic mean of the rates quoted by three (if three quotations are not provided, two or one, as applicable) major banks in New York City, selected by the District, at approximately 11:00 a.m., on the Interest Determination
Date for loans in U.S. dollars to leading European banks in a principal amount of at least U.S. $1,000,000 having a three month maturity. If none of the banks in New York City selected by the District is then quoting rates for such loans, then Three Month LIBOR will mean Three Month LIBOR as determined for the immediately preceding Interest Determination Date.

“Treasurer” means the duly appointed and acting Treasurer of the District or any successor in function.

“Undelivered Bond” means any Bond which constitutes an Undelivered Bond under the provisions of this resolution.

“Underwriter” means the underwriter or underwriters for a series of Bonds as selected by a Designated Representative pursuant to this resolution.

“Variable Rate” means a variable interest rate or rates to be borne by a series of Parity Bonds or any one or more maturities within a series of Parity Bonds. The method of computing such variable interest rate shall be specified in the resolution authorizing such series of Parity Bonds; provided that such variable interest rate shall be subject to a Maximum Interest Rate and may be subject to a Minimum Interest Rate and that there may be an initial rate specified, in each case as provided in such resolution. Such resolution shall also specify either (i) the particular period or periods of time or manner of determining such period or periods of time for which each value of such variable interest rate shall remain in effect or (ii) the time or times upon which any change in such variable interest rate shall become effective.

“Variable Rate Bonds” means, for any period of time, Parity Bonds, which may include one or more series of the Bonds, that during such period bear interest at a Variable Rate, provided that Parity Bonds the interest rate on which shall have been fixed for the remainder of the term to the maturity thereof shall no longer be Variable Rate Bonds.

“Weekly Interest Rate” means a variable interest rate for the Bonds established in accordance with this resolution.

“Weekly Interest Rate Period” means each period during which a Weekly Interest Rate is in effect for a series of Bonds.

“Wanapum Development” means the second stage of the Priest Rapids Hydroelectric Project (F.P.C. (or FERC) Project No. 2114), as more fully described in Section 2.2 of Resolution No. 474 adopted by the Commission on June 30, 1959, or as the same may be modified in accordance with Section 2.3 of Resolution No. 474, but shall not include any generation, transmission and distribution facilities hereafter constructed or acquired by the District as a part of the Electric System, or any other utility properties of the District acquired as a separate utility system, the revenues of which may be pledged to the payment of bonds issued to purchase, construct or otherwise acquire such separate utility system.


“2017-N Bonds” means the Electric System Revenue Refunding Bonds, Series 2017-N (Mandatory Put Bonds) authorized by Resolution No. 8862.
“2017-N Reserve Fund” means the debt service reserve account, which secures the payment of the principal of and interest on the 2017-N Bonds and may, at the District’s option, secure the payment of the principal of and interest on one or more series of Future Parity Bonds.

“2017-O Bonds” means the Electric System Revenue and Refunding Bonds, Series 2017-0 authorized by Resolution No. 8866.

“2017-O Reserve Fund” means the debt service reserve account, which secures the payment of the principal of and interest on the 2017-O Bonds and may, at the District’s option, secure the payment of the principal of and interest on one or more series of Future Parity Bonds.


“2020-Q Bonds” means the Electric System Revenue Refunding Bonds, Series 2020-Q (Taxable) authorized by Resolution No. 8933.

“2020-Q Reserve Fund” means the debt service reserve account, which secures the payment of the principal of and interest on the 2020-Q Bonds and may, at the District’s option, secure the payment of the principal of and interest on one or more series of Future Parity Bonds.

Rules of Interpretation. In this resolution, unless the context otherwise requires:

(a) The terms “hereby,” “hereof,” “hereto,” “herein,” “hereunder” and any similar terms, as used in this resolution, refer to this resolution as a whole and not to any particular article, section, subdivision or clause hereof, and the term “hereafter” shall mean after, and the term “heretofore” shall mean before, the date of this resolution;

(b) Words of any gender shall mean and include correlative words of any other genders and words importing the singular number shall mean and include the plural number and vice versa;

(c) Words importing persons shall include firms, associations, partnerships (including limited partnerships), trusts, corporations and other legal entities, including public bodies, as well as natural persons;

(d) Any headings preceding the text of the several articles and Sections of this resolution, and any table of contents or marginal notes appended to copies hereof, shall be solely for convenience of reference and shall not constitute a part of this resolution, nor shall they affect its meaning, construction or effect;

(e) All references herein to “articles,” “sections” and other subdivisions or clauses are to the corresponding articles, sections, subdivisions or clauses hereof; and

(f) Words importing the singular number include the plural number and vice versa.
ARTICLE II
FINDINGS

Section 2.1 Compliance with Parity Conditions. In accordance with the Outstanding Parity Bond Resolutions, which permit the issuance of Future Parity Bonds upon compliance with the conditions set forth therein, the District hereby finds and determines, as follows:

(a) The Bonds are being issued for the purpose of providing funds to acquire, construct and install additions and improvements to and extensions of, acquire necessary equipment for, or make necessary renewals, replacements or repairs and capital improvements to the Electric System, and to refund certain outstanding obligations of the Electric System;

(b) There is not now and there will not be, at the time of the issuance of a series of Bonds, any deficiency in the Bond Fund or in any of the accounts therein, and no Event of Default has occurred and is continuing;

(c) This resolution contains the covenants and representations required by the Outstanding Parity Bond Resolutions; and

(d) Prior to the delivery of a series of Bonds, the District shall have on file a certificate meeting the requirements of the Outstanding Parity Bond Resolutions.

As set forth above, the applicable parity conditions required by the Outstanding Parity Bond Resolutions have been or will be satisfied, and the Bonds shall be issued on a parity of lien with the Outstanding Parity Bonds. The District hereby covenants and agrees that the Bonds will not be issued and delivered to the purchasers thereof as bonds on a parity with the Outstanding Parity Bonds until the certificate required herein, in form and contents satisfactory to the District and its counsel, has been filed with the District.

Section 2.2 Best Interests of the District. The Commission hereby finds and determines that it is in the best interests of the District and its customers that the District issue the Bonds authorized herein for the purpose of refunding the Refunded Bonds and financing and/or reimbursing the District for costs of the Projects. The Commission hereby specifies and adopts the Projects as a plan and a system for additions and betterments to the Electric System.

Section 2.3 Gross Revenue Sufficient. The Commission hereby finds and determines that the Gross Revenue will be sufficient in the judgment of the Commission to meet all Operating Expenses, to make all payments required to pay the Bonds, to make all necessary repairs, replacements and renewals thereof, and to permit the setting aside out of such Gross Revenue and money in the Revenue Fund into the Bond Fund of such amounts as may be required to pay the principal of and interest on the Bonds and the Outstanding Parity Bonds as the same become due and payable.

Section 2.4 Due Regard. The Commission hereby finds and determines that due regard has been given to the Operating Expenses of the Electric System and that it has not obligated the District to set aside into the Bond Fund for the account of the Parity Bonds a greater amount of the revenues and proceeds of the Electric System than in its judgment will be available over and above such Operating Expenses.
ARTICLE III
AUTHORIZATION, ISSUANCE AND REDEMPTION OF BONDS

Section 3.1 Authorization of Issuance of the Bonds. For the purposes of refunding the Refunded Bonds, financing and/or reimbursing the District for costs of the Projects, funding a Parity Bond Reserve Fund, if necessary, and paying costs of issuance of the Bonds, the District is hereby authorized to issue and sell one or more series of Electric System revenue and refunding bonds in the aggregate principal amount of not to exceed $175,000,000 (the “Bonds”). The Bonds authorized herein shall be issued from time to time or at any one time subject to the terms and conditions set forth herein, including the sale terms contained in Section 11.1.

Each series of Bonds issued under this resolution shall be designated as the “Electric System Revenue and Refunding Bonds, Series 2020,” with additional series, tax status, interest rate mode or other appropriate designation as set forth in the applicable Bond Purchase Contract and approved by a Designated Representative.

The Bonds of each series shall be dated as of their respective Issuance Date, shall be fully registered as to both principal and interest in Authorized Denominations, and shall be numbered separately in the manner and with any additional designation as the Registrar deems necessary for purposes of identification and control. Each series of Bonds shall be issued as either Fixed Rate Bonds or Variable Rate Bonds as determined by a Designated Representative and set forth in the applicable Bond Purchase Contract. If Bonds of a series are issued as Fixed Rate Bonds, the fixed rates of interest for each maturity shall be as set forth in the applicable Bond Purchase Contract. If Bonds of a series are issued as Variable Rate Bonds, the initial interest rate mode, Interest Rate Period and other interest rate provisions shall be as set forth in the applicable Bond Purchase Contract, and the interest rate shall be subject to adjustment and determined as provided in Section 3.2 below. Interest on each series of Bonds shall be payable on each Interest Payment Date and principal and interest shall be payable on the dates and as provided herein and in the applicable Bond Purchase Contract.

The Bonds shall be special obligations of the District payable only from the Bond Fund and shall be payable and secured as provided herein. The Bonds shall not be general obligations of the District, the State or any political subdivision thereof.

Section 3.2 Interest Rate on Variable Rate Bonds; Conversion Provisions.

(a) General. The interest rate and Interest Rate Period for any series of Bonds issued under this resolution as Variable Rate Bonds may be adjusted as set forth in this Section 3.2. All Variable Rate Bonds of a series issued hereunder initially shall bear the same interest rate for the same Interest Rate Period. The initial interest rate mode, Interest Rate Period and other interest rate provisions for any series of Variable Rate Bonds shall be determined by a Designated Representative and set forth in the applicable Bond Purchase Contract.

At any given time, any Variable Rate Bonds issued hereunder or any portion of such Variable Rate Bonds may bear interest at a Daily Interest Rate, a Weekly Interest Rate, a Term Interest Rate or at an Index Floating Rate. If portions of the Variable Rate Bonds of a series issued hereunder bear interest at different rates, references to Variable Rate Bonds in a particular rate shall mean those Variable Rate Bonds of such series bearing interest at the applicable interest rate mode. The Interest Rate Period for any Variable Rate Bonds of a series issued hereunder may not be adjusted as set forth in this Section 3.2 prior to a Purchase Date.
(b) **Payment of Interest.** Interest on any Variable Rate Bonds shall be paid on each Interest Payment Date, on any redemption date, on any Purchase Date and on the maturity date.

(c) **Interest Accrual and Payment.** Interest on Variable Rate Bonds issued hereunder during a Daily Interest Rate Period, a Weekly Interest Rate Period or an Index Floating Rate Period during which the Index is the SIFMA Index shall accrue on the basis of the actual number of days elapsed in a 365-day year (or a 366-day year in a leap year). Interest on the Variable Rate Bonds during a Term Interest Rate Period shall accrue on the basis of a 360-day year composed of twelve 30-day months. Interest on the Variable Rate Bonds during an Index Floating Rate Period during which the Index is One Month LIBOR or Three Month LIBOR shall accrue on the basis of the actual number of days elapsed in a 360-day year.

Each Variable Rate Bond shall bear interest from and including the Interest Accrual Date preceding the date of authentication thereof or, if such date of authentication is an Interest Accrual Date to which interest on such Variable Rate Bond has been paid in full or duly provided for, from such date of authentication. However, if, as shown by the records of the Registrar, interest on such Variable Rate Bonds is in default, Bonds issued in exchange for Bonds surrendered for registration or transfer or exchange shall bear interest from the date to which interest on such surrendered Bonds had been paid or duly provided for or, if no interest has been paid on such surrendered Bonds, from the date of authentication of such surrendered Bonds.

During each Daily Interest Rate Period, interest on such Variable Rate Bonds shall be payable on each Interest Payment Date for the period commencing on the Interest Accrual Date preceding the prior Interest Payment Date and ending on the last day of the month in which such Interest Accrual Date occurs.

During each Weekly Interest Rate Period, interest on such Variable Rate Bonds shall be payable on each Interest Payment Date for the period commencing on the preceding Interest Accrual Date (or, if any such Interest Payment Date is not a Wednesday, commencing on the second preceding Interest Accrual Date) and ending on and including the Tuesday preceding such Interest Payment Date (or, if sooner, the last day of such Weekly Interest Rate Period).

During each Index Floating Rate Period, interest on such Variable Rate Bonds shall be payable on each Interest Payment Date for the period commencing on the Interest Accrual Date of the preceding month, and ending on the day preceding such Interest Payment Date.

During each Term Interest Rate Period, interest on such Variable Rate Bonds shall be payable on each Interest Payment Date for the period commencing on the Interest Accrual Date that occurs at the beginning of the immediately preceding six-month period and ending on the day preceding the Interest Accrual Date that occurs at the end of such six-month period.

In any event, interest on such Variable Rate Bonds shall be payable for the final Interest Rate Period to the date on which such Bonds have been paid in full.

(d) **Weekly Interest Rate and Weekly Interest Rate Period.**

   (1) **Determination of Weekly Interest Rate.** During each Weekly Interest Rate Period, the Variable Rate Bonds of a series shall bear interest at the Weekly Interest Rate, which shall be determined by the Remarketing Agent by 5:00 p.m., New York time, on Tuesday of each week, or
if such day is not a Business Day, then on the succeeding Business Day. The first Weekly Interest Rate for each Weekly Interest Rate Period shall be determined on or prior to the first day of such Weekly Interest Rate Period and shall be in effect for the period commencing on and including the first day of such Weekly Interest Rate Period and ending on and including the succeeding Tuesday. Thereafter, each Weekly Interest Rate shall be in effect for the period commencing on and including Wednesday and ending on and including the succeeding Tuesday, unless such Weekly Interest Rate Period ends on a day other than Tuesday, in which event the last Weekly Interest Rate for such Weekly Interest Rate Period shall be in effect for the period commencing on and including the Wednesday preceding the last day of such Weekly Interest Rate Period and ending on and including the last day of such Weekly Interest Rate Period.

Each Weekly Interest Rate shall be the rate of interest determined by the Remarketing Agent (based on an examination of obligations comparable, in the judgment of the Remarketing Agent, to the Variable Rate Bonds and known by the Remarketing Agent to have been priced or traded under then-prevailing market conditions) to be the minimum interest rate which, if borne by such Variable Rate Bonds, would enable the Remarketing Agent to sell all of such Variable Rate Bonds on such Business Day at a price (without regard to accrued interest) equal to the principal amount thereof.

If the Remarketing Agent fails to establish any Weekly Interest Rate, then the Weekly Interest Rate shall be the same as the preceding Weekly Interest Rate if such Weekly Interest Rate was determined by the Remarketing Agent. If the preceding Weekly Interest Rate was not determined by the Remarketing Agent, or if the Weekly Interest Rate determined by the Remarketing Agent is held to be invalid or unenforceable by a court of law, then the Weekly Interest Rate shall be equal to 110% of the SIFMA Index, or if such index is no longer available, 85% of the interest rate on 30-day high grade unsecured commercial paper notes sold through dealers by major corporations as reported in The Wall Street Journal on the day such Weekly Interest Rate would otherwise have been determined, until the Weekly Interest Rate is again validly determined by the Remarketing Agent.

(2) **Conversion to Weekly Interest Rate.** Subject to Section 3.2(k), the District may, from time to time, by written notice to the Credit Provider (if any), the Registrar and the Remarketing Agent (if any), elect that a series of Variable Rate Bonds issued hereunder shall bear interest at a Weekly Interest Rate. The notice of the Designated Representative shall (i) specify the proposed Conversion Date, which shall be (A) in each case, a Business Day not earlier than the 30th day following the second Business Day after receipt by the Registrar of such notice; (B) in the case of a Conversion from a Term Interest Rate Period, the day following the last day of such Term Interest Rate Period or a day on which the Bonds would otherwise be subject to optional redemption pursuant to this resolution if such Conversion did not occur; and (C) in the case of a Conversion from an Index Floating Rate Period, the day following the last day of such Index Floating Rate Period or on or after a Par Call Date; and (ii) state whether a Credit Facility is to be in effect on the Conversion Date.

(3) **Notice of Conversion to Weekly Interest Rate.** The Registrar shall give notice of a Conversion to a Weekly Interest Rate Period to the Registered Owners of such Variable Rate Bonds not less than 30 days prior to the proposed Conversion Date. Such notice shall state (i) that the interest rate shall be converted to a Weekly Interest Rate unless the District rescinds its election to convert the interest rate to a Weekly Interest Rate as provided herein; (ii) the proposed Conversion Date; (iii) that such Variable Rate Bonds are subject to mandatory tender for purchase on the proposed Conversion Date and setting forth the Purchase Price and the place of delivery for purchase of such Variable Rate Bonds; and (iv) the information set forth in Section 3.5(e).
(e) **Daily Interest Rate and Daily Interest Rate Period.**

(1) **Determination of Daily Interest Rate.** During each Daily Interest Rate Period, the Variable Rate Bonds of a series shall bear interest at the Daily Interest Rate, which shall be determined by the Remarketing Agent by 9:30 a.m., New York time, on each Business Day. The Daily Interest Rate for any day which is not a Business Day shall be the same as the Daily Interest Rate for the preceding Business Day.

Each Daily Interest Rate shall be the rate of interest per annum determined by the Remarketing Agent (based on an examination of obligations comparable, in the judgment of the Remarketing Agent, to the Variable Rate Bonds and known by the Remarketing Agent to have been priced or traded under then-prevailing market conditions) to be the minimum interest rate which, if borne by such Variable Rate Bonds, would enable the Remarketing Agent to sell all of such Variable Rate Bonds on such Business Day at a price (without regard to accrued interest) equal to the principal amount thereof.

If the Remarketing Agent fails to establish any Daily Interest Rate, then the Daily Interest Rate for such Business Day shall be the same as the preceding Daily Interest Rate and such Daily Interest Rate shall continue to be in effect until the earlier of (i) the date on which the Remarketing Agent determines a new Daily Interest Rate or (ii) the seventh day succeeding the first day on which the Daily Interest Rate was not determined by the Remarketing Agent. If the Daily Interest Rate is held to be invalid or unenforceable by a court of law, or the Remarketing Agent fails to determine the Daily Interest Rate for a period of seven days as described in clause (ii) of the preceding sentence, then the Daily Interest Rate shall be equal to 110% of the SIFMA Index, or if such index is no longer available, 85% of the interest rate on 30-day high grade unsecured commercial paper notes sold through dealers by major corporations as reported in The Wall Street Journal on the Business Day such Daily Interest Rate would otherwise have been determined, until the Daily Interest Rate is again validly determined by the Remarketing Agent.

(2) **Conversion to Daily Interest Rate.** Subject to Section 3.2(k), the District may, from time to time, by written notice to the Credit Provider (if any), the Registrar and the Remarketing Agent (if any), elect that a series of Variable Rate Bonds issued hereunder shall bear interest at a Daily Interest Rate. The notice of the Designated Representative shall (i) specify the proposed Conversion Date, which shall be (A) in each case, a Business Day not earlier than the 30th day following the second Business Day after receipt by the Registrar of such notice; (B) in the case of a Conversion from a Term Interest Rate Period, the day following the last day of such Term Interest Rate Period or a day on which the Bonds would otherwise be subject to optional redemption pursuant to this resolution if such Conversion did not occur; and (C) in the case of a Conversion from an Index Floating Rate Period, the day following the last day of such Index Floating Rate Period or on or after a Par Call Date; and (ii) state whether a Credit Facility is to be in effect on the Conversion Date.

(3) **Notice of Conversion to Daily Interest Rate.** The Registrar shall give notice of a Conversion to a Daily Interest Rate Period to the Registered Owners of such Variable Rate Bonds not less than 30 days prior to the proposed Conversion Date. Such notice shall state (i) that the interest rate shall be converted to a Daily Interest Rate unless the District rescinds its election to convert the interest rate to a Daily Interest Rate as provided herein; (ii) the proposed Conversion Date; (iii) that the Bonds are subject to mandatory tender for purchase on the proposed Conversion Date and setting forth the Purchase Price and the place of delivery for purchase of such Variable Rate Bonds; and (iv) the information set forth in Section 3.5(e).
(f) **Term Interest Rate and Term Interest Rate Period.**

(1) **Determination of Term Interest Rate.** During each Term Interest Rate Period, the Variable Rate Bonds of a series shall bear interest at the Term Interest Rate. The Business Day following the last day of each Term Interest Rate Period shall be a Purchase Date on which such Variable Rate Bonds are subject to mandatory tender pursuant to this resolution. If Variable Rate Bonds issued under this resolution are to initially bear interest at a Term Interest Rate, the Initial Term Interest Rate shall be set forth in the applicable Bond Purchase Contract. The Term Interest Rate for each additional Term Interest Rate Period shall be determined by the Remarketing Agent on a Business Day no later than the first day of such Term Interest Rate Period.

For other than the Initial Term Interest Rate, the Term Interest Rate shall be the rate of interest per annum determined by the Remarketing Agent (based on an examination of obligations comparable, in the judgment of the Remarketing Agent, to the Bonds and known by the Remarketing Agent to have been priced or traded under then-prevailing market conditions) to be the minimum interest rate at which the Remarketing Agent will agree to purchase the Bonds on the effective date of that rate for resale at a price (without regard to accrued interest) equal to the principal amount thereof.

(2) **Conversion to Term Interest Rate.**

(i) Subject to Section 3.2(k), the District may, from time to time, by written notice to the Credit Provider (if any), the Registrar and the Remarketing Agent (if any), elect that a series of Variable Rate Bonds issued hereunder shall bear, or continue to bear, interest at the Term Interest Rate. The notice of the Designated Representative shall specify (1) the proposed Conversion Date, which shall be (a) in each case, a Business Day not earlier than the 30th day following the second Business Day after receipt by the Registrar of such notice; (b) in the case of a Conversion from a Term Interest Rate Period, the day following the last day of such Term Interest Rate Period or a day on which the Bonds would otherwise be subject to optional redemption pursuant to this resolution if such Conversion did not occur; and (c) in the case of a Conversion from an Index Floating Rate Period, the day following the last day of such Index Floating Rate Period or on or after a Par Call Date; and (2) the last day of the Term Interest Rate Period, which shall be either the day prior to the maturity date or a day which both immediately precedes a Business Day and is at least 181 days after the proposed Conversion Date.

(ii) If, by the second Business Day preceding the 29th day prior to the last day of any Term Interest Rate Period, the Registrar has not received notice of the District’s election to effect a Conversion to a new Interest Rate Period, such Variable Rate Bonds shall nevertheless be subject to mandatory tender for purchase as provided in this resolution on the Business Day following the last day of each Term Interest Rate Period.

(3) **Notice of Conversion to a Term Interest Rate.** The Registrar shall give notice of a Conversion to a Term Interest Rate Period to the Registered Owners of such Variable Rate Bonds not less than 30 days prior to the proposed Conversion Date. Such notice shall state (i) that the interest rate shall be converted to, or continue to be, a Term Interest Rate unless (A) the District rescinds its election to convert the interest rate to the Term Interest Rate as provided in Section 3.2(k) or (B) all such Variable Rate Bonds are not remarketed on the proposed Conversion Date, in which case the provisions of Sections 3.2(j) and 3.5(c) shall apply; (b) the proposed Conversion Date, the Par Call Date (if any), the last day of the new Term Interest Rate Period; (c) that such Variable Rate Bonds are subject to mandatory tender for purchase on the proposed Conversion Date and setting forth the
Purchase Price and the place of delivery for purchase of such Variable Rate Bonds; and (d) the information set forth in Section 3.5(e). In addition, the Designated Representative may provide for such additional terms and conditions to apply to a Term Interest Rate Period (subsequent to any Initial Term Interest Rate Period) as are substantially similar to the terms provided for the Initial Term Interest Rate Period or are not otherwise inconsistent with this resolution.

(g) **Index Floating Rate Period.**

(1) **Initial Index Floating Rate Period.** If a series of Variable Rate Bonds issued under this resolution are to initially bear interest at an Index Floating Rate, the Index, the Index Floating Rate Percentage, the Index Floating Rate Spread, the Conversion Date on which the Initial Index Floating Rate Period is to end and the Par Call Date during the Initial Index Floating Rate Period shall all be specified in the applicable Bond Purchase Contract. While any Variable Rate Bonds issued hereunder are in an Index Floating Rate, a Designated Representative may establish a Conversion Date on or after a Par Call Date upon notice as provided in Section 3.5(e).

(2) **Determination of Index Floating Rate.** During each Index Floating Rate Period, the Variable Rate Bonds of the series shall bear interest at the Index Floating Rate, which shall be (i) if the Index is One Month LIBOR or Three Month LIBOR, the sum of (a) the product of the Index multiplied by the Index Floating Rate Percentage plus (b) the Index Floating Rate Spread, and (ii) if the Index is the SIFMA Index, the Adjusted SIFMA Rate. The Index Floating Rate Spread to be in effect during each Index Floating Rate Period shall be determined by the Underwriter (in the case of any Initial Index Floating Rate Period) or the Remarketing Agent (in the case of each other Index Floating Rate Period), on the initial Interest Determination Date for such Index Floating Rate Period, and such Index Floating Rate shall be in effect for the period commencing on the first day of such Index Floating Rate Period to but excluding the first Interest Reset Date of such Index Floating Rate Period. Thereafter, the Index Floating Rate shall be calculated by the Registrar on each Interest Determination Date, and such Index Floating Rate shall be in effect for the period commencing on each Interest Reset Date to but excluding the following Interest Reset Date.

Each Index Floating Rate Spread shall be the spread determined by the Underwriter or Remarketing Agent (based on an examination of obligations comparable, in the judgment of the Remarketing Agent, to the Bonds and known by the Remarketing Agent to have been priced or traded under then-prevailing market conditions) to be the minimum spread which, when added to the Index (multiplied, if applicable, by the Index Floating Rate Percentage), equals the interest rate which, if borne by the Bonds, would enable the Remarketing Agent to sell all of the Bonds on the Interest Reset Date at a price (without regard to accrued interest) equal to the principal amount thereof.

If a Designated Representative selects an alternate index other than the One Month LIBOR, Three Month LIBOR or SIFMA Index, a Favorable Opinion of Bond Counsel shall be obtained and a certificate signed by a Designated Representative shall be prepared and sent to the Registrar setting forth the Index, the Index Floating Rate Spread, if any, and other appropriate terms.

(3) **Conversion to Index Floating Rate.**

(i) Subject to Section 3.2(k), the District may, from time to time, by written notice to the Credit Provider (if any), the Registrar and the Remarketing Agent (if any), elect that a series of Variable Rate Bonds issued hereunder shall bear, or continue to bear, interest at an Index Floating Rate. The notice of the Designated Representative shall specify (A) the proposed
Conversion Date, which shall be (x) in each case, a Business Day not earlier than the 30th day following the second Business Day after receipt by the Registrar of such notice; (y) in the case of a Conversion from a Term Interest Rate Period, the day following the last day of such Term Interest Rate Period or a day on which the Bonds would otherwise be subject to optional redemption pursuant to this resolution if such Conversion did not occur; and (z) in the case of a Conversion from an Index Floating Rate Period, the day following the last day of such Index Floating Rate Period or on or after a Par Call Date; (B) the Conversion Date on which the Index Floating Rate Period is to end or, if applicable, that the Index Floating Rate Period is to end on the day prior to the maturity date; (C) the Index to be in effect and, if applicable, the Index Floating Rate Percentage; and (D) each Par Call Date for such Index Floating Rate Period.

(ii) If, by the second Business Day preceding the 29th day prior to the last day of any Index Floating Rate Period, the Registrar has not received notice of the District’s election that, during the succeeding Interest Rate Period, such Variable Rate Bonds shall bear interest at the Weekly Interest Rate, the Daily Interest Rate, the Term Interest Rate or another Index Floating Rate, (A) the next Interest Rate Period shall be an Index Floating Rate Period, (B) the Index (and, if applicable, the Index Floating Rate Percentage) for such Index Floating Rate Period shall remain the same and (C) the term of such Index Floating Rate Period shall be the same as the preceding Index Floating Rate Period (but which shall not extend beyond the day prior to the maturity date).

(4) Notice of Conversion to Index Floating Rate Period. The Registrar shall give notice of a Conversion to an Index Floating Rate Period to the Registered Owners of the Bonds not less than 30 days prior to the proposed Conversion Date. Such notice shall state (i) that the interest rate shall be converted to, or continue to be, an Index Floating Rate, unless the District rescinds its election to convert the interest rate to an Index Floating Rate as provided in Section 3.2(k)); (ii) the proposed Conversion Date and the Conversion Date on which the Index Floating Rate Period is to end or, if applicable, that the Index Floating Rate Period is to end on the day prior to the maturity date; and (iii) that the Variable Rate Bonds are subject to mandatory tender for purchase on the proposed Conversion Date and setting forth the Purchase Price and the place of delivery for purchase of the Variable Rate Bonds; and (iv) the information set forth in Section 3.5(e).

(h) Determinations of Remarketing Agent and Registrar Binding. All percentages resulting from any calculation of any interest rate for Variable Rate Bonds shall be truncated to the nearest one thousandth of a percentage point and all dollar amounts rounded to the nearest cent, with one-half cent being rounded upward. The Remarketing Agent, if any, and the Registrar shall provide prompt notice of each determination of the interest rate for the Variable Rate Bonds to the District, the Registrar and the Remarketing Agent (if any). The Registrar shall provide notice of any such determination to each Registered Owner or Beneficial Owner of the Variable Rate Bonds upon request. Absent manifest error, each such determination shall be conclusive and binding upon the District, the Registrar, the Remarketing Agent and the Registered Owners and Beneficial Owners of the Variable Rate Bonds.

(i) Maximum Interest Rate and Minimum Interest Rate. Notwithstanding any provision in this resolution to the contrary, at no time shall the Variable Rate Bonds issued hereunder bear interest at a rate higher than the Maximum Interest Rate or lower than the Minimum Interest Rate.

(j) Delayed Remarketing Period. If the entire amount of the Purchase Price of all of the Variable Rate Bonds of a series bearing interest at a Term Interest Rate that are required to be purchased on the Purchase Date occurring at the end of the Initial Term Interest Rate Period cannot be paid, none of the Variable Rate Bonds will be purchased and a Delayed Remarketing Period will commence on
such date with respect to such Variable Rate Bonds. If the Purchase Price of all of the Variable Rate Bonds of a series bearing interest at an Index Floating Rate that are required to be purchased on a Purchase Date cannot be paid, only a portion of such Variable Rate Bonds (selected pro rata) in an amount equal to the funds available to pay the Purchase Price thereof in accordance with Section 5.5(a) will be purchased on such Purchase Date, and the remainder of such Variable Rate Bonds for which there are not sufficient available funds to pay the full Purchase Price thereof will not be purchased and a Delayed Remarketing Period will commence on such date with respect only to such Variable Rate Bonds. In such an event, a Delayed Remarketing Period will not commence for any Variable Rate Bonds that were not subject to mandatory tender on such Purchase Date. During a Delayed Remarketing Period, the following will apply to the Variable Rate Bonds subject to such Delayed Remarketing Period:

(1) All of the applicable Variable Rate Bonds will bear interest at the Stepped Interest Rate;

(2) The Remarketing Agent will continue to be obligated to remarket the applicable Variable Rate Bonds;

(3) The applicable Variable Rate Bonds will continue to be subject to optional redemption by the District as described herein;

(4) The Designated Representative, by notice to the Registrar and the Remarketing Agent, may direct a Conversion of the applicable Variable Rate Bonds as described in Section 3.2(k);

(5) Interest on the applicable Variable Rate Bonds shall continue to be due and payable on each Interest Payment Date and also shall be payable on the last day of the Delayed Remarketing Period; and

(6) If the applicable Variable Rate Bonds are successfully remarketed as described in Section 3.8, the Registered Owners of the applicable Variable Rate Bonds will be obligated to tender their Variable Rate Bonds to the Registrar.

(k) Conversion of Interest Rate Periods.

(1) Rescission of Election. A Designated Representative may rescind any election to effect a Conversion by delivering to the Credit Provider (if any), the Registrar and the Remarketing Agent (if any), on or prior to 10:00 a.m., New York time, on the second Business Day preceding a proposed Conversion Date, a notice to the effect that the District elects to rescind its election to effect such Conversion. If the District rescinds its election to effect a Conversion at the end of a Term Interest Rate Period, a Delayed Remarketing Period shall commence on the Purchase Date and the Variable Rate Bonds shall bear interest at a Stepped Interest Rate as set forth herein or, (i) if a Daily Interest Rate Period is in effect immediately prior to the proposed Conversion, the Variable Rate Bonds shall continue to bear interest at the Daily Interest Rate or (ii) if an Index Floating Rate Period is in effect immediately prior to the proposed Conversion, the Variable Rate Bonds shall continue to bear interest at the applicable Index Floating Rate. If notice of a Conversion has been mailed to the Registered Owners of the Variable Rate Bonds as provided in Section 3.2 and the District rescinds its election to effect such Conversion, the Variable Rate Bonds shall nevertheless be subject to mandatory tender for purchase on the proposed Conversion Date.
(2) **Certain Additional Conditions.** No Conversion shall take effect unless each of the following conditions, to the extent applicable, shall have been satisfied:

- (i) The District shall have obtained the written consent of the Credit Provider, if any.

- (ii) If required pursuant to the notice of Conversion, a Credit Facility shall be in effect on the Conversion Date.

- (iii) The District shall have received a Favorable Opinion of Bond Counsel with respect to such Conversion dated the Conversion Date.

- (iv) The Registrar shall have sufficient remarketing or refunding proceeds, proceeds of a draw on the Credit Facility or other funds made available by the District to pay the Purchase Price of the Variable Rate Bonds on the Conversion Date.

Section 3.3 Purchase of Bonds. Subject to the terms of this resolution, the District reserves the right to use money in the Revenue Fund or any other funds legally available therefor at any time to purchase any of the Bonds in the open market if such purchase shall be found by the District to be economically advantageous and in the best interest of the District. Any purchases of Bonds may be made with or without tenders of Bonds and at either public or private sale in such amount and at such price as the District shall, in its discretion, deem to be in its best interest. Any money which is to be applied to the purchase or redemption of Bonds shall, prior to such purchase or redemption, be transferred to and deposited in the Bond Fund to the credit of the appropriate account therein. Purchases of Term Bonds may be credited against the Sinking Fund Requirement for such Term Bonds. Bonds purchased pursuant to this Section 3.3 shall be cancelled.

Section 3.4 Redemption of Bonds.

(a) Optional Redemption.

(1) **Fixed Rate Bonds.** Fixed Rate Bonds issued hereunder shall be subject to optional redemption on the dates, at the prices and under the terms set forth in the applicable Bond Purchase Contract approved by a Designated Representative.

(2) **Weekly Interest Rate Period, Daily Interest Rate Period and Index Floating Rate Period.**

(i) During a Daily Interest Rate Period or a Weekly Interest Rate Period, Variable Rate Bonds shall be subject to optional redemption at the written direction of a Designated Representative on any Business Day, in whole or in part, at a Redemption Price of 100% of the principal amount thereof plus interest, if any, accrued to the date fixed for redemption.

(ii) During an Index Floating Rate Period, Variable Rate Bonds shall be subject to optional redemption at the written direction of a Designated Representative on or after any Par Call Date, in whole or in part, at a Redemption Price of 100% of the principal amount thereof plus interest, if any, accrued to the date fixed for redemption.
(3) **Term Interest Rate Period.** During a Term Interest Rate Period, Variable Rate Bonds shall be subject to optional redemption at the written direction of a Designated Representative (i) on or after the Par Call Date specified in the Bond Purchase Contract for any Initial Term Interest Rate Period, (ii) on the first day of such Term Interest Rate Period, in whole or in part, at a Redemption Price of 100% of the principal amount thereof plus interest accrued to the date fixed for redemption, and (iii) thereafter, for other than any Initial Term Interest Rate Period during the periods specified below in whole at any time or in part from time to time on any Interest Payment Date, at the Redemption Prices (expressed as a percentage of principal amount) specified below plus interest, if any, accrued to the date fixed for redemption:

<table>
<thead>
<tr>
<th>Length of Term Interest Rate Period (expressed in years)</th>
<th>Redemption Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>greater than 15</td>
<td>after 10 years at 101%, declining by 0.5% every year to 100%</td>
</tr>
<tr>
<td>less than or equal to 15 and greater than 10</td>
<td>after 7 years at 101%, declining by 0.5% every year to 100%</td>
</tr>
<tr>
<td>less than or equal to 10 and greater than 7</td>
<td>after 5 years at 101%, declining by 0.5% every year to 100%</td>
</tr>
<tr>
<td>less than or equal to 7 and greater than 4</td>
<td>after 3 years at 100.5%, declining by 0.5% after a year to 100%</td>
</tr>
<tr>
<td>less than or equal to 4</td>
<td>after 2 years at 100%</td>
</tr>
</tbody>
</table>

Notwithstanding anything herein to the contrary, the above table may be amended by a Designated Representative prior to a Conversion to a Term Interest Rate Period upon delivery of a Favorable Opinion of Bond Counsel.

In the event that the Conversion Date for a series of Variable Rate Bonds converted a Term Interest Rate Period is other than a day which would be an Interest Payment Date during such Term Interest Rate Period, then the date on which such Variable Rate Bonds shall first be subject to redemption pursuant to the foregoing table (after the first day of such Term Interest Rate Period) shall be the first Interest Payment Date succeeding the date on which such Variable Rate Bonds otherwise would be subject to redemption, and the Redemption Price shall be adjusted on each anniversary of that Interest Payment Date as provided in such table.

(b) **Mandatory Redemption.** A Designated Representative may specify in the Bond Purchase Contract or in a notice of Conversion that all or a portion of the Bonds of a series are Term Bonds subject to mandatory sinking fund redemption at a Redemption Price of 100% of the principal amount thereof plus interest, if any, accrued to the date fixed for redemption, on the dates and with the Sinking Fund Requirements specified in the Bond Purchase Contract or the notice of Conversion.

If a Term Bond is redeemed under the optional redemption provisions, defeased or purchased by the District and surrendered for cancellation, the principal amount of the Term Bond so redeemed, defeased or purchased (irrespective of its actual redemption or purchase price) shall be credited against one or more scheduled Sinking Fund Requirements for that Term Bond. The Designated Representative shall determine the manner in which the credit is to be allocated and shall notify the Registrar in writing of its allocation prior to the earliest mandatory redemption date for that Term Bond for which notice of redemption has not already been given.
(c) Selection of Bonds for Redemption. If less than all of the Bonds of a series are to be optionally redeemed, a Designated Representative may select the maturities to be redeemed. If the District redeems at any one time fewer than all of the Bonds of a series having the same maturity date, so long as DTC or its nominee is the Registered Owner of Variable Rate Bonds, the Registrar shall notify DTC that the redemption is to be made pro rata (or in such manner determined by the Registrar or as set forth in the Bond Purchase Contract) among the owners of such Bonds of such maturity in integral multiples of $5,000 and that partial redemptions of such Bonds are to be determined in accordance with DTC’s pro rata pass-through distribution of principal procedures in effect at the time notice of such partial redemption is given. Such redemption payments shall be subject to the rules and procedures of DTC, and neither the District nor the Registrar need provide any assurance that DTC, its participants or any other intermediaries will be able to allocate redemption payments of such Bonds of a particular maturity among the owners of such Bonds on such a proportional basis. At all other times, the particular Bonds or portions of Bonds of such series and maturity to be redeemed shall be selected by lot (or in such manner determined by the Registrar or as set forth in the Bond Purchase Contract) in increments of $5,000. In the case of a Bond of a denomination greater than $5,000, the District and the Registrar shall treat each Bond as representing such number of separate Bonds each of the denomination of $5,000 as is obtained by dividing the actual principal amount of Bonds by $5,000. In the event that only a portion of the principal sum of a Bond is redeemed, upon surrender of such Bond at the designated office of the Registrar there shall be issued to the Registered Owner, without charge therefor, for the then unredeemed balance of the principal sum thereof, at the option of the Registered Owner, a Bond or Bonds of like series, maturity and interest rate in Authorized Denominations. Notwithstanding the foregoing, as long as the Bonds are held in book-entry only form, the selection of particular Bonds within a series and maturity to be redeemed shall be made in accordance with the operational arrangements then in effect at DTC.

(d) Notice of Redemption.

(1) Official Notice. Unless waived by any owner of Bonds to be redeemed, official notice of any such redemption (which redemption may be conditioned by the Registrar on the receipt of sufficient funds for redemption or otherwise) shall be given by the Registrar on behalf of the District by mailing a copy of an official redemption notice by first-class mail at least 20 days and not more than 60 days prior to the date fixed for redemption to the Registered Owner of the Bond or Bonds to be redeemed at the address shown on the Bond Register or at such other address as is furnished in writing by such Registered Owner to the Registrar. Notwithstanding anything herein to the contrary, so long as the Bonds are held in book-entry only form, notice of redemption will be given in accordance with the operational arrangements in effect at DTC, and neither the District nor the Registrar will provide any notice of redemption to any Beneficial Owners.

All official notices of redemption shall be dated and shall state:

(i) the redemption date,

(ii) the applicable redemption price,

(iii) if fewer than all outstanding Bonds are to be redeemed, the identification by series and maturity (and, in the case of partial redemption, the respective principal amounts) of the Bonds to be redeemed,
(iv) that unless conditional notice of redemption has been given and such conditions have not been satisfied or waived or such notice has been rescinded, on the redemption date the price for redemption will become due and payable upon each such Bond or portion thereof called for redemption, and if the Registrar then holds sufficient funds to pay such Bonds at such price, interest thereon shall cease to accrue from and after said date,

(v) any conditions to redemption, and

(vi) the place where such Bonds are to be surrendered for payment, which place of payment shall be the designated office of the Registrar.

On or prior to any redemption date, unless any condition to such redemption has not been satisfied or waived or notice of such redemption has been rescinded, the District shall deposit with the Registrar an amount of money sufficient to pay the applicable redemption price of all the Bonds of the series or portions of such Bonds which are to be redeemed on that date. The District retains the right to rescind any redemption notice and the related optional redemption of Bonds by giving notice of rescission to the affected Registered Owners at any time on or prior to the scheduled redemption date. Any notice of optional redemption that is so rescinded shall be of no effect, and the Bonds for which the notice of optional redemption has been rescinded shall remain outstanding.

(2) Effect of Notice; Bonds Due. If an unconditional notice of redemption has been given and not rescinded, or if the conditions set forth in a conditional notice of redemption have been satisfied or waived, the Bonds of a series or portions of Bonds to be redeemed shall, on the redemption date, become due and payable at the price therein specified, and, if the Registrar then holds sufficient funds to effect such redemption, then from and after such date such Bonds or portions of Bonds shall cease to bear interest. Upon surrender of such Bonds for redemption in accordance with said notice, such Bonds shall be paid by the Registrar. Installments of interest due on or prior to the redemption date shall be payable as herein provided for payment of interest. All Bonds which have been redeemed shall be canceled by the Registrar and shall not be reissued.

(3) Additional Notice. In addition to the foregoing notice, further notice shall be given by the District as set out below, but no defect in said further notice nor any failure to give all or any portion of such further notice shall in any manner defeat the effectiveness of a call for redemption if notice thereof is given as above prescribed. Each further notice of redemption given hereunder shall contain the information required above for an official notice of redemption plus (i) the CUSIP numbers of all Bonds being redeemed; (ii) the Issuance Date of the Bonds as originally issued; (iii) the rate of interest borne by each Bond being redeemed; (iv) the maturity date of each Bond being redeemed; and (v) any other descriptive information needed to identify accurately the Bonds being redeemed. Each further notice of redemption may be sent at least 20 days before the redemption date to each party entitled to receive notice pursuant to a Continuing Disclosure Certificate and with such additional information as the District shall deem appropriate, but such mailings shall not be a condition precedent to the redemption of such Bonds.

(e) Amendment of Notice Provisions. The foregoing notice provisions of this Section 3.4, including, but not limited to, the information to be included in redemption notices and the persons designated to receive notices, may be amended by additions, deletions and changes in order to maintain compliance with duly promulgated regulations and recommendations regarding notices of redemption of municipal securities.
Section 3.5 Purchase of Variable Rate Bonds.

(a) Optional Tender for Purchase During Weekly Interest Rate Period. During any Weekly Interest Rate Period that the Variable Rate Bonds of a series are not in a book-entry only system, such Variable Rate Bonds shall be purchased in an Authorized Denomination (provided that the amount of any such Variable Rate Bonds not to be purchased shall also be in an Authorized Denomination) from their respective Registered Owner at the option of the Registered Owner on any Business Day at the Purchase Price, from the sources specified in Section 3.5(g), payable in immediately available funds, upon delivery to the Registrar at its designated office for delivery of Variable Rate Bonds and to the Remarketing Agent of an irrevocable written notice which states the principal amount of such Variable Rate Bonds to be purchased and the Purchase Date, which shall be a Business Day not prior to the seventh day after the date of the delivery of such notice to the Registrar and the Remarketing Agent. Any notice delivered to the Registrar or the Remarketing Agent after 4:00 p.m., New York time, shall be deemed to have been received on the succeeding Business Day. Variable Rate Bonds to be so purchased must be delivered at or prior to 10:00 a.m., New York time, on the Purchase Date to the Registrar at its designated office for delivery of Variable Rate Bonds accompanied by an instrument of transfer, in form satisfactory to the Registrar.

If during any Weekly Interest Rate Period the Variable Rate Bonds of a series are in a book-entry only system, the Variable Rate Bonds shall be purchased in an Authorized Denomination (provided that the amount of any such Variable Rate Bonds not to be purchased shall also be in an Authorized Denomination) from the Registered Owner or respective Participant (subject to confirmation by DTC to the Registrar that the Participant has the required ownership interest in the Variable Rate Bonds) at the option of the Registered Owner or Participant on any Business Day at the Purchase Price, from the sources specified in Section 3.5(g), payable in immediately available funds to the Registered Owner, and not to the Participant, upon delivery to the Registrar at its designated office for delivery of Variable Rate Bonds and to the Remarketing Agent of an irrevocable written notice which states the principal amount of such Variable Rate Bonds to be purchased and the Purchase Date, which shall be a Business Day not prior to the seventh day after the date of the delivery of such notice to the Registrar and the Remarketing Agent. Any notice delivered to the Registrar or the Remarketing Agent after 4:00 p.m., New York time, shall be deemed to have been received on the succeeding Business Day.

Payment of the Purchase Price of such Variable Rate Bonds shall be made by the Registrar by 3:00 p.m., New York time, on the Purchase Date specified in such notice, or as soon as practicable thereafter, upon the receipt by the Registrar of the Purchase Price as set forth in Section 5.5 on the Purchase Date.

(b) Optional Tender for Purchase During Daily Interest Rate Period. During any Daily Interest Rate Period in which the Variable Rate Bonds of a series are not subject to a book-entry only system, such Variable Rate Bonds shall be purchased in an Authorized Denomination (provided that the amount of any such Variable Rate Bonds not to be purchased shall also be in an Authorized Denomination) from their respective Registered Owner at the option of the Registered Owner on any Business Day at the Purchase Price, from the sources specified in Section 3.5(g), payable in immediately available funds, upon delivery to the Registrar at its designated office for delivery of Variable Rate Bonds and to the Remarketing Agent by no later than 11:00 a.m., New York time, on such Business Day, of an irrevocable written notice or an irrevocable telephonic notice, promptly confirmed by telecopy or other writing, which states the principal amount of such Variable Rate Bonds to be purchased and the Purchase Date. Any notice delivered to the Registrar or the Remarketing Agent
after 11:00 a.m., New York time, shall be deemed to have been received on the succeeding Business Day. Variable Rate Bonds to be so purchased must be delivered at or prior to 12:00 noon, New York time, on the Purchase Date to the Registrar at its designated office for delivery of Variable Rate Bonds accompanied by an instrument of transfer, in form satisfactory to the Registrar.

During any Daily Interest Rate Period the Variable Rate Bonds of a series are in a book-entry only system, the Variable Rate Bonds shall be purchased in an Authorized Denomination (provided that the amount of any such Variable Rate Bonds not to be purchased shall also be in an Authorized Denomination) from the respective Registered Owner or Participant at the option of the Registered Owner or Participant on any Business Day at the Purchase Price, from the sources specified in Section 3.5(g), payable in immediately available funds to the Registered Owner (and not to the Participant), upon delivery to the Registrar at its designated office for delivery of Variable Rate Bonds and to the Remarketing Agent by no later than 11:00 a.m., New York time, on such Business Day, of an irrevocable written notice or an irrevocable telephonic notice, promptly confirmed by telecopy or other writing, which states the principal amount of such Variable Rate Bonds to be purchased and the Purchase Date. Any notice delivered to the Registrar or the Remarketing Agent after 11:00 a.m., New York time, shall be deemed to have been received on the succeeding Business Day.

Payment of the Purchase Price of such Variable Rate Bonds shall be made by the Registrar by 3:00 p.m., New York time, on the Purchase Date specified in such notice, or as soon as practicable thereafter, upon the receipt by the Registrar of the Purchase Price as set forth in Section 5.5 on the Purchase Date.

(c) Mandatory Tender for Purchase. Except as provided in the next paragraph, the Variable Rate Bonds of each series shall be subject to mandatory tender for purchase at the Purchase Price on the first day of each Interest Rate Period, on each proposed Conversion Date for which notice has been given to the Registered Owners and on or after each Par Call Date for which notice has been given to the Registered Owners. During the Initial Term Interest Rate Period or any subsequent Term Interest Rate Period if elected by the Designated Representative, the Variable Rate Bonds shall be subject to mandatory tender for purchase on the Business Day following the last day of such Term Interest Rate Period, regardless of whether the District has provided (or rescinded) notice of intent to effect a Conversion to a new Interest Rate Period. If insufficient funds are available to the Registrar to pay the Purchase Price of all of such Variable Rate Bonds, none of the Variable Rate Bonds may be purchased and a Delayed Remarketing Period shall commence with respect to such Variable Rate Bonds in accordance with Section 3.2(j), and the failure to pay the Purchase Price on such Purchase Date shall not constitute an Event of Default hereunder.

For any Purchase Date occurring during the Initial Term Interest Rate Period (including the Purchase Date occurring at the end of such Initial Term Interest Rate Period), unless all of the applicable Variable Rate Bonds are purchased, none of such Variable Rate Bonds will be purchased. In such event, the Registrar will return all of the Variable Rate Bonds to the owners thereof and the Variable Rate Bonds will remain outstanding and bear interest at the then-effective Term Interest Rate; provided, however, that if the Variable Rate Bonds are not purchased on the Purchase Date occurring on the Business Day succeeding the last day of the Initial Term Interest Rate Period, a Delayed Remarketing Period shall commence on such Purchase Date and from and after such date the Variable Rate Bonds shall accrue interest at the Stepped Interest Rate until such Variable Rate Bonds are purchased pursuant to a Conversion, redeemed or paid at maturity.
Payment of the Purchase Price of such Variable Rate Bonds shall be made by the Registrar by 3:00 p.m., New York time, on the Purchase Date specified in the notice of Conversion or call, or as soon as practicable thereafter, upon the receipt by the Registrar of the Purchase Price as set forth in Section 5.5 on the Purchase Date. Variable Rate Bonds to be so purchased that are not subject to a book-entry only system must be delivered at or prior to 10:00 a.m., New York time, on the Purchase Date to the Registrar at its designated office for delivery of Variable Rate Bonds accompanied by an instrument of transfer, in form satisfactory to the Registrar.

(d) **Mandatory Tender for Purchase upon Termination, Replacement or Expiration of the Credit Facility.** The Variable Rate Bonds shall be subject to mandatory tender for purchase at the Purchase Price if at any time the Registrar receives notice that the Variable Rate Bonds shall cease to be subject to purchase pursuant to the Credit Facility then in effect as a result of (1) the termination, replacement or expiration of such Credit Facility, including termination at the option of the District in accordance with the terms of any Reimbursement Agreement or upon an event of default under the Reimbursement Agreement or (2) a Conversion. The Purchase Date shall be (i) the fifth Business Day preceding any such expiration or termination of such Credit Facility if no Alternate Credit Facility is to be delivered to the Registrar, (ii) the date such Alternate Credit Facility is delivered to the Registrar or (iii) the Conversion Date.

Payment of the Purchase Price of such Variable Rate Bonds shall be made by the Registrar by 3:00 p.m., New York time, on the Purchase Date specified in the notice given pursuant to Section 3.5(e), or as soon as practicable thereafter, upon the receipt by the Registrar of the Purchase Price as set forth in Section 5.5 on the Purchase Date. Variable Rate Bonds to be so purchased that are not subject to a book-entry only system must be delivered at or prior to 10:00 a.m., New York time, on the Purchase Date to the Registrar at its designated office for delivery of Variable Rate Bonds accompanied by an instrument of transfer, in form satisfactory to the Registrar.

(e) **Notice of Mandatory Tender for Purchase.** In connection with any mandatory tender for purchase of Variable Rate Bonds in accordance with Sections 3.5(c) or 3.5(d), the Registrar shall give the notice required by this Section 3.5(e) (if applicable, as a part of the notice given pursuant to Sections 3.2(d)(3), 3.2(e)(3), 3.2(f)(3) or 3.2(g)(4)). Such notice shall state (1) in the case of a mandatory tender for purchase pursuant to Section 3.5(c), the type of Interest Rate Period to which the Variable Rate Bonds will be converted on the Purchase Date; (2) in the case of a mandatory tender for purchase pursuant to Section 3.5(d), that the Credit Facility will expire, terminate or be replaced and that after the Purchase Date, the Variable Rate Bonds will no longer be purchased pursuant to the Credit Facility then in effect and that the short-term ratings applicable to the Variable Rate Bonds may be reduced or withdrawn; (3) that, provided the Purchase Price shall have been provided to the Registrar from remarketing or refunding proceeds, proceeds of a draw on the Credit Facility or other funds made available by the District, the Variable Rate Bonds shall be purchased on the Purchase Date; and (4) that in the case of Variable Rate Bonds that are not subject to a book-entry only system, the Purchase Price shall be payable only upon surrender of the Variable Rate Bonds to the Registrar at its designated office for delivery of Variable Rate Bonds, accompanied by an instrument of transfer, in form satisfactory to the Registrar, executed in blank by the Registered Owner or its duly-authorized attorney, with such signature guaranteed by a commercial bank, trust company or member firm of the New York Stock Exchange, and that if the Registered Owner of any such Variable Rate Bond does not surrender that Variable Rate Bond to the Registrar for purchase on the Purchase Date, then that Variable Rate Bond shall be deemed to be an Undelivered Bond, no interest shall accrue on such Bond on and after the Purchase Date and that the Registered Owner shall have no rights under this resolution other than to receive payment of the Purchase Price.
(f) **Irrevocable Notice Deemed to be Tender of Bonds; Undelivered Bonds.**

(1) The giving of optional tender to purchase notice by a Registered Owner of Bonds or Participant as provided in Section 3.5(a) or 3.5(b) shall constitute the irrevocable tender for purchase of each Variable Rate Bond with respect to which such notice is given regardless of whether that Variable Rate Bond is delivered to the Registrar for purchase on the applicable Purchase Date.

(2) If the Registered Owner of a Variable Rate Bond subject to mandatory tender for purchase that is not subject to a book-entry only system shall fail to deliver its Variable Rate Bond to the Registrar at the place and on the Purchase Date and by the time specified, or shall fail to deliver its Variable Rate Bond properly endorsed, such Variable Rate Bond shall constitute an Undelivered Bond. If funds in the amount of the Purchase Price of the Undelivered Bond are available for payment to the Registered Owner thereof on the Purchase Date and at the time specified, then from and after the Purchase Date and time of that required delivery (i) the Undelivered Bond shall be deemed to be purchased and shall no longer be deemed to be outstanding under this resolution; (ii) interest shall no longer accrue on the Undelivered Bond; and (iii) funds in the amount of the Purchase Price of the Undelivered Bond shall be held uninvested and without liability for interest by the Registrar for the benefit of the Registered Owner thereof, to be paid on delivery (and proper endorsement) of the Undelivered Bond to the Registrar at its designated office for delivery of Variable Rate Bonds.

(g) **Source of Funds for Payment of Purchase Price.** The Purchase Price of Variable Rate Bonds to be purchased on any Purchase Date shall be made from the following sources and in the following order of priority:

1. proceeds of the remarketing of the Variable Rate Bonds;
2. proceeds of refunding bonds issued by the District;
3. proceeds of a draw on the Credit Facility, if any; and
4. other funds made available by the District.

Section 3.6 **Credit Facility; Bank Bonds.**

(a) **Draws on Credit Facility.** When a Credit Facility is in effect, the Registrar shall draw on the Credit Facility in accordance with Section 5.5 and in accordance with the terms of the Credit Facility and the provisions of the Reimbursement Agreement to the extent necessary to pay when due the principal and Purchase Price of and interest on the Variable Rate Bonds.

(b) **Acceptance by Registrar.** If at any time there are delivered to the Registrar (1) a Credit Facility, (2) all required opinions and information, and (3) all information required to give the notice of mandatory tender for purchase of the Variable Rate Bonds, then the Registrar shall accept such Credit Facility and, after the date of the mandatory tender for purchase established pursuant to Section 3.5(c) or 3.5(d), promptly surrender any Credit Facility then in effect to the issuer thereof for cancellation in accordance with its terms.

(c) **Notice of Termination.** The Registrar shall give notice to the Remarketing Agent and the Registered Owners of the Variable Rate Bonds of the termination or expiration of any Credit Facility in accordance with its terms.
(d) Bank Bonds. A Credit Facility may provide that a Variable Rate Bond that is purchased by the Registrar with amounts paid or provided by a Credit Provider under a Credit Facility shall become a Bank Bond and shall bear interest at the Bank Rate for each day from and including the day such Bank Bond becomes a Bank Bond to and excluding the day such Bank Bond ceases to be a Bank Bond or is paid in full. Interest on each Bank Bond shall be calculated and be payable on the dates and in the manner specified in the Credit Facility or Reimbursement Agreement. To the extent there are not remarketing proceeds or refunding bond proceeds available to pay a Bank Bond on any interest or principal payment date for those Bank Bonds, the District shall make such payment to the Registrar from the Bond Fund.

Section 3.7 Remarketing Agent. A Designated Representative shall appoint a Remarketing Agent for Variable Rate Bonds to be converted to a Daily Interest Rate, Weekly Interest Rate or Term Interest Rate or to remarket Variable Rate Bonds upon a Purchase Date and enter into a Remarketing Agreement with such Remarketing Agent. Each Remarketing Agent appointed by the District shall designate its principal office in the Remarketing Agreement. The Remarketing Agent shall signify its acceptance of the duties and obligations imposed upon it under this resolution by a written instrument of acceptance (which may be the Remarketing Agreement) delivered to the District, the Registrar and the Credit Provider, if any, under which the Remarketing Agent shall agree to keep such books and records related to the remarketing of the Variable Rate Bonds as shall be consistent with prudent industry practice and to make such books and records related to the remarketing of the Variable Rate Bonds available for inspection by the District, the Registrar and the Credit Provider, if any, at all reasonable times.

Each Remarketing Agent shall be a member of the National Association of Securities Dealers, having a combined capital stock, surplus and undivided profits of at least $50,000,000 and authorized by law to perform all the duties imposed upon it by this resolution and the Remarketing Agreement. Each Remarketing Agent shall be acceptable to the Credit Provider, if any. A Remarketing Agent may at any time resign and be discharged of the duties and obligations created by this resolution by giving notice to the District, the Registrar and the Credit Provider, if any. Such resignation shall take effect on the 30th day after the receipt by the District of the notice of resignation. A Remarketing Agent may be removed at any time on 15 days prior written notice, by an instrument signed by the District, approved by the Credit Provider, if any, and delivered to the Remarketing Agent, the Registrar and the Credit Provider.

Section 3.8 Remarketing of Variable Rate Bonds; Notice of Interest Rates.

(a) Remarketing. Upon a mandatory tender for purchase of the Variable Rate Bonds as required by Sections 3.5(c) and 3.5(d) or notice of optional tender for purchase of Variable Rate Bonds under Section 3.5(a) and 3.5(b), the Remarketing Agent shall offer for sale and use its best efforts to sell such Variable Rate Bonds on the Purchase Date and, if not remarketed on the Purchase Date, thereafter until sold, at the Purchase Price. Variable Rate Bonds shall not beremarketed to the District.

(b) Notice of Purchase and Remarketing. The Remarketing Agent shall give notice, in no event later than 9:30 a.m., New York time, on the Purchase Date, by facsimile transmission, telephone, teletype, e-mail or similar electronic means promptly confirmed by a written notice, to the Registrar and the District on each date on which Variable Rate Bonds have been purchased pursuant to Section 3.5, specifying the principal amount of such Variable Rate Bonds, if any, remarketed, and if the Variable Rate Bonds are not in book-entry form, a list of the purchasers showing the names and
denominations in which such Variable Rate Bonds are to be registered, and the addresses and social
security or taxpayer identification numbers of such purchasers.

ARTICLE IV
REGISTRATION, FORM AND GENERAL TERMS

Section 4.1 Registrar; Exchanges and Transfers.

(a) Registrar/Bond Register. The District hereby specifies and adopts the system of
registration approved by the Washington State Finance Committee from time to time through the
appointment of a State fiscal agent, and appoints the fiscal agent of the State, U.S. Bank National
Association, as the Registrar. The District shall cause a Bond Register to be maintained by the
Registrar. So long as any Bonds of a series remain outstanding, the Registrar shall make all necessary
provisions to permit the exchange or registration or transfer of Bonds at its principal corporate office.
The Registrar may be removed at any time at the option of the District upon prior notice to the Registrar
and a successor Registrar appointed by the District. No resignation or removal of the Registrar shall
be effective until a successor shall have been appointed and until the successor Registrar shall have
accepted the duties of the Registrar hereunder.

(b) Registered Ownership. The District and the Registrar, each in its discretion, may deem
and treat the Registered Owner of each Bond as the absolute owner thereof for all purposes (except as
otherwise provided in this resolution or in the Continuing Disclosure Certificate of the District), and
neither the District nor the Registrar shall be affected by any notice to the contrary. Payment of any
such Bond shall be made only as described in subsection (h) below, but such Bond may be transferred
as herein provided. All such payments made as described in herein shall be valid and shall satisfy and
discharge the liability of the District upon such Bond to the extent of the amount or amounts so paid.

(c) DTC Acceptance/Letters of Representations. The Bonds of each series initially shall be
held in book-entry form by DTC acting as depository. To induce DTC to accept the Bonds as eligible
for deposit at DTC, the District has executed and delivered to DTC a Blanket Issuer Letter of
Representations. Neither the District nor the Registrar will have any responsibility or obligation to
DTC participants or the persons for whom they act as nominees (or any successor depository) with
respect to the Bonds in respect of the accuracy of any records maintained by DTC (or any successor
depository) or any DTC participant, the payment by DTC (or any successor depository) or any DTC
participant of any amount in respect of the principal of or interest on Bonds, any notice which is
permitted or required to be given to Registered Owners under this resolution (except such notices as
shall be required to be given by the District to the Registrar or to DTC (or any successor depository)),
or any consent given or other action taken by DTC (or any successor depository) as the Registered
Owner. For so long as any Bonds are held in book-entry form, DTC or its successor depository shall
be deemed to be the Registered Owner for all purposes hereunder, and all references herein to the
Registered Owners shall mean DTC (or any successor depository) or its nominee and shall not mean
the owners of any beneficial interest in such Bonds.

(d) Use of Depository.

(1) The Bonds shall be registered initially in the name of “Cede & Co.”, as
nominee of DTC, with one Bond maturing on each of the maturity dates for the Bonds of each series
in a denomination corresponding to the total principal therein within a series to mature on such date.
Registered ownership of such Bonds, or any portions thereof, may not thereafter be transferred except
(i) to any successor of DTC or its nominee, provided that any such successor shall be qualified under any applicable laws to provide the service proposed to be provided by it; (ii) to any substitute depository appointed by the District pursuant to subsection (2) below or such substitute depository’s successor; or (iii) to any person as provided in subsection (4) below.

(2) Upon the resignation of DTC or its successor (or any substitute depository or its successor) from its functions as depository or a determination by the District to discontinue the system of book-entry transfers through DTC or its successor (or any substitute depository or its successor), the District may hereafter appoint a substitute depository. Any such substitute depository shall be qualified under any applicable laws to provide the services proposed to be provided by it.

(3) In the case of any transfer pursuant to clause (i) or (ii) of subsection (1) above, the Registrar shall, upon receipt of all outstanding Bonds of a series, issue a single new Bond for each series and maturity then outstanding, registered in the name of such successor or such substitute depository, or their nominees, as the case may be, all as specified in such written request of the District.

(4) In the event that (i) DTC or its successor (or substitute depository or its successor) resigns from its functions as depository, and no substitute depository can be obtained, or (ii) the District determines that it is in the best interest of the Beneficial Owners of the Bonds that such owners be able to obtain such bonds in the form of Bond certificates, the ownership of such Bonds may then be transferred to any person or entity as herein provided, and shall no longer be held in book-entry form. The District shall deliver a written request to the Registrar, together with a supply of definitive Bonds, to issue Bonds as herein provided in any Authorized Denomination. Upon receipt by the Registrar of all then outstanding Bonds together with a written request of the District to the Registrar, new Bonds shall be issued in such denominations and registered in the names of such persons as are requested in such written request.

(e) **Registration of Transfer of Ownership or Exchange; Change in Denominations.** The Registrar is authorized, on behalf of the District, to authenticate and deliver Bonds transferred or exchanged in accordance with the provisions of the Bonds and this resolution, to serve as the District’s paying agent and calculation agent (as applicable) for the Bonds and to carry out all of the Registrar’s powers and duties under this resolution and resolutions of the District establishing a system of registration for the District’s bonds and obligations. The transfer of any Bond may be registered and Bonds may be exchanged, but no transfer of any such Bond shall be valid unless it is surrendered to the Registrar with the assignment form appearing on such Bond duly executed by the Registered Owner or such Registered Owner’s duly authorized agent in a manner satisfactory to the Registrar. Upon such surrender, the Registrar shall cancel the surrendered Bond and shall authenticate and deliver, without charge to the Registered Owner or transferee therefor, a new Bond (or Bonds at the option of the new Registered Owner) of the same date, series, maturity and interest rate and for the same aggregate principal amount in any Authorized Denomination, naming as Registered Owner the person or persons listed as the assignee on the assignment form appearing on the surrendered Bond, in exchange for such surrendered and cancelled Bond. Any Bond may be surrendered to the Registrar and exchanged, without charge, for an equal aggregate principal amount of Bonds of the same date, series, maturity and interest rate, in any Authorized Denomination. The Registrar shall not be obligated to register the transfer or to exchange any Bond during the period from the Record Date to the redemption or payment date.

(f) **Registrar’s Ownership of Bonds.** The Registrar may become the Registered Owner of any Bond with the same rights it would have if it were not the Registrar, and to the extent permitted
by law, may act as depository for and permit any of its officers or directors to act as member of, or in any other capacity with respect to, any committee formed to protect the right of the Registered Owners of Bonds.

(g) **Registration Covenant.** The District covenants that, until all Bonds have been surrendered and canceled, it will maintain a system for recording the ownership of each Bond that complies with the provisions of Section 149 of the Code.

(h) **Place and Medium of Payment.** Both principal of and interest on the Bonds shall be payable in lawful money of the United States of America. Interest on any Fixed Rate Bonds shall be calculated on the basis of a year of 360 days and twelve 30-day months. Interest on any Variable Rate Bonds shall be calculated as provided in Section 3.2 hereof. For so long as all Bonds are in book-entry form, payments of principal and interest thereof shall be made as provided in accordance with the operational arrangements of DTC referred to in the Letter of Representations.

In the event that the Bonds are no longer held in book-entry form, interest on the Bonds shall be paid (i) in the case of Bonds other than Fixed Rate Bonds and Bonds bearing interest at the Term Interest Rate, by wire transfer of immediately available funds to the respective Registered Owners thereof on the applicable Record Date to an account in a bank located in the United States specified by the Registered Owner thereof in a writing delivered to the Registrar on or before the Record Date for the applicable payment, and (ii) in the case of Fixed Rate Bonds and Bonds bearing interest at the Term Interest Rate, by check or draft mailed to the Registered Owners at the addresses for such Registered Owners appearing on the Bond Register on the Record Date, or upon the written request of a Registered Owner of more than $1,000,000 of Bonds (received by the Registrar at least 10 days prior to the applicable payment date), such payment shall be made by the Registrar by wire transfer to the account within the United States designated by the Registered Owner. Principal of the Bonds shall be payable upon presentation and surrender of such Bonds by the Registered Owners at the designated corporate office of the Registrar.

If any Bond shall be duly presented for payment and funds have not been duly provided by the District on such applicable date, then interest shall continue to accrue thereafter on the unpaid principal thereof at the rate stated on such Bond until it is paid.

**Section 4.2 Form of Bonds.** The Bonds shall be in substantially the form set forth in Appendix A, which is incorporated herein by this reference.

**Section 4.3 Execution and Authentication of Bonds.** The Bonds shall be executed on behalf of the District with the manual or facsimile signature of the President or Vice President of the Commission and attested with the manual or facsimile signature of the Secretary of the Commission and the seal of the District shall be imprinted or impressed on each of the Bonds. The Bonds shall bear thereon a certificate of authentication, executed manually by the Registrar. Only such Bonds as shall bear thereon such certificate of authentication shall be entitled to any right or benefit under this resolution and no Bond shall be valid or obligatory for any purpose until such certificate of authentication shall have been duly executed by the Registrar. Such certificate of the Registrar upon any Bond executed on behalf of the District shall be conclusive evidence that the Bond so authenticated has been duly authenticated and delivered under this resolution and that the Registered Owner thereof is entitled to the benefits of this resolution.

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In case any of the officers who shall have signed, attested, or sealed any of the Bonds shall cease to be such officers before the Bonds so signed, attested, authenticated, registered or sealed shall have been actually issued and delivered, such Bonds shall be valid nevertheless and may be issued by the District with the same effect as though the persons who had signed, attested, authenticated, registered or sealed such Bonds had not ceased to be such officers.

ARTICLE V
SPECIAL FUNDS AND DEFEASANCE

Section 5.1 Revenue Fund. The District covenants and agrees that so long as any of the Parity Bonds are outstanding and unpaid it will continue to pay into the Revenue Fund all Gross Revenue, exclusive of earnings on money on hand in any arbitrage rebate account or any bond fund (including the Bond Fund), the R&C Fund, or the Parity Bond Reserve Funds, which may be retained in such funds and account or transferred to other funds as required by this resolution or other bond resolution.

(a) The Gross Revenue of the District shall be used only for the following purposes and in the following order of priority:

(1) to pay Operating Expenses and Resource Obligations (to the extent payable as Operating Expenses);

(2) to make all payments required to be made into the Bond Fund for the payment of accrued interest on Parity Bonds on the next interest payment date and to make any District Payments;

(3) to make all payments required to be made into the Bond Fund for the payment of the principal amount of Serial Bonds next coming due, and for the optional or mandatory redemption of Term Bonds;

(4) to make all payments required to be made into the Parity Bond Reserve Funds, or to meet a reimbursement obligation with respect to any Qualified Insurance or Qualified Letter of Credit or other credit enhancement device, if so required by resolution of the Commission; and

(5) to make all payments required to be made into any special fund or account created to pay or secure the payment of the principal of and interest on any Junior Lien Bonds and any other revenue bonds, warrants or other revenue obligations of the District having a lien upon Gross Revenue and money in the Revenue Fund and Bond Fund and accounts therein junior and inferior to the lien thereon for the payment of the principal of and interest on the Bonds.

(b) Resource Obligations, not payable as Operating Expenses, shall be paid on a parity with Outstanding Parity Bonds as provided in subsections (2) and (3) above.

(c) After all of the above payments and credits have been made, amounts remaining in the Revenue Fund may be used for any other lawful purpose of the District.

Section 5.2 Bond Fund; Parity Bond Reserve Funds.

(a) Bond Fund. A special fund of the District known as the “Electric System Revenue Bond Fund” (herein referred to as the “Bond Fund”), was created by Resolution No. 4744 of the
District, and shall be continued and used for the purpose of paying the principal of, premium, if any, and interest on the Parity Bonds, and for the purpose of retiring such bonds prior to maturity. At the option of the District, separate accounts may be created in the Bond Fund for the purpose of paying or securing the payment of the principal of, premium, if any, and interest on the Bonds and any Future Parity Bonds. The amounts, if any, the District contributes to the Purchase Price for Variable Rate Bonds as provided in Section 3.5(g) shall be paid from the Bond Fund.

District Payments shall be made from, and Reciprocal Payments shall be made into, the Bond Fund. The District hereby obligates and binds itself irrevocably to set aside and pay into the Bond Fund out of the Gross Revenue certain fixed amounts, without regard to any fixed proportion of such Gross Revenue, sufficient (together with other available funds on hand and paid into the Bond Fund) to pay the principal of, premium, if any, and interest on the Parity Bonds from time to time outstanding as the same become due and payable. Such fixed amounts shall be as follows:

1. In the case of all Parity Bonds other than Variable Rate Bonds, on or prior to the date upon which an installment of interest falls due, the District will pay into the Bond Fund an amount (together with such other money as is on hand and available in such Fund) equal to the installment of interest then falling due on all outstanding Parity Bonds. In the case of Variable Rate Bonds, the District shall make transfers to the Bond Fund at such time and in such amount as shall be specified in the resolution authorizing the issuance of such Variable Rate Bonds.
2. On or prior to the date upon which an installment of principal of the Parity Bonds falls due, the District shall pay into the Bond Fund an amount (together with such other money as is on hand and available in such account) equal to the installment of principal then falling due on all outstanding Parity Bonds.
3. The Bond Fund shall be used for the purpose of redeeming Term Bonds pursuant to the Sinking Fund Requirement pertaining to such Term Bonds and to otherwise retire the Bonds prior to maturity. On or prior to the due date of each Sinking Fund Requirement, the District shall pay from the Revenue Fund into the Bond Fund an amount (together with such other money as is on hand and available in such account) equal to the Sinking Fund Requirement for such date.

The District shall apply substantially all the money paid into the Bond Fund to the redemption of Term Bonds on the next ensuing Sinking Fund Requirement due date (or may so apply such money prior to such Sinking Fund Requirement due date), pursuant to the terms of this resolution or of the resolution authorizing the issuance thereof. The District may also apply the money paid into the Bond Fund for the purpose of retiring Term Bonds by the purchase of such Bonds at a purchase price (including any brokerage charge) not in excess of the principal amount thereof, in which event the principal amount of such Bonds so purchased shall be credited against the next ensuing Sinking Fund Requirement. If as of any January 1 the principal amount of Term Bonds retired by purchase or redemption exceeds the cumulative amount required to have been redeemed by sinking fund installments on or before such January 1, then such excess may be credited against the Sinking Fund Requirement for Term Bonds for the following Fiscal Year, or, if determined by resolution of the Commission, may be credited against the Sinking Fund Requirement for any succeeding Fiscal Year. Any such purchase of Bonds by the District may be made with or without tenders of Bonds in such manner as the District shall, in its discretion, deem to be in its best interest.

(b) Parity Bond Reserve Funds. The District has previously established separate debt service reserve funds and reserve fund requirements in connection with the issuance of its Outstanding

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Parity Bonds. The District may determine to establish new reserve funds and new reserve fund requirements in connection with the issuance of each series of the Bonds and any Future Parity Bonds. Reserve funds securing the payment of principal of and interest on one or more series of Parity Bonds are referred to herein as “Parity Bond Reserve Funds.”

Each Designated Representative is authorized to determine if each series of Bonds issued hereunder is to be secured by a Parity Bond Reserve Fund and the corresponding Reserve Fund Requirement, which may be zero. Any such designation and Reserve Fund Requirement shall be set forth in the applicable Bond Purchase Contract. The District hereby covenants and agrees that it will establish and fund any such Parity Bond Reserve Fund, to the extent such reserve fund is required to be funded, to the Reserve Fund Requirement as set forth herein and in the applicable Bond Purchase Contract.

The Reserve Fund Requirement may, at the District’s option, be recalculated as of the date of the defeasance of any Parity Bonds. Notwithstanding the provisions of this subsection, any resolution providing for the issuance of Parity Bonds may provide (or the Commission may provide by resolution at any other time) for the District to obtain Qualified Insurance or a Qualified Letter of Credit for specific amounts required pursuant to this section to be paid out of the reserve fund. The face amount of any such Qualified Insurance or Qualified Letter of Credit shall be credited against the amounts required to be maintained in the reserve fund by this section to the extent that such payments and credits to be made are insured by an insurance company, or guaranteed by a letter of credit from a financial institution. Such Qualified Letter of Credit or Qualified Insurance shall not be cancelable on less than five years notice. In the event of any cancellation, the reserve fund shall be funded in accordance with the provisions of this section providing for payment to the reserve fund in the event of a deficiency therein.

Money in the Bond Fund and any Parity Bond Reserve Funds securing the Bonds may, at the option of the District, be invested and reinvested as permitted by law in Permitted Investments maturing, or which are retireable at the option of the registered owner, prior to the maturity date of the final installment of principal of the Parity Bonds. For the purpose of determining the amount credited to each Parity Bond Reserve Fund securing the Bonds, obligations in which money in such reserve fund shall have been invested shall be valued at the market value thereof, plus accrued interest to the date of calculation. The term “market value” shall mean, in the case of securities which are not then currently redeemable at the option of the owner, the current bid quotation for such securities, as reported in any nationally circulated financial journal, and the current redemption value in the case of securities that are then redeemable at the option of the owner. For obligations that mature within six months, the market value shall be the par value thereof. The valuation of the amount in the Parity Bond Reserve Fund shall be made by the District as of the close of business on each December 31 (or on the next preceding business day if December 31 does not fall on a business day) and may be made on each June 30 (or on the next preceding business day if June 30 does not fall on a business day).

If the valuation of the amount in a Parity Bond Reserve Fund shall be less than the Reserve Fund Requirement in effect on the date of valuation, the District shall credit to such Parity Bond Reserve Fund on or before the 25th day of each of the six succeeding calendar months one-sixth of the amount necessary to make the valuation of the amount in the reserve fund equal to 100% of the Reserve Fund Requirement. If the valuation of the amount in the Parity Bond Reserve Fund is greater than 100% of the Reserve Fund Requirement, then and only then may the District withdraw at any time prior to the next date of valuation from the Parity Bond Reserve Fund (i) the interest earned on the
In calculating the amount required to be on hand in the Parity Bond Reserve Fund at any time, the election by the District to make payments therein pursuant to this resolution may be taken into account.

Money in the Bond Fund shall be transmitted to the Registrar for the Parity Bonds in amounts sufficient to meet the next maturing installments of principal and interest and premiums, if any, at or prior to the time upon which any interest, principal or premium, if any, is to become due. If there is a deficiency in the Bond Fund for such purpose, the District shall make up any such deficiency from the Parity Bond Reserve Fund established or maintained for such series of Parity Bonds, by the withdrawal of cash therefrom for that purpose, and, if necessary, by sale or redemption of any authorized investments in such amount as will provide cash in the respective Parity Bond Reserve Fund sufficient to make up any such deficiency.

Any reduction in the Parity Bond Reserve Fund by reason of any such withdrawal shall be made up from money in the Revenue Fund first available after making the current specified payments into the Bond Fund and after paying and making necessary provision for the payment of Operating Expenses. If a deficiency still exists immediately prior to an interest payment date and after the withdrawal of cash, the District shall then draw from any Qualified Letter of Credit, Qualified Insurance, or other credit enhancement instrument. Such draw shall be made at such times and under such conditions as the agreement for such Qualified Letter of Credit or such Qualified Insurance shall provide. The District shall pay any reimbursement obligation as a result of a draw under a Qualified Letter of Credit or Qualified Insurance from the Revenue Fund. The District shall deposit Gross Revenue into the Revenue Fund sufficient to meet such reimbursement obligation and all other obligations of the Revenue Fund.

Whenever and so long as the assets of the Bond Fund, the Parity Bond Reserve Fund are sufficient to provide money to pay the Parity Bonds then outstanding, including such interest as may thereafter become due thereon and any premiums upon redemption, no payments need be made into the Bond Fund pursuant to this resolution during any period in which such excess continues.

Money set aside from time to time with the Registrar for the Parity Bonds and the interest thereon shall be held in trust for the owners of such Parity Bonds. Until so set aside for the retirement of principal, payment of sinking fund installments, payment of interest and premium, if any, as aforesaid, money in the Bond Fund shall be held in trust for the benefit of the owners of the Parity Bonds then outstanding and payable equally and ratably and without preference or distinction as between different installments or maturities.

Section 5.3 Defeasance. In the event that money and/or Government Obligations maturing or having guaranteed redemption prices at the option of the holder at such time or times and bearing interest to be earned thereon in amounts (together with such money, if any) sufficient to redeem and retire part or all of the Bonds in accordance with their terms, are hereafter irrevocably set aside in a special account and pledged to effect such redemption and retirement, then no further payments need be made into the Bond Fund or any account therein for the payment of the principal of and interest on the certain Bonds so provided for and such Bonds shall then cease to be entitled to any lien, benefit or security of this resolution, except the right to receive the funds so set aside and pledged, and such
Bonds shall no longer be deemed to be outstanding hereunder, or under any resolution authorizing the issuance of bonds or other indebtedness of the District.

Within 10 business days of defeasance of any Bonds, the Registrar shall provide notice of defeasance of Bonds to Registered Owners of the Bonds being defeased in accordance with a Continuing Disclosure Certificate.

Section 5.4 Rate Stabilization Account. In accordance with the priorities set forth in Section 5.1, the District may from time to time deposit Net Revenue into the Rate Stabilization Account in the R&C Fund and may from time to time withdraw amounts therefrom to enhance rate stability or for other lawful purposes of the District related to the Electric System. Solely for purposes of calculating the coverage requirement set forth in Section 7.2, there shall be added to the Net Revenue in any year any amount withdrawn from the Rate Stabilization Account in such calendar year and deposited in the Revenue Fund, and there shall be subtracted from Net Revenue in any year any amount withdrawn from the Revenue Fund and deposited in the Rate Stabilization Account. Money in the R&C Fund may, at the option of the District, be invested and reinvested as permitted by law.

Section 5.5 Bond Purchase Fund. There shall be created and established with and maintained by the Registrar a separate trust fund to be designated the “Bond Purchase Fund.” The Registrar shall further establish within the Bond Purchase Fund a separate trust account to be designated the “Remarketing Account” and, if a Credit Facility is delivered in connection with a Conversion, a separate trust account to be designated the “Credit Facility Purchase Account.” Amounts contributed by the District to the Purchase Price as provided in Section 3.5(g) shall be transferred from the Bond Fund to the Registrar and deposited into the Bond Purchase Fund.

(a) Remarketing Account. Upon receipt of the proceeds of a remarketing of Variable Rate Bonds on a Purchase Date pursuant to Section 3.8, the Registrar shall deposit such proceeds in the Remarketing Account of the Bond Purchase Fund for application to the Purchase Price of such Bonds in accordance with Section 3.8.

(b) Credit Facility Purchase Account. Upon receipt from the Credit Provider of the immediately available funds transferred, pursuant to Section 3.6, the Registrar shall deposit such money in the Credit Facility Purchase Account of the Bond Purchase Fund for application to the Purchase Price of the Variable Rate Bonds required to be purchased on a Purchase Date to the extent that the money on deposit in the Remarketing Account of the Bond Purchase Fund shall not be sufficient. Any amounts deposited in the Credit Facility Purchase Account and not needed on any Purchase Date for the payment of the Purchase Price for any Variable Rate Bonds shall be immediately returned to the Credit Provider. Any amounts in the Credit Facility Purchase Account shall only be used to repay the Variable Rate Bonds.

ARTICLE VI
APPLICATION OF BOND PROCEEDS; PLAN OF REFUNDING

Section 6.1 Application of Bond Proceeds; Plan of Refunding.

(a) Reserve Fund. If and to the extent a Parity Bond Reserve Fund or Funds are established to secure payment of the principal of and interest on the Bonds as provided in Section 5.2(b) of this resolution, the District is hereby authorized to deposit available funds of the District and/or a portion of the proceeds of the Bonds, and/or purchase Qualified Insurance or a Qualified Letter of Credit and
pay the associated policy premium, to satisfy the Reserve Fund Requirement on the Issuance Date of the applicable series of Bonds.

(b) **Refunding Plan.** For the purpose of realizing a debt service savings and/or restructuring the debt service obligations for the Refunded Bonds, the District proposes to refund the Refunded Bonds as set forth herein. If a Designated Representative determines that it is in the best interest of the District to proceed with the refunding authorized herein, a Designated Representative shall designate all or a portion of the Refunding Candidates as Refunded Bonds and such designation shall be set forth in the applicable Bond Purchase Contract.

The District shall deposit a portion of any series of Bonds issued for the purpose of refunding and/or prepaying the Refunded Bonds, together with other available funds of the District, if any, into the Bond Fund or other authorized fund and use such funds to defease and/or refund the Refunded Bonds pursuant to the terms of the applicable authorizing bond resolution(s). Alternatively, the District may direct that the proceeds of a series of Bonds be deposited with a Refunding Agent pursuant to a Refunding Agreement to be used immediately to defease and/or refund the Refunded Bonds pursuant to the terms of their applicable authorizing bond resolution(s). Each Designated Representative is hereby authorized to select the Refunded Bonds from the Refunding Candidates, to establish the Call Date(s) for the Refunded Bonds, to provide or cause to be provided the notices of redemption of the Refunded Bonds in accordance with the applicable provisions of the bond resolution(s) authorizing the Refunded Bonds, to select a Refunding Agent (if any), to execute a Refunding Agreement (if any) and to take any action as determined to be necessary and in the best interest of the District to refund the Refunded Bonds. The District hereby calls the Refunded Bonds for redemption on the Call Date in accordance with the provisions of the bond resolution(s) authorizing the Refunded Bonds.

(c) **Construction Fund.** The District shall deposit a portion of any series of Bonds issued for the purpose of financing and/or reimbursing the District for costs of the Projects into a construction fund held by the District (the “Construction Fund”). To the extent the District makes capital expenditures for the Projects prior to the date such Bonds are issued, the District intends to reimburse all or a portion of those capital expenditures out of proceeds of such Bonds as permitted by U.S. Treasury Regulation § 1.150-2(d). Except as provided by the Code, the income from the investment of Bond proceeds in the Construction Fund shall be deposited in the Construction Fund and applied to the payment of the costs of the Projects.

(d) **Costs of Issuance.** The District may allocate a portion of proceeds of each series of Bonds, net of any Underwriter’s discount, and/or available funds of the District to the payment of costs of issuance of such series of Bonds, including any costs associated with the refunding of the Refunded Bonds, in the manner as set forth in the Closing Memorandum for such Bonds.

ARTICLE VII
COVENANTS TO SECURE BONDS

Section 7.1 **Security for Parity Bonds.** All Parity Bonds and Parity Lien Obligations are special limited obligations of the District payable from and secured solely by Gross Revenue, subject to the payment of Operating Expenses and Resource Obligations qualifying for payment as Operating Expenses, and by other money and assets specifically pledged hereunder for the payment thereof. There are hereby pledged as security for the payment of the principal of, premium, if any, and interest on all Parity Bonds and Parity Lien Obligations in accordance with the provisions of this resolution, subject only to the provisions of this resolution restricting or permitting the application thereof for the purposes
and on the terms and conditions set forth in this resolution: (a) the Gross Revenue (exclusive of any money credited to a fund or account for the purpose of paying arbitrage rebate to the federal government), and (b) the money and investments, if any, credited to the Revenue Fund, the Bond Fund, and the R&C Fund and the income therefrom. The Gross Revenue and other money and securities hereby pledged shall immediately be subject to the lien of this pledge without any physical delivery thereof or further act, and the lien of this pledge shall be valid and binding as against all parties having claims of any kind in tort, contract or otherwise against the District regardless of whether such parties have notice thereof.

All Parity Bonds and Parity Lien Obligations now or hereafter outstanding shall be equally and ratably payable and secured hereunder without priority by reason of date of adoption of the resolution providing for their issuance or by reason of their series, number or date of sale, issuance, execution or delivery, or by the liens, pledges, charges, trusts, assignments and covenants made herein, except as otherwise expressly provided or permitted in this resolution and except as to insurance which may be obtained by the District to insure the repayment of one or more series or maturities within a series.

The pledge of the Gross Revenue and of the amounts to be paid into and maintained in the funds and accounts described above in this section to pay and secure the payment of Parity Bonds and Parity Lien Obligations is hereby declared to be a prior lien and charge on the Gross Revenue and the money and investments in such funds and accounts superior to all other liens and charges of any kind or nature, subject to prior application for the payment of Operating Expenses and payments associated with Resource Obligations in any month in which any power and energy or other goods and services from such resources were made available to the Electric System during such month (regardless of whether or not the Electric System actually scheduled or received energy from such resource during such month). At all other times such Resource Obligation shall be an obligation payable from Gross Revenue on a parity of lien with any Parity Bonds or Parity Lien Obligations.

Parity Bonds shall not in any manner or to any extent constitute general obligations of the District or of the State, or any political subdivision of the State, or a charge upon any general fund or upon any money or other property of the District or of the State, or of any political subdivision of the State, not specifically pledged thereto by this resolution.

Section 7.2 General Covenants. The District covenants with the Registered Owners of the Parity Bonds as follows:

(a) Rate Covenant. The District shall establish, maintain and collect rates or charges for electric energy sold through the ownership or operation of the Electric System, and all other commodities, services and facilities sold, furnished or supplied by the District in connection with the ownership or operation of the Electric System that shall be fair and nondiscriminatory and adequate to provide Gross Revenue, together with other available money, including without limitation transfers from the R&C Fund, sufficient for the payment of the principal of and interest on all outstanding Parity Bonds and all payments which the District is obligated to set aside in the Bond Fund, and for the proper operation and maintenance of the Electric System, and all necessary repairs, replacements and renewals thereof, the working capital necessary for the operation thereof, and for the payment of all amounts that the District may now or hereafter become obligated to pay from Gross Revenue. In the resolutions authorizing the bonds for the Priest Rapids Project, the District has covenanted to pay to the Priest Rapids Project from the Electric System that portion of the annual costs of the Priest Rapids Project for such Fiscal Year, including without limitation for operating expenses and annual debt service, that is not otherwise paid or provided for from payments received by the Priest Rapids Project from the
sale of power and energy and related products from the Priest Rapids Project to purchasers other than the District and to establish, maintain and collect rates or charges for electric power and energy and related products sold through the Electric System sufficient to make any such payments to the Priest Rapids Project. Except as provided in the following sentence, the obligation to pay such amounts shall rank as a lien and charge against the revenues of the Electric System junior in rank to all other obligations of the Electric System. Payments made by the Electric System for the costs of purchased power and energy shall be an Operating Expenses of the Electric System.

(b) Such rates or charges shall be sufficient to provide Net Revenue, taking into account any transfers to or from the R&C Fund pursuant to this resolution, in any Fiscal Year hereafter in an amount equal to at least 1.25 times the Annual Debt Service in such Fiscal Year, excluding any capitalized interest thereon in said Fiscal Year.

The failure to collect Gross Revenue in any Fiscal Year sufficient to comply with the covenant contained in this section shall not constitute an Event of Default if the District, before the 90th day of the following Fiscal Year, both

(1) employs a Professional Utility Consultant to recommend changes in the District’s rates which are estimated to produce Gross Revenue sufficient (once the rates recommended by the Professional Utility Consultant have been imposed by the District) to meet the requirements of this section; and

(2) imposes rates at least as high as those recommended by such Professional Utility Consultant at the time or times so recommended.

The calculation of the coverage requirement set forth above, and in Section 7.3 hereof, and the District’s compliance therewith, shall be made solely with reference to this resolution without regard to future changes in generally accepted accounting principles. If the District has changed one or more of the accounting principles used in the preparation of its financial statements, because of a change in generally accepted accounting principles or otherwise, then an event of default relating to this coverage requirement shall not be considered an Event of Default if the coverage requirement ratio would have been complied with had the District continued to use those accounting principles employed at the date of the most recent audited financial statements prior to the date of this resolution.

(c) Maintenance and Repair. The District will maintain, preserve and keep the Electric System and all additions and betterments thereto and extensions thereof and every part and parcel thereof in good repair, working order and condition, and will from time to time make all necessary and proper repairs, renewals, replacements, extensions and betterments thereto so that at all times the business carried on in connection therewith shall be properly and advantageously conducted, and the District will at all times operate such properties and the business in connection therewith in an efficient manner and at reasonable cost.
(d) **Disposal of Electric System.** The District will not sell, mortgage, lease or otherwise dispose of or encumber all or any portion of the Electric System properties, or permit the sale, mortgage, lease or other disposition thereof, except as hereinafter provided in this subsection (d):

1. The District may sell, lease or otherwise dispose of all or substantially all of the Electric System, provided that simultaneously with such sale, lease or other disposition, the District shall cause all of the Bonds to be, or deemed to be, no longer outstanding.

2. Except as provided in the last paragraph of this subsection (2), the District will not sell, mortgage, lease or otherwise dispose of any part of the Electric System in excess of 5% of the value of the net utility plant of the Electric System in service unless prior to such sale, mortgage, lease or other disposition:

   (i) there shall have been filed with the Secretary of the Commission a certificate of a Professional Utility Consultant stating that such sale, mortgage, lease or other disposition will not impair the ability of the District to comply with the covenants set forth in Section 7.2(a) and 7.2(b) of this resolution; or

   (ii) the proceeds of such disposition are used to acquire new operating properties of the Electric System or provision is made for the payment, redemption or other retirement of a principal amount of Parity Bonds equal to the greater of the following amounts:

   A. an amount which will be in the same proportion of the net principal amount of Parity Bonds then outstanding (defined as the total principal amount of such bonds then outstanding less the amount of cash and investments in the Bond Fund) that the Revenue attributable to the part of the Electric System sold or disposed of for the 12 preceding months bear to the total Revenue for such period; or

   B. an amount which will be in the same proportion to the net principal amount of Parity Bonds then outstanding that the book value of the part of the Electric System sold or disposed of bears to the book value of the entire Electric System immediately prior to such sale or disposition.

The District may sell or otherwise dispose of any part of the Electric System which shall have become unserviceable, inadequate, obsolete or unfit to be used in the operation of the Electric System, or no longer necessary, material to or useful in such operation. The proceeds of any such sale or disposition pursuant to this paragraph shall be paid into the Bond Fund for credit to the Parity Bond Reserve Funds on a pro rata basis to the extent of any deficiency in such reserve funds, and the balance of such proceeds, if any, shall be deposited in the Revenue Fund.

(e) **Insurance.** The District will keep the works, plants, properties and facilities comprising the Electric System insured, and will carry such other insurance, with responsible insurers, with policies payable to the District, against risks, accidents or casualties, at least to the extent that insurance is usually carried by municipal corporations operating like properties; provided, however, that the District may, if deemed necessary and advisable by the Commission, institute or continue a self-insurance program with respect to any or all of the aforementioned risks.

(f) **Books and Records.** The District shall keep proper books of account in accordance with generally accepted accounting principles as applied to governmental entities and with the rules and
regulations prescribed by the State Auditor’s office of the State, and if no such rules or regulations are prescribed as aforesaid, then in substantial accordance with the uniform system of accounts prescribed by the Federal Energy Regulatory Commission or other federal agency having jurisdiction over electric public utility companies owning and operating properties similar to the properties of the District, whether or not the District is at the time required by law to use such system of accounts. The District shall cause its books of account to be audited annually by the State Auditor’s office or other State department or agency as may be authorized and directed by law to make such audits, or if such an audit shall not be made for twelve months after the close of any Fiscal Year of the District, by independent certified public accountants. In keeping said books of account, the District shall accrue depreciation monthly thereon on its depreciable properties in accordance with the accounting practice prescribed by the public departments or agencies above mentioned. Any Registered Owner of any Bond may obtain at the office of the District, copies of the balance sheet and statement of income and retained earnings showing in reasonable detail the financial condition of the Electric System as of the close of each Fiscal Year, and the income and expenses of such year, including the amounts paid into the Revenue Fund, the Bond Fund, and in any and all special funds created pursuant to the provisions of this resolution, and the amounts expended for maintenance, renewals, replacements, and gross capital additions to the Electric System. All calculations, classifications and other financial determinations required by this resolution shall be made in accordance with the accounting practices then being observed by the District.

(g) No Free Service. Except as required by law or in an amount per year not exceeding 1/10 of 1% of annual Operating Expenses, the District will not furnish or supply or permit the furnishing or supplying of electric energy or any other commodity, service or facility furnished by or in connection with the operation of the Electric System, free of charge to any person, firm or corporation, public or private, so long as any Bonds are outstanding and unpaid, and the District will promptly enforce the payment of any and all accounts owing to the District and delinquent, by discontinuing service to the extent then permitted by law, or by legal suits, actions and proceedings, or both; provided, that, to the extent permitted by law, the District may lend money and may provide commodities, services or facilities free of charge or at a reduced charge in connection with a plan of conservation of electric energy adopted by the Commission.

(h) Dissolution or Termination. The District shall not dissolve or terminate its existence without paying or providing for the payment of all outstanding Parity Bonds.

(i) License. The District will use its best efforts to retain the FERC License for the Priest Rapids Project.

Section 7.3 Future Parity Bonds and Resource Obligations. The District hereby covenants and agrees that for as long as any Bonds remain outstanding:

(a) It will not issue any bonds or other obligations on a parity of lien with the Outstanding Parity Bonds and the Bonds, except, upon the conditions hereinafter provided, the District reserves the right to issue Future Parity Bonds and to incur Resource Obligations, obligations under reimbursement agreements and under Derivative Products as provided this resolution. Future Parity Bonds may be issued for any lawful purpose of the District, including but not limited to, acquiring, constructing and installing additions, betterments and improvements to and extensions of, acquiring necessary equipment for, or making necessary renewals, replacements or repairs and capital improvements to the Electric System.
The District covenants that Future Parity Bonds shall be issued only upon compliance with the following conditions:

(1) That at the times of the issuance of such Future Parity Bonds there is no deficiency in the Bond Fund or in any of the accounts therein and no Event of Default has occurred and is continuing.

(2) That Net Revenue of the Electric System for any 12 consecutive months out of the months next preceding the issuance of the Future Parity Bonds (not including any transfer from the R&C Fund), will equal at least 1.25 times the Annual Debt Service required to be paid in any Fiscal Year thereafter. In calculating Annual Debt Service for the purpose of this subparagraph (2), if the interest rate on any Parity Bonds is other than a fixed rate, the rate used shall be any rate published as the Bond Buyer Revenue Bond Index for municipal revenue bonds within the 30-day period prior to the date of such calculation. If such index is no longer published, another nationally recognized index for municipal revenue bonds maturing in 20 to 30 years may be used.

If on the date of such calculation the interest rate on any Variable Rate Bonds is then fixed for a specified period, including pursuant to a Derivative Product, the interest rate used for such specified period for the purpose of such calculation shall be such actual interest rate.

For the purposes of this subparagraph (2), the “Net Revenue of the Electric System” may be adjusted as follows:

(i) To include a full 12 months of Net Revenue from any customers added during the 12-month period being considered.

(ii) To include the annual estimated net revenue to be received as a result of any additions, betterments and improvements to and extensions of the Electric System to be acquired, constructed or installed by the District from the proceeds of the Future Parity Bonds to be issued or under construction at the time of such certificate.

(iii) To include the additional Net Revenue which would have been received by the District if any rate change adopted prior to the delivery of the Future Parity Bonds, but subsequent to the beginning of the 12-month period being considered, had been in force during the full 12-month period.

(3) That at or prior to the time of the issuance of such Future Parity Bonds the District shall obtain and have on file a certificate from the Treasurer which shall certify full compliance with conditions (1) and (2) of this subsection (a), or in the alternative the District obtains a certificate from a Professional Utility Consultant stating that the projected annual Net Revenue for the Fiscal Years in which the Parity Bonds, including the Future Parity Bonds being issued, are expected to at least equal 1.25 times the Annual Debt Service required to be paid in any Fiscal Year thereafter. Such certificate shall have attached thereto financial statements of the District for the period upon which the same is based and audits by the Division of Municipal Corporations of the State Auditor’s Office of the State of Washington or from an independent certified public accountant for as many fiscal years within such period as such audits have been made and completed.
(4) That the resolution authorizing the issuance of the Future Parity Bonds shall contain covenants and provisions substantially the same as Sections 5.1, 5.2 and 5.4, 7.1 through 7.5, 8.1 through 8.8, and 9.1 through 9.7 hereof.

(b) Refunding Bonds. In the event that any Future Parity Bonds provided for in this Section 7.3 are issued for the sole purpose of exchanging with or providing funds to purchase or refund or redeem and retire at or prior to their maturity any or all outstanding Parity Bonds and the issuance of such refunding Future Parity Bonds and retirement of outstanding bonds and such refunding Future Parity Bonds will not require a greater amount (except as necessary to round maturities to the nearest $5,000) to be paid in any Fiscal Year thereafter as Annual Debt Service than would have been required to be paid in the same Fiscal Year for Annual Debt Service on the bonds being refunded, then subsections (2) and (3) of subsection (a) of this Section 7.3 need not be complied with to permit such refunding Future Parity Bonds to be issued, although the provisions of subsections (1) and (4) of subsection (a) of this Section 7.3 must still be complied with.

(c) Resource Obligations. The District may enter into or incur a Resource Obligation pursuant to a resolution of the Commission provided that the following requirements shall be met at the time of adoption of such resolution:

(1) No Event of Default with respect to any Parity Bonds or Resource Obligations has occurred and is continuing.

(2) There shall have been filed with the Secretary of the Commission a certificate of the Professional Utility Consultant stating that the additional source of power and energy or conservation from such Resource Obligation is consistent with sound utility power supply planning.

(3) There shall have been filed with the Secretary of the Commission a report of the Professional Utility Consultant stating that estimated annual Net Revenue for the second full Fiscal Year after the date of initial operation of the facilities, costs of which are to be financed as a Resource Obligation, or after the date of first delivery of energy, capacity, reserves or services pursuant to a contract, costs of which are declared to be a Resource Obligation, as the case may be, shall be at least equal to 125% of maximum Annual Debt Service in any future Fiscal Year. In estimating Net Revenue, the Professional Utility Consultant shall base such estimate on factors the Professional Utility Consultant deems to be reasonable and shall treat the costs of the Resource Obligation as Operating Expenses.

(4) In the event that the Resource Obligation is a contract to purchase energy, capacity, reserves or services, there shall have been filed with the Secretary of the Commission opinions of counsel to all other parties to the contract which opinions state that each such party to such contract has all requisite right, power and authority to execute and deliver such contract and to perform its obligations thereunder and that such contract constitutes a legally valid and binding obligation of such party thereto.

(5) The Resource Obligations shall not be subject to acceleration if an event of default has occurred.

(d) Separate System. Nothing in this resolution shall prevent the District from entering into contracts to purchase energy, capacity, capability, reserves, conservation or services or from authorizing and issuing bonds, notes, certificates or other obligations or evidences of indebtedness,
other than Bonds, to acquire or construct facilities or resources for the generation of power and energy, or for the conservation, transformation or transmission of power and energy, and any incidental properties to be constructed or acquired in connection therewith, which facilities or resources shall be a separate system, provided that such contractual obligations, bonds or other obligations or evidences of indebtedness shall be payable solely from the revenues or other income derived from the ownership or operation of such separate system.

(e) Reimbursement Obligations.

(1) In the event that the District elects to meet the requirements with respect to a Parity Bond Reserve Fund through the use of a Qualified Letter of Credit, Qualified Insurance or other credit enhancement device, the District may contract with the person providing such Qualified Letter of Credit, Qualified Insurance or other credit enhancement device that the District’s reimbursement obligation, if any, to such entity ranks on a parity of lien with payments into the reserve fund to secure the Bonds.

(2) In the event that the District elects additionally to secure any issue of Variable Rate Bonds through the use of a letter of credit, insurance or other credit enhancement device, the District may contract with the entity providing such letter of credit, insurance or other credit enhancement device that the District’s reimbursement obligation, if any, to such entity ranks on a parity of lien with the Bonds; provided that the payments due under such reimbursement obligation are such that if such reimbursement obligation were a series of Future Parity Bonds and assuming that such credit enhancement device were to be drawn upon for the full amount available, such Future Parity Bonds could be issued in compliance with the provisions of Section 7.3(a)(2) excluding Annual Debt Service on the Variable Rate Bonds.

Section 7.4 Restrictions on Contracting of Obligations Secured by Revenue.

(a) The District will not hereafter issue any bonds, warrants or other obligations or create any additional indebtedness which will have a lien and charge on the Gross Revenue and funds of the Electric System prior to the lien and charge thereon established by this resolution. The District will not issue any Future Parity Bonds except as provided under Section 7.3.

(b) The District may issue bonds, notes, warrants or other obligations payable from and secured by a lien on the Gross Revenue and funds of the Electric System that is subordinate to the lien on such Gross Revenue of the Parity Bonds and may create a special fund or funds for payment of such subordinate obligations (provided, however, that such bonds, notes, warrants or other obligations and the resolutions authorizing the same shall expressly state that the right to receive payment thereon is subordinated to the rights of the Registered Owners of the Parity Bonds to receive payment at the times and in the amounts provided in this resolution and the resolutions authorizing Parity Bonds and that any money received by the owners of such subordinate lien bonds, notes, warrants or other obligations which should have been paid to the Registered Owners of the Parity Bonds by reason of such subordination provision shall be held in trust for the Registered Owners of such Parity Bonds and shall be forthwith turned over to the Registrar for payment to the Registered Owners of such Parity Bonds). Subordinate lien bonds, notes, warrants or other obligations shall not be subject to acceleration upon the occurrence of an event of default.

(c) The District shall not hereafter enter into any agreement, other than a Resource Obligation, obligating the District to pay to another person or corporate entity, from Gross Revenue,
for (1) generating or transmission capacity or the use or lease of generating or transmission facilities, which agreement is not conditioned on the availability of such capacity or facility, or (2) the installment purchase or lease of property which, whether or not subject to annual appropriations, otherwise transfers to the District the burdens and benefits of ownership of such property, unless such agreement specifically states that the obligation of the District thereunder is subordinate to the obligation of the District to make payments from the Revenue Fund into the Bond Fund. This paragraph shall not be applicable to, and shall not restrict the District in entering into, any agreement relating to the Priest Rapids Project or any other hydroelectric facility owned and operated by the District.

Section 7.5 Derivative Products. To the extent permitted by State law, the District may enter into Derivative Products on a parity with the Parity Bonds subject to the conditions provided in this section. The following shall be conditions precedent to the use of any Derivative Product on a parity with any Bonds under this resolution:

(a) General Parity Tests. The Derivative Product (and the obligations to which it relates) must satisfy the requirements for Future Parity Bonds described in Section 7.3 of this resolution taking into consideration District Payments and Reciprocal Payments under the Derivative Product. Termination payments owed pursuant to a Derivative Product shall not be on a parity with the Parity Bonds.

(b) Opinion of Bond Counsel. The District shall obtain an opinion of bond counsel and/or tax counsel to the District on the due authorization and execution of such Derivative Product, the validity and enforceability thereof and opining that the action proposed to be taken is authorized or permitted by this resolution and will not adversely affect the excludability for federal income tax purposes of the interest on any outstanding tax-exempt Parity Bonds, as applicable.

(c) Payments. Each Derivative Product shall set forth the manner in which the District Payments and Reciprocal Payments are to be calculated and a schedule of Derivative Payment Dates.

(d) Supplemental Resolutions to Govern Derivative Products. Prior to entering into a Derivative Product, the District shall adopt a Supplemental Resolution, which shall:

(i) establish general provisions for the rights of providers of Derivative Products or Derivative Facilities; and

(ii) set forth such other matters as the District deems necessary or desirable in connection with the management of Derivative Products as are not clearly inconsistent with the provisions of this resolution.

Section 7.6 Tax Covenants.

(a) The District hereby covenants to comply with all applicable requirements set forth in the Code and the Tax Certificate to the extent that such compliance shall be necessary to maintain the exclusion from gross income for federal income taxes of the interest on the Tax-Exempt Bonds. The District hereby further covenants to observe all applicable requirements in any future federal tax legislation to the extent that such compliance is determined by the District to be legal and practicable and required for such exemption.
(b) The District will pay the Rebate Amount, if any, to the United States of America at the
times and in the amounts necessary to meet the requirements of the Code to maintain the exclusion
from gross income for federal income tax purposes of interest payments on the Tax-Exempt Bonds, in
accordance with the Tax Certificate.

The covenants of this section will survive payment in full or defeasance of the Tax-Exempt
Bonds.

ARTICLE VIII
DEFAULTS AND REMEDIES

Section 8.1 Events of Default. The Commission hereby finds that the continuous operation
of the Electric System and the collection, deposit and disbursement of the Gross Revenue in the manner
provided in this resolution are essential to the payment and security of the Bonds, and the failure or
refusal of the District to perform the covenants and obligations contained in this resolution will
endanger the necessary continuous operation of the Electric System and the application of the Gross
Revenue to the purposes set forth in this resolution.

The District hereby covenants and agrees with the Registered Owners from time to time of the
Bonds, in order to protect and safeguard the covenants and obligations undertaken by the District
securing the Bonds, that the following shall constitute “Events of Default”:

(a) If default shall be made in the due and punctual payment of the principal of and
premium, if any, on any of the Parity Bonds when the same shall become due and payable, either at
maturity or by proceedings for mandatory distribution or otherwise;

(b) If default shall be made in the due and punctual payment of any installment of interest
on any Parity Bond;

(c) If the District shall fail to purchase or redeem Term Bonds in an aggregate principal
amount at least equal to the Sinking Fund Requirement for the applicable Fiscal Year;

(d) If the District shall default in the observance and performance of any other of the
covenants, conditions and agreements on the part of the District contained in this resolution and such
default or defaults shall have continued for a period of 90 days after the District shall have received
from the Bondowners Trustee or from the Registered Owners of not less than 20% in principal amount
of Parity Bonds outstanding, a written notice specifying and demanding the cure of such default;

(e) If the District shall (except as herein permitted) sell, transfer, assign or convey any
properties constituting the Electric System or interests therein, or any part or parts thereof, or shall
make any agreement for such sale or transfer (except as expressly authorized by Section 7.2(d) hereof);

(f) If an order, judgment or decree shall be entered by any court of competent jurisdiction:
(1) appointing a receiver, trustee or liquidator for the District or the whole or any substantial part of
the Electric System; (2) approving a petition filed against the District seeking the bankruptcy,
arrangement or reorganization of the District under any applicable law of the United States or the State;
or (3) assuming custody or control of the District or of the whole or any substantial part of the Electric
System under the provisions of any other law for the relief or aid of debtors and such order, judgment
or decree shall not be vacated or set aside or stayed (or, in case custody or control is assumed by said
order, such custody or control shall not be otherwise terminated) within 60 days from the date of the
entry of such order, judgment or decree; or

(g) If the District shall: (1) admit in writing its inability to pay its debts generally as they
become due; (2) file a petition in bankruptcy or seeking a composition of indebtedness under any state
or federal bankruptcy or insolvency law; (3) make an assignment for the benefit of its creditors;
(4) consent to the appointment of a receiver of the whole or any substantial part of the Electric System;
or (5) consent to the assumption by any court of competent jurisdiction under the provisions of any
other law for the relief or aid of debtors of custody or control of the District or of the whole or any
substantial part of the Electric System.

Section 8.2 Bondowners’ Trustee. So long as such Event of Default has not been remedied,
a bondowners’ trustee (the “Bondowners’ Trustee”) may be appointed by the Registered Owners of
25% in principal amount of the Parity Bonds, by an instrument or concurrent instruments in writing
signed and acknowledged by such Registered Owners of the Parity Bonds or by their attorneys-in-fact
duly authorized and delivered to such Bondowners’ Trustee, notification thereof being given to the
District. That appointment shall become effective immediately upon acceptance thereof by the
Bondowners’ Trustee. Any Bondowners’ Trustee appointed under the provisions of this Section 8.2
shall be a bank or trust company organized under the laws of the State or the State of New York or a
national banking association. The bank or trust company acting as Bondowners’ Trustee may be
removed at any time, and a successor Bondowners’ Trustee may be appointed, by the Registered
Owners of a majority in principal amount of the Parity Bonds, by an instrument or concurrent
instruments in writing signed and acknowledged by such Registered Owners of the Parity Bonds or by
their attorneys-in-fact duly authorized. The Bondowners’ Trustee may require such security and
indemnity as may be reasonable against the costs, expenses and liabilities that may be incurred in the
performance of its duties.

The Bondowners’ Trustee may resign upon 60 days’ notice and a new Bondowners’ Trustee
appointed by the owners of at least 25% in principal amount of Parity Bonds; provided, however, that
no such resignation or removal shall be effective until a successor Bondowners’ Trustee shall have
been appointed and shall have delivered a written instrument of acceptance of the duties and
responsibilities of the Bondowners’ Trustee under this resolution to the District and the owners of the
outstanding Parity Bonds.

In the event that any Event of Default in the sole judgment of the Bondowners’ Trustee is cured
and the Bondowners’ Trustee furnishes to the District a certificate so stating, that Event of Default
shall be conclusively deemed to be cured and the District, the Bondowners’ Trustee and the Registered
Owners of the Parity Bonds shall be restored to the same rights and position which they would have
held if no Event of Default had occurred.

The Bondowners’ Trustee appointed in the manner herein provided, and each successor
thereto, is declared to be a trustee for the Registered Owners of all the Parity Bonds and is empowered
to exercise all the rights and powers herein conferred on the Bondowners’ Trustee.

Section 8.3 Suits at Law or in Equity. Upon the happening of an Event of Default and
during the continuance thereof, the Bondowners’ Trustee may, and upon the written request of the
Registered Owners of not less than 25% in principal amount of the Parity Bonds outstanding shall, take
such steps and institute such suits, actions or other proceedings, all as it may deem appropriate for the
protection and enforcement of the rights of the Registered Owners of the Parity Bonds, to collect any
amounts due and owing to or from the District, or to obtain other appropriate relief, and may enforce the specific performance of any covenant, agreement or condition contained in this resolution or in any of the Parity Bonds.

Nothing contained in this resolution shall, in any event or under any circumstance, be deemed to authorize the acceleration of maturity of principal on the Parity Bonds, and the remedy of acceleration is expressly denied to the Registered Owners of the Parity Bonds under any circumstances including, without limitation, upon the occurrence and continuance of an Event of Default.

Any action, suit or other proceedings instituted by the Bondowners’ Trustee hereunder shall be brought in its name as trustee for the Bondowners and all such rights of action upon or under any of the Parity Bonds or the provisions of this resolution may be enforced by the Bondowners’ Trustee without the possession of any of those Parity Bonds and without the production of the same at any trial or proceedings relative thereto except where otherwise required by law. Any such suit, action or proceeding instituted by the Bondowners’ Trustee shall be brought for the ratable benefit of all of the Registered Owners of those Parity Bonds, subject to the provisions of this resolution. The respective Registered Owners of the Parity Bonds, by taking and holding the same, shall be conclusively deemed irrevocably to appoint the Bondowners’ Trustee the true and lawful trustee of the respective Registered Owners of those Parity Bonds, with authority to institute any such action, suit or proceeding; to receive as trustee and deposit in trust any sums becoming distributable on account of those Parity Bonds; to execute any paper or documents for the receipt of money; and to do all acts with respect thereto that the Registered Owner himself or herself might have done in person. Nothing herein shall be deemed to authorize or empower the Bondowners’ Trustee to consent to accept or adopt, on behalf of any Registered Owner of the Parity Bonds, any plan of reorganization or adjustment affecting the Parity Bonds or any right of any Registered Owner thereof, or to authorize or empower the Bondowners’ Trustee to vote the claims of the Registered Owners thereof in any receivership, insolvency, liquidation, bankruptcy, reorganization or other proceeding to which the District is a party.

Section 8.4 Application of Money Collected by Bondowners’ Trustee. Any money collected by the Bondowners’ Trustee at any time pursuant to this Article shall be applied in the following order of priority:

(a) first, to the payment of the charges, expenses, advances and compensation of the Bondowners’ Trustee and the charges, expenses, counsel fees, disbursements and compensation of its agents and attorneys; and

(b) second, to the payment to the persons entitled thereto first of required interest and then of unpaid principal amounts on any Parity Bonds which shall have become due (other than Parity Bonds previously called for redemption for the payment of which money is held pursuant to the provisions hereto), whether at maturity or by proceedings for redemption or otherwise, in the order of their due dates and, if the amount available shall not be sufficient to pay in full the principal amounts due on the same date, then to the payment thereof ratably, according to the principal amounts due thereon to the persons entitled thereto, without any discrimination or preference.

Section 8.5 Duties and Obligation of Bondowners’ Trustee. The Bondowners’ Trustee shall not be liable except for the performance of such duties as are specifically set forth herein. During an Event of Default, the Bondowners’ Trustee shall exercise such of the rights and powers vested in it hereby, and shall use the same degree of care and skill in its exercise, as a prudent person would exercise or use under the circumstances in the conduct of his or her own affairs. The Bondowners’
Trustee shall have no liability for any act or omission to act hereunder except for the Bondowners’ Trustee’s own negligent action, its own negligent failure to act or its own willful misconduct. The duties and obligations of the Bondowners’ Trustee shall be determined solely by the express provisions of this resolution, and no implied powers, duties or obligations of the Bondowners’ Trustee shall be read into this resolution.

The Bondowners’ Trustee shall not be required to expend or risk its own funds or otherwise incur individual liability in the performance of any of its duties or in the exercise of any of its rights or powers as the Bondowners’ Trustee, except as may result from its own negligent action, its own negligent failure to act or its own willful misconduct.

The Bondowners’ Trustee shall not be bound to recognize any person as a Registered Owner of any Bond until his or her title thereto, if disputed, has been established to its reasonable satisfaction.

The Bondowners’ Trustee may consult with counsel and the opinion of such counsel shall be full and complete authorization and protection in respect of any action taken or suffered by it hereunder in good faith and in accordance with the opinion of such counsel. The Bondowners’ Trustee shall not be answerable for any neglect or default of any person, firm or corporation employed and selected by it with reasonable care.

Section 8.6 Suits by Individual Bondowners Restricted. Neither the Registered Owner nor the Beneficial Owner of any one or more of Parity Bonds shall have any right to institute any action, suit or proceeding at law or in equity for the enforcement of the same unless:

(a) an Event of Default has happened and is continuing; and
(b) a Bondowners’ Trustee has been appointed; and
(c) such owner previously shall have given to the Bondowners’ Trustee written notice of the Event of Default on account of which such suit, action or proceeding is to be instituted; and
(d) the Registered Owners of 25% in principal amount of the Parity Bonds, after the occurrence of such Event of Default, has made written request of the Bondowners’ Trustee and have afforded the Bondowners’ Trustee a reasonable opportunity to institute such suit, action or proceeding; and
(e) there have been offered to the Bondowners’ Trustee security and indemnity satisfactory to it against the costs, expenses and liabilities to be incurred therein or thereby; and
(f) the Bondowners’ Trustee has refused or neglected to comply with such request within a reasonable time.

No Registered Owner or Beneficial Owner of any Parity Bond shall have any right in any manner whatever by his or her action to affect or impair the obligation of the District to pay from the Net Revenue the principal of and interest on such Parity Bonds to the respective owners thereof when due.

Section 8.7 Waivers of Default. No delay or omission of the Bondowners’ Trustee or of any owner of Parity Bonds to exercise any right or power arising upon the happening of an Event of Default shall impair any right or power or shall be construed to be a waiver of any such Event of Default or to be an acquiescence therein; and every power and remedy given by this Article to the
Bondowners’ Trustee or to the owners of Parity Bonds may be exercised from time to time and as often as may be deemed expedient by the Bondowners’ Trustee or by such owners.

The Bondowners’ Trustee or the owners of not less than 50% in principal amount of the Parity Bonds at the time outstanding, or their attorneys-in-fact duly authorized, may on behalf of the owners of all of the Parity Bonds waive any past default under this resolution and any resolution authorizing the issuance of other Parity Bonds and its consequences, except a default in the payment of the principal of, premium, if any, or interest on any of the Parity Bonds. No such waiver shall extend to any subsequent or other default or impair any right consequent thereto:

Section 8.8 Remedies Granted in Resolution Not Exclusive. No remedy conferred by this resolution upon or reserved to the Bondowners’ Trustee or the owners of the Parity Bonds is intended to be exclusive of any other remedy, but each remedy shall be cumulative and shall be in addition to every other remedy given under this resolution or existing at law or in equity or by statute on or after the date of adoption of this resolution.

ARTICLE IX
AMENDMENTS

Section 9.1 Execution of Instruments by Bondowners. Any request, direction, consent or other instrument in writing required or permitted by this resolution to be signed or executed by Registered Owners may be in any number of concurrent instruments of similar tenor, and may be signed or executed by such Owners in person or by agent appointed by an instrument in writing. Proof of the execution of any such instrument shall be sufficient for any purpose of this resolution if made in the following manner: (1) the fact and date of the execution by any person of any such instrument may be proved by either (a) an acknowledgment executed by a notary public or other officer empowered to take acknowledgments of deeds to be recorded in the particular jurisdiction, or (b) an affidavit of a witness to such execution sworn to before such a notary public or other officer. Where such execution is by an officer of a corporation or association or a member of a partnership on behalf of such corporation, association or partnership, such acknowledgment or affidavit shall also constitute sufficient proof of his authority.

The foregoing shall not be construed as limiting the District to such proof, it being intended that the District may accept any other evidence of the matters herein stated which it may deem sufficient. Any request or consent of the owner of any Parity Bond shall bind every future owner of the same Parity Bond in respect of anything done by the District in pursuance of such request, direction or consent.

Section 9.2 Vote Required to Amend Resolution. Any amendment to the provisions of this resolution, may be made by a Supplemental Resolution of the District and with written consent, as hereinafter provided in Section 9.3, of the Registered Owners of not less than 66-2/3% in principal amount of the Parity Bonds outstanding; provided, however, that no such amendment shall (a) extend the date of payment of the principal of any Parity Bond or of any installment of interest thereon or reduce the principal or redemption price thereof or the rate of interest thereon or advance the date upon which any Parity Bond may first be called for redemption prior to its fixed maturity date; (b) give to any Parity Bond or Bonds any preference over any other Parity Bond or Bonds secured equally and ratably therewith; (c) reduce the aforesaid percentage of Parity Bonds, the Registered Owners of which are required to consent to any such resolution amending the provisions of this resolution; or (d) authorize the creation of any pledge prior to or, except as provided in this resolution for the issuance
of Future Parity Bonds, on a parity with the pledge afforded by this resolution, without the consent of the Registered Owner of each such Parity Bond affected thereby.

Section 9.3 Alternate Method of Obtaining Approval of Amendments. The District may at any time adopt a resolution amending the provisions of this resolution, or of any Parity Bonds, to the extent that such amendment is permitted by the provisions of this Article, to take effect when and as provided in this section. Upon adoption of such resolution, the District shall mail a form of consent to the Registered Owners. Such resolution shall not be effective unless and until there shall have been filed with the District the written consents of the percentages of Registered Owners of outstanding Parity Bonds specified in Section 9.2 hereof and a notice shall have been published in The Bond Buyer. Each such consent shall be effective only if accompanied by proof of ownership of the Parity Bonds for which such consent is given. A certificate or certificates of the Secretary of the Commission that he or she has examined such proof and that such proof is sufficient shall be conclusive that the consents have been given by the Registered Owners of the Parity Bonds described in such certificate or certificates. Any such consent shall be binding upon the Registered Owner of the Parity Bonds giving such consent and on every subsequent owner of such Parity Bonds (whether or not such subsequent owner has notice thereof). A notice stating that the resolution has been consented to by the Registered Owners of the required percentages of Parity Bonds and will be effective as provided in this section, may be given to the Registered Owners by mailing such notice to the Registered Owners by first-class mail, and shall be given by publishing the same at least once in The Bond Buyer. A record, consisting of the papers required by this section to be filed with the District, shall be proof of the matters therein stated, and the resolution shall be deemed conclusively to be binding upon the District and the Registered Owners of all Parity Bonds at the expiration of 30 days after the notice last provided for in this section, except in the event of a final decree of a court of competent jurisdiction setting aside such consent or annulling the action taken thereby in a legal action or equitable proceeding for such purpose commenced within such period.

Section 9.4 Amendment of Resolution In Any Respect by Approval of All Bondowners. Notwithstanding anything contained in the foregoing provisions of this Article, the rights and obligations of the District and of the Registered Owners of the Parity Bonds and the terms and provisions of the Parity Bonds and of this resolution may be amended in any respect with the consent of the District, by the affirmative vote of the Registered Owners of all said Parity Bonds then outstanding, such consent to be given as provided in Section 9.3, except that no notice to Registered Owners either by mailing or publication shall be required, and the amendment shall be effective immediately upon such unanimous vote or written consent of all of the Registered Owners.

Section 9.5 Parity Bonds Owned by District. Parity Bonds owned or held by or for the account of the District shall not be deemed outstanding for the purpose of any vote or consent or other action or any calculation of outstanding Parity Bonds in this resolution provided for, and shall not be entitled to vote or consent or take any other action in this resolution provided for.

Section 9.6 Endorsement of Amendment on Parity Bonds. Parity Bonds delivered after the effective date of any action amending this resolution taken as hereinabove provided may bear a notation by endorsement or otherwise as to such action, and in that case, upon demand of the Registered Owner of any Parity Bond outstanding at such effective date and presentation of his or her Parity Bond for the purpose at the designated corporate office of the Registrar, suitable notation shall be made on such Parity Bond by the Registrar as to any such action. If the District shall so determine, new Parity Bonds so modified as in the opinion of the District and its counsel to conform to such action shall be prepared, delivered and, upon demand of the Registered Owner of any Parity Bond then outstanding, shall be
exchanged without cost to such owner for Parity Bonds then outstanding hereunder, upon surrender of such Parity Bonds.

Section 9.7 Amendments by District.

(a) Notwithstanding the preceding provisions of this Article IX, or the provisions of Section 7.3(a)(4), the District from time to time and at any time may adopt a Supplemental Resolution or resolutions, which resolution or resolutions thereafter shall become a part of this resolution, for any one or more or all of the following purposes:

(1) To add to the covenants and agreements of the District contained in this resolution, other covenants and agreements thereafter to be observed, which shall not adversely affect the interest of the Registered Owners of any Parity Bonds or Future Parity Bonds in any material way, or to surrender any right or power herein reserved to or conferred upon the District.

(2) To make such provisions for the purpose of curing any ambiguities or of curing, correcting or supplementing any defective provisions contained in this resolution or any resolution authorizing Future Parity Bonds in regard to matters or questions arising under such resolutions as the District may deem necessary or desirable and which shall not adversely affect the interest of the owners of such bonds in any material respect.

(3) To modify any of the provisions of this resolution in any other respect, if such modification does not adversely affect any Registered Owner in any material respect.

Any such Supplemental Resolution of the District may be adopted without the consent of the Registered Owners of any Parity Bonds or Parity Lien Obligations at any time outstanding.

(b) Upon the adoption of any Supplemental Resolution pursuant to the provisions of this section, this resolution shall be deemed to be modified and amended in accordance therewith, and the respective rights, duties and obligations of the District under this resolution and all Registered Owners of Parity Bonds outstanding hereunder shall thereafter be determined, exercised and enforced thereunder, subject in all respects to such modification and amendments, and all the terms and conditions of any such Supplemental Resolution shall be deemed to be part of the terms and conditions of this resolution for any and all purposes.

ARTICLE X
ONGOING DISCLOSURE

Section 10.1 Undertaking to Provide Ongoing Disclosure. The District covenants to execute and deliver on the Issuance Date of any series of Bonds one or more Continuing Disclosure Certificates, and hereby covenants and agrees that it will comply with and carry out all of the provisions of any such Continuing Disclosure Certificate. The Designated Representative are each hereby authorized and directed to execute and deliver a Continuing Disclosure Certificate upon the issuance, delivery and sale of a series of Bonds with such terms and provisions as such officer shall deem appropriate and in the best interests of the District, upon consultation with counsel to the District. Notwithstanding any other provision of this resolution, failure of the District to comply with a Continuing Disclosure Certificate shall not be considered an Event of Default as to the Bonds and shall not be deemed to create any monetary liability on the part of the District to any other persons, including the Registered Owners of the Bonds, or result in acceleration of the Bonds.
ARTICLE XI
SALE OF THE BONDS

Section 11.1 Sale of the Bonds. The Bonds shall be sold from time to time at negotiated sale to the Underwriter for such series pursuant to the terms of one or more Bond Purchase Contracts. The Commission hereby finds that it is in the best interest of the District to delegate to the Designated Representatives for a limited time the authority to determine: whether and when to issue the Bonds in one or more series; whether to issue a series of Bonds as Fixed Rate Bonds or Variable Rate Bonds; whether to issue a series of Bonds as Tax-Exempt Bonds or Taxable Bonds; to establish the Reserve Fund Requirement (if any) for each series of Bonds; to select the Underwriter for each series of Bonds; and to approve the aggregate principal amount, principal amounts of each maturity, payment dates, redemption provisions, maturity date, initial interest rate(s), the series designation, the Initial Term Interest Rate Period, the Initial Term Interest Rate, the initial Index, the Index Floating Rate, the Index Floating Rate Spread, the Purchase Date(s), the Stepped Rate(s), and other terms for each series of Bonds. The final determination of the terms for each series of Bonds shall be set forth in a Bond Purchase Contract to be signed by a Designated Representative.

The Designated Representatives are each hereby authorized make such determinations with respect to each series of Bonds so long as:

(a) the aggregate principal (face) amount of all Bonds issued under this resolution (excluding any net original issue premium or discount) does not exceed $175,000,000,

(b) the final maturity date for each series of Bonds is no later than January 1, 2051,

(c) each series of Bonds issued hereunder is sold (in the aggregate) at a price not less than 90%,

(d) in the case of any Bonds issued as Fixed Rate Bonds, the true interest cost for such series of Bonds (in the aggregate) does not exceed 5.00%,

(e) any Initial Term Interest Rate for a series of Bonds does not exceed 5.00% per annum, and the interest rate on any Variable Rate Bonds shall not exceed the Maximum Interest Rate,

(f) the Issuance Date for each series of Bonds shall be no later than December 31, 2020, and

(g) each series of Bonds issued hereunder conform to all other terms of this resolution.

Subject to the terms and conditions set forth in this Section 11.1, the Designated Representatives are each hereby authorized to execute a Bond Purchase Contract for each series of Bonds. Following the sale of a series of Bonds and the execution of a Bond Purchase Contract, a Designated Representative shall provide a report to the Commission describing the final terms of such Bonds approved pursuant to the authority delegated in this section. The authority granted to the Designated Representatives by this Section 11.1 shall expire December 31, 2020.

Section 11.2 Preliminary and Final Official Statements.

(a) Preliminary Official Statement. The District hereby approves and authorizes the use and distribution of a Preliminary Official Statement by the Underwriter in connection with the offer
and sale of each series of Bonds, including any amendments or supplements thereto. Prior to the
distribution of the Preliminary Official Statement, the Designated Representatives are each hereby
authorized, empowered and directed to deem such Preliminary Official Statement final as of its date
for purposes of the Rule (except for the omission of certain information as provided in and pursuant to
Rule), such action to be conclusively evidenced by delivery of the Preliminary Official Statement to
the Underwriter for distribution thereof.

(b) **Official Statement.** The Designated Representatives are each hereby authorized,
empowered and directed to execute and deliver the Official Statement, including any amendments or
supplements thereto, with such changes therein from the Preliminary Official Statement as such officer
shall deem appropriate and in the best interests of the District, as conclusively evidenced by execution
thereof. The Underwriter for each series of Bonds is hereby authorized to distribute the Official
Statement in connection with the offer and sale of such Bonds.

ARTICLE XII
MISCELLANEOUS

Section 12.1 **Resolution a Contract.** This resolution and the provisions of Title 54 RCW shall
constitute a contract with the Registered Owners of each of the Bonds, enforceable by any Registered
Owner of any Bond by mandamus or any other appropriate suit or action in any court of competent
jurisdiction subject to the provisions of limitations on remedies contained in this resolution.

Section 12.2 **Benefits of Resolution Limited to District, Bondowners, Registrar, and
Bondowners’ Trustee.** Nothing in this resolution, expressed or implied, is intended or shall be
construed to confer upon or give to any person or corporation other than the District, the Registrar, the
Bondowners’ Trustee and the Registered Owners from time to time of the Bonds any rights, remedies
or claims under or by reason of this resolution or any covenant, condition or stipulation thereof; and
all the covenants, stipulations, promises and agreements in this resolution contained by or on behalf of
the District shall be for the sole and exclusive benefit of the District, the Registrar, the Bondowners’
Trustee and the Registered Owners from time to time of the Bonds.

Section 12.3 **Severability.** If any one or more of the covenants or agreements provided in
this resolution on the part of the District to be performed shall be declared by any court of competent
jurisdiction to be contrary to law, then such covenant or covenants, agreement or agreements shall be
null and void and shall be deemed separable from the remaining covenants and agreements, and shall
in no way affect the validity of the other provisions of this resolution or of the Bonds issued hereunder.

Section 12.4 **General Authorization.** The General Manager of the District, the Chief
Financial Officer, the Treasurer of the District, and the President, Vice President and Secretary of the
Commission and each of the other appropriate officers of the District are each hereby authorized and
directed to take such steps, to do such other acts and things, and to execute such letters, certificates,
agreements, papers, financing statements, paying agent agreements, interest rate mode agreement,
assignments or instruments as in their judgment may be necessary, appropriate or desirable in order to
carry out the terms and provisions of, and complete the transactions contemplated by, this resolution.
Such documents may include, but are not limited to, documents related to Qualified Insurance and/or
a municipal bond insurance policy delivered by an insurer to insure the payment when due of the
principal of and interest on all or a portion of a series of Bonds as provided therein, if such insurance
is determined by a Designated Representative to be in the best interest of the District.
Section 12.5  **Prior Acts.** All acts taken pursuant to the authority of this resolution but prior to its effective date are hereby ratified and confirmed.

Section 12.6  **Effective Date.** This resolution shall take effect immediately upon its adoption.

PASSED AND ADOPTED this 11th day of August, 2020.

PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON

By____________________________________

President and Commissioner

____________________________________

Commissioner

____________________________________

Commissioner

____________________________________

Commissioner

____________________________________

Commissioner

____________________________________

Secretary of the Commission
APPENDIX A:
Bond Form

Each series of Bonds shall be in substantially the following form, with additions and deletions as permitted by the Resolution.

NO. $___________

UNITED STATES OF AMERICA
STATE OF WASHINGTON

PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON
ELECTRIC SYSTEM REVENUE [AND] [REFUNDING] BOND, SERIES 2020-___
[(TAXABLE)]

INTEREST RATE: % MATURITY DATE: CUSIP NO.:

REGISTERED OWNER:

PRINCIPAL AMOUNT:

PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, a municipal corporation of the state of Washington (the “District”), hereby acknowledges itself to owe and for value received promises to pay to the Registered Owner identified above, or registered assigns, on the Maturity Date identified above, the Principal Amount indicated above and to pay interest from the date of delivery, or the most recent date to which interest has been paid or duly provided for, until payment of this bond [at the Interest Rate set forth above, payable on ______________, and semiannually thereafter on the first days of each succeeding ______ and _________.] [insert variable rate, conversion and purchase terms]

Both principal of and interest on this bond are payable in lawful money of the United States of America. For so long as the bonds of this issue are held in book-entry form, payments of principal and interest thereon shall be made as provided in accordance with the operational arrangements of The Depository Trust Company (“DTC”) referred to in the Blanket Issuer Letter of Representations from the District to DTC.] Principal of and interest and premium, if any, on this bond are payable solely out of the special fund of the District known as the “Electric System Revenue Bond Fund” (the “Bond Fund”). This bond is not a general obligation of the District.

This bond is one of a duly authorized series of bonds aggregating [$_____] in principal amount and designated as “Electric System Revenue Refunding Bonds, Series 2020-[____].” This bond and the bonds of the series of which it is a part (the “Series 2020-[__] Bonds”) are issued under and pursuant to Resolution No. 8947 of the District adopted on August 11, 2020 (the “Bond Resolution”), and under the authority of and in full compliance with the Constitution and laws of the state of Washington, including Title 54 of the Revised Code of Washington. The Bonds are issued for the purpose of [refunding certain outstanding revenue bonds of the District,][financing certain capital improvements to the Electric System], and paying costs of issuance for the Bonds. Terms not otherwise defined herein shall have the meanings set forth in the Bond Resolution.
The Bonds are being issued on a parity of lien on Gross Revenue of the Electric System with the District’s Outstanding Parity Bonds, subject only to the prior payment of Operating Expenses. The District has reserved the right in the Bond Resolution to issue additional bonds (“Future Parity Bonds”) and certain Parity Lien Obligations on a parity with the Bonds and the Outstanding Parity Bonds. The Outstanding Parity Bonds, the Bonds and any Future Parity Bonds are referred to herein as the “Parity Bonds.”

Under the Bond Resolution, the District is obligated to set aside and pay into the Bond Fund out of the Gross Revenue of the Electric System, certain fixed amounts sufficient to pay the principal of and interest and premium, if any, on all Parity Bonds as the same become due and payable, all as is more fully provided in the Bond Resolution.

Copies of the Bond Resolution are on file at the office of the District, and reference thereto, and to any and all modifications and amendments thereof, is hereby made for a more complete description of the Gross Revenue available for the payment of the principal of, premium, if any, and interest on the Bonds and the rights and remedies of the registered owners of the Bonds with respect thereto, the terms and conditions upon which the Bonds have been issued, and the terms and conditions upon which this bond shall no longer be secured by the Bond Resolution or deemed to be outstanding thereunder if money or certain specified securities sufficient for the payment of this bond shall have been set aside in a special account and held in trust for the payment thereof.

In and by the Bond Resolution, the District covenants to establish, maintain and collect rates or charges for electric energy sold through the ownership or operation of the Electric System and all other services, facilities and commodities sold, furnished or supplied by the District in connection with the ownership or operation of the Electric System that shall be fair and nondiscriminatory and reasonably anticipated to provide Gross Revenue sufficient for the payment of the Parity Bonds, and any other indebtedness of the Electric System, and all payments that the District is obligated to set aside in the Bond Fund and for the proper operation and maintenance of the Electric System, all necessary repairs thereto and replacements and renewals thereof and all other costs of the Electric System.

This bond is subject to redemption prior to maturity as provided in the Bond Resolution and Bond Purchase Contract.

This Bond shall be transferable by the Registered Owner at the designated corporate office of the Registrar upon surrender and cancellation of this Bond, and thereupon a new registered Bond of the same principal amount and interest rate and maturity will be issued to the transferee as provided in the Bond Resolution. The District, the Registrar, and any other person may treat the person in whose name this Bond is registered as the absolute owner hereof for the purpose of receiving payment hereof and for all purposes.

This Bond shall not be valid or become obligatory for any purpose or be entitled to any security or benefit under the Bond Resolution until the Certificate of Authentication hereon shall have been manually signed by the Registrar.

It is hereby certified, recited and declared that all acts, conditions and things essential to the validity of this bond and the Bonds of this series, required by the Constitution and statutes of the state of Washington do exist, have happened and have been performed.
IN WITNESS WHEREOF, Public Utility District No. 2 of Grant County, Washington, by its Commission, has caused this Bond to be executed in its name with the manual or facsimile signature of the President of its Commission, and attested by the manual or facsimile signature of the Secretary of the Commission and the seal of said District to be impressed or imprinted hereon, all as of the _____ day of _________, 2020.

PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON

(SEAL)

President of the Commission

Attest:

Secretary of the Commission

CERTIFICATE OF AUTHENTICATION

Date of Authentication: ____________________________

This Bond is one of the revenue bonds described in the within mentioned Bond Resolution and is one of the Electric System Revenue [and] [Refunding] Bonds, Series 2020-____, of Public Utility District No. 2 of Grant County, Washington.

WASHINGTON STATE FISCAL AGENCY,
Registrar

By____________________________________________

Authorized Signer
CERTIFICATE

I, the undersigned, Secretary of the Board of Commissioners of Public Utility District No. 2 of Grant County, Washington, and keeper of the records of said Commission (herein called the “Commission”), DO HEREBY CERTIFY:

1. That the attached is a true and correct copy of Resolution No. 8947 (herein called the “Resolution”) of the Commission, duly passed at a regular meeting thereof held on the 11th day of August, 2020.

2. That said meeting was duly convened and held in all respects in accordance with chapter 42.30 RCW, the Open Public Meetings Act, taking into account the applicable waivers and suspensions provided for in Washington State Governor Inslee’s Proclamation 20-28, issued on March 24, 2020, as amended, extended, and supplemented, notice of such meeting was properly provided, and a legally sufficient number of members of the Commission voted in the proper manner for the passage of said Resolution; that all other requirements and proceedings incident to the proper passage of said Resolution have been duly fulfilled, carried out and otherwise observed; and that I am authorized to execute this certificate.

DATED this 11th day of August, 2020.

__________________________________
Secretary, Board of Commissioners
MEMORANDUM

July 15, 2020

TO: Kevin Nordt, General Manager

VIA: Jeff Bishop, Chief Financial Officer

FROM: Bonnie Overfield, Senior Manager of Treasury

SUBJECT: Resolution for the Electric System Bond Transaction

Purpose:

To request Commission review of the attached bond resolution for refunding short term debt products and providing the ability, if needed, to issue additional bonds for capital improvements.

Discussion:

The District has two short-term product bond series outstanding that either mature or are subject to mandatory tender during 2020. The 2017 series M bond (a private placed bank loan) matures on September 18th (outstanding principal of $50M) and the 2017 series N bonds are subject to mandatory tender on December 2nd ($49.87M). Both bond series are eligible to be refunded in full on September 1st.

In order to optimize financing costs and efforts, the District has developed one resolution that authorizes two series of refunding bonds, series 2020 R & S. The new series of bonds are contemplated to remain short term in effective maturity (estimated at 3 years and 5 years until the tender date, but subject to change) and are intended to be diversified into two separate and distinguishable products: a fixed rate put option bond series and a SIFMA index floating rate soft put bond series. The District’s short-term debt program is designed to comprise of $150M in total outstanding par (representing currently 12% of the outstanding total debt portfolio) and for the purpose of asset liability matching to mitigate risks of interest rate changes. The short-term program also seeks to provide diversification in the composition of the portfolio by utilizing different index rates and varying times of maturities to dollar cost average capital market environments.

The District has analyzed various options leading up to the development of the financing plan. In May, an RFP was conducted to determine options for a private placement refunding. Due to the capital market environment over the past several months, the most viable options were narrowed down and it has been determined that at this time a public bond offering is in the best interest of the District. The District will continue to evaluate the market leading up to pricing as to determine the best structure of bond. As of the time of development of this memo, the District expects the effective interest cost of these financings to be at or below 1.25% (note a portion of the rates are variable and will fluctuate into the future by design).

Additionally, in evaluating the capital improvement financing plan, the District has built in the ability in this resolution to execute a capital market financing prior to December 31st. The combined authorization is a not to exceed $175M (inclusive of the total refunding bonds). The bond documents also provide for future flexibility to convert any bonds issued at variable rate obligations at their future tender date into various modes, to provide options based upon the District’s future needs or capital markets at that time. The refunding bonds are expected to be priced the week of August 24th (or thereabouts) and are intended to close on September 1st. Note that there is some flexibility to separate the series S bonds from the total financing plan if for some reason the capital markets do not provide an optimal outcome. The bond resolution is a delegating resolution that provides authority to the District
Representative (defined as the General Manager, Chief Financial Officer, or Treasurer) to execute the undertakings of completing the remaining requirements of the transaction.

The District’s Financial Advisor, PFM Financial Advisors assisted the District in analyzing the options and costs associated with the refunding options. The underwriting banks for these transactions are Goldman Sachs and Citibank. The District’s bond counsel is Pacifica Law Group and tax/disclosure counsel is Nixon Peabody.

As a reminder, as defined in the official statement issued in conjunction with the sale of District bonds, the District attests that none of the members of the Commission or other officers of the District have interests in the issuance of the bonds that are prohibited by applicable law.

Recommendation:
To request Commission review of the Electric System bond for approval on or before the August 11th Commission meeting.
RESOLUTION NO. XXXX

A RESOLUTION AUTHORIZING AND APPROVING THE 2020 INTEGRATED RESOURCE PLAN (IRP)

Recitals

1. RCW Chapter 19.280.010 was enacted by the Washington State Legislature in 2006 to encourage the development of new safe, clean, and reliable energy resources to meet future demand in Washington for affordable and reliable electricity;

2. The State Legislature has found that it is essential that electric utilities in Washington develop comprehensive resource plans that explain the mix of generation and demand-side resources (conservation) they plan to use to meet their customers' electricity needs in both the short term and the long term;

3. RCW 19.28.030 requires that by September 1, 2020, Grant PUD adopt an Integrated Resources Plan which includes:

   (a) A range of forecasts, for at least the next ten years, of projected customer demand which takes into account econometric data and customer usage;

   (b) An assessment of commercially available conservation and efficiency resources, as informed, as applicable, by the assessment for conservation potential under RCW 19.285.040 for the planning horizon consistent with (a) of this subsection. Such assessment may include, as appropriate, opportunities for development of combined heat and power as an energy and capacity resource, demand response and load management programs, and currently employed and new policies and programs needed to obtain the conservation and efficiency resources;

   (c) An assessment of commercially available, utility scale renewable and nonrenewable generating technologies including a comparison of the benefits and risks of purchasing power or building new resources;

   (d) A comparative evaluation of renewable and nonrenewable generating resources, including transmission and distribution delivery costs, and conservation and efficiency resources using "lowest reasonable cost" as a criterion;

   (e) An assessment of methods, commercially available technologies, or facilities for integrating renewable resources, including but not limited to battery storage and
pumped storage, and addressing overgeneration events, if applicable for the utility’s resource portfolio;

(f) An assessment and ten-year forecast of the availability of regional generation and transmission capacity on which the utility may rely to provide and deliver electricity to its customers;

(g) A determination of resource adequacy metrics for the resource plan consistent with the forecasts;

(h) A forecast of distributed energy resources that may be installed by the utility's customers and an assessment of their effect on the utility's load and operations;

(i) An identification of an appropriate resource adequacy requirement and measurement metric consistent with prudent utility practice in implementing RCW 19.405.030 through 19.405.050;

(j) The integration of the demand forecasts, resource evaluations, and resource adequacy requirement into a long-range assessment describing the mix of supply side generating resources and conservation and efficiency resources that will meet current and projected needs, including mitigating overgeneration events and implementing RCW 19.405.030 through 19.405.050, at the lowest reasonable cost and risk to the utility and its customers, while maintaining and protecting the safety, reliable operation, and balancing of its electric system;

(k) An assessment, informed by the cumulative impact analysis conducted under RCW 19.405.140, of: Energy and nonenergy benefits and reductions of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health and environmental benefits, costs, and risks; and energy security and risk; and

(l) A ten-year clean energy action plan for implementing RCW 19.405.030 through 19.405.050 at the lowest reasonable cost, and at an acceptable resource adequacy standard, that identifies the specific actions to be taken by the utility consistent with the long-range integrated resource plan.

4. RCW 19.280.050 requires that Grant PUD’s Commission encourage participation of its consumers in development of the Integrated Resources Plan and approve the plan after it has provided public notice and hearing which occurred on July 28, 2020;

5. Grant PUD’s staff has prepared and submitted an Integrated Resources plan which meets the requirements of RCW Chapter 19.280.010 et seq., a copy of which is attached hereto as Exhibit A; and

6. Grant PUD’s General Manager has reviewed the proposed Integrated Resources Plan and it complies with the requirements of RCW Chapter 19.280.010 et seq. and recommends its adoption by the Commission.
NOW, THEREFORE, BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington, that the attached Integrated Resources Plan is hereby approved and Grant PUD’s General Manager is directed to file the plan with the Washington Department of Commerce.

PASSED AND APPROVED by the Commission of Public Utility District No. 2 of Grant County, Washington, this 25th day of August, 2020.

________________________________________
President

ATTEST:

________________________________________
Secretary

________________________________________
Vice President

________________________________________
Commissioner

________________________________________
Commissioner
The next 10 years present significant challenges and opportunities for Grant PUD (Grant). These challenges consist of the magnitude of our forecasted load growth, wholesale energy market transformations, carbon legislation, and regional resource adequacy constraints. The 2020 Integrated Resource Plan (IRP) is Grant’s road map for navigating this uncertain but exciting future.

**Load Growth**

Load growth continues to be the largest driver in Grant PUD’s IRP. Grant has continued to see a large amount of load growth over the past five years; an annual growth rate over 3% during this timeframe. Most of this growth continues to be from an increase in a few large industrial customers. The pace of load growth is forecasted to increase over the next 10 years (4.9%), with most of the growth projected again to come from a few large industrial customers. Load concentration continues to present a significant amount of uncertainty in future resource needs as it could grow much faster or decrease almost overnight.

With this projected load growth, Grant is forecasted to be seasonally capacity-deficit starting in late summer of 2026 and winter capacity-deficit beginning in December 2026. The 2020 IRP addresses how Grant plans to meet these needs.

**New Wholesale Markets**

Over the past several years, the California Independent System Operator’s (CAISO) Energy Imbalance Market (EIM) has grown from two Northwest participants to eleven, with an additional ten utilities planning on joining within the next two years. This real-time energy imbalance market is in direct competition to the current real-time energy market (Mid-Columbia trading hub, Mid-C) Grant relies on to meet its hourly energy needs. In addition, the CAISO has plans for an Extended Day-Ahead Market (EDAM) to supplement the current real-time EIM. This proposed day-ahead market could further reduce liquidity at the Mid-C, making it more difficult for Grant to meet its future energy needs with traditional tools.

Grant continues to monitor CAISO’s progress in each of these markets and will look for ways to take advantage of this evolving marketplace in the future.

**Washington State’s Clean Energy Transformation Act (CETA)**

In 2019, Washington Governor Jay Inslee signed into law the Clean Energy Transformation Act (CETA). This Act commits Washington utilities to supply 100% of their electricity from renewable, non-carbon emitting resources by 2045 and be greenhouse gas neutral by 2030. The good news for Grant is its existing hydropower plants (Wanapum and Priest Rapids) are considered renewable and compliant under the new law. The challenge will be choosing additional resources in the next few years that comply with CETA while allowing Grant to serve customers at the lowest possible cost.

**Resource Adequacy**

Historically the Northwest has been one of the least capacity constrained regions of the electric grid due to the predominant use of hydro-electric generating resources which produced a system rich in generating capacity and flexibility. But, as the region has added increasing amounts of renewable resources and as the hydro-electric system flexibility has declined, the region finds itself transitioning into a peak-constrained system. The scheduled closing of coal-fired generators in the region has further decreased generation capacity. In 2019, some of the Northwest Power Pool (NWPP) entities began an effort to start a voluntary NW Resource Adequacy (RA) program that would set regional standards for planning methods and metrics, provide load and resource diversity savings, and establish a robust procurement process.

Grant supports this effort and is using the work of the NWPP RA effort to help in determining its resource needs in the 2020 IRP.

The next 10 years are sure to be exciting ones for Grant PUD. The variability in loads, regionalization of wholesale markets, the effects of CETA, and the resource adequacy needs of the region are creating complex uncertainties for Grant PUD. Wholesale Marketing and Supply’s mission is to navigate all these uncertainties and provide the most value possible to our customers. This requires maximizing the resources of our hydro projects while finding the most reliable, least-cost, and lowest-risk options to meet customer load. The 2020 IRP is our roadmap to achieve these goals.

Rich Flanigan  
*Senior Manager of Wholesale Marketing and Supply*
Resolution No.
Exhibit A

(Insert Commission
Resolution here)
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APPENDIX 2: 2019 Conservation Potential Assessment .................. A6
Grant PUD has prepared this updated Integrated Resource Plan (“IRP”), which is a detailed load and resource analysis as part of its long-term planning process and pursuant to state requirements. This analysis indicates that during the next ten years, Grant PUD’s need for physical capacity and energy beyond its current generation assets will need to be addressed. Grant PUD will acquire these resources through market purchases of firm generation as well as Purchaser Power Agreements (PPAs) for solar and natural gas resources and call options on firm capacity to cover peak demand. In addition, Grant PUD will need to reevaluate using large market purchases to cover any Estimated Unmet District Load (EUDL) considering possible Resource Adequacy (RA) issues in the Northwest. Grant PUD will also continue to invest in programs to achieve cost-effect conservation as determined by the 2019 Conservation Potential Assessment.

Grant PUD has enough qualified resources to meet the Washington State Renewable Portfolio Standard (“RPS”) through 2024. Beginning in 2025, requirements resulting from the projected load growth will exceed Grant PUD’s projected qualified resource generation. To cover the projected deficit, Grant PUD will purchase eligible Renewable Energy Certificates (RECs) from the market and acquire qualifying renewable resources as appropriate.

The loads and resources for the base year (2019) and two future years (2025 and 2030) are shown in Table 1-1 below. This table will be submitted to the Washington State Department of Commerce prior to the submittal deadline of September 1, 2020.
<table>
<thead>
<tr>
<th>Table 1-1</th>
<th>Base Year</th>
<th>5 Year Estimate</th>
<th>10 Year Estimate</th>
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<tr>
<td></td>
<td>2019</td>
<td>2024</td>
<td>2029</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>Summer</td>
<td>Annual</td>
</tr>
<tr>
<td>Units</td>
<td>(MW)</td>
<td>(MW)</td>
<td>(MWa)</td>
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<td>810.43</td>
<td>598.09</td>
</tr>
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<td>Exports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Conservation/Efficiency</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Demand Response</td>
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<tr>
<td>Cogeneration</td>
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<tr>
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<td>764.45</td>
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<td>Thermal - Natural Gas</td>
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<td></td>
<td></td>
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<tr>
<td>Thermal - Coal</td>
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<td>Net Long Term Contracts</td>
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<td>5.50</td>
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<td>Other</td>
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<tr>
<td>Imports</td>
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<td>Distributed Generation</td>
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</tr>
<tr>
<td>Undecided</td>
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<td>Total Resources</td>
<td>1,084.82</td>
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<td>Load Resource Balance</td>
<td>312.42</td>
<td>259.14</td>
<td>259.78</td>
</tr>
</tbody>
</table>

Notes for Table:

1. Base year 2019 data is actual load and actual generation. Base year 2019 peak capability is the actual generation on the observed peak load hours for 2019.
2. Hydro values include Grant PUD rights in Wanapum, Priest Rapids, P.E.C, and Quincy Chute. Wanapum and Priest Generation is based on expected water. Grant PUD uses a 15% planning margin to cover various events such as a low water year, unplanned generation outages, extreme weather, unanticipated load growth, etc.
GRANT PUD DRAWS THE FOLLOWING CONCLUSIONS FROM THE IRP ANALYSIS:

1. Current Grant PUD strategy of large market purchases made to cover Estimated Unmet District Load (EUDL) needs to be reconsidered due to possible resource adequacy issues in the WECC.

2. Based on the anticipated annual energy projections, Grant PUD has enough existing physical resources and EUDL dollars to meet expected load growth on an annual basis through 2028.

3. As a result of the 15% planning margin, additional resources requirements are forecasted as soon as 2026.

4. Grant PUD is forecasting to be seasonally capacity-deficient during summer of 2026.

5. To meet these seasonal deficiencies, current models indicate the least-cost resources to be power purchase agreements of solar and natural gas generation with an emphasis on firm delivery. Market purchases will also be necessary to fill in any gaps that are not economical to fill with purchase power agreements.

6. Grant PUD will continue to meet its renewable portfolio obligations without acquiring new resources until 2025. At that time Grant PUD will acquire any expected RPS deficits with market purchases of eligible RECs and other qualifying resources such as solar.

7. Grant PUD’s load forecast contains significant uncertainty due to the relatively high percentage of industrial load. Industrial loads could be significantly higher or lower than the forecast based on a number of factors, many of which are outside Grant PUD’s control. Grant PUD has reviewed the potential risks associated with this load uncertainty and will continue monitoring these loads and expectations of this customer segment.

8. Grant PUD will need to stay abreast of changes in the utility industry affecting the District’s planning processes.

ACTION PLAN

Grant PUD should take the following actions based on the results of this IRP.

1. Assemble a team of internal subject matter experts to determine strategy and execute a plan to research the acquisition of resources to meet forecasted energy and capacity needs. Monitor opportunities to procure low-cost, long-term generating resources (particularly resources that qualify for I-937 and CETA compliance), with an eye towards opportunities priced better than new-build costs. Preference will be given to firm resources to address regional Resource Adequacy concerns.

2. Continue to implement and achieve cost-effective conservation available within the county as indicated in the District’s Conservation Potential Assessment.

3. Continue to enhance the capacity planning process and standards to ensure Grant PUD adequately plans to reliably meet both the energy and peaking needs of Grant PUD’s electric system. Grant’s capacity planning process and standard should conform to the evolution in power planning for the Pacific Northwest. Therefore, Grant PUD should participate in and monitor regional forums related to resource planning.

4. Continue to refine and improve the retail energy load forecasts, with an emphasis on monitoring changes from the large industrial customers, given their ability to affect Grant’s load and resource balance.

5. Evaluate the opportunities presented by the expansion of the Northwest EIM and the possible growth of the California Independent System Operator into the Northwest. Grant PUD should work to identify the best strategy (from a cost, opportunity and risk basis) to interact with this evolving market.

6. Continue to participate in regional utility groups that monitor and influence legislation that could affect Grant PUD’s ratepayers.
Grant PUD has developed this Integrated Resource Plan ("IRP") to assess the long-term power supply condition of the District and as required in the Revised Code of Washington, Chapter 19.280. Grant PUD will use this IRP in conjunction with other long-term planning activities to meet the power needs of District customers at the lowest reasonable cost.

REQUIREMENTS FOR INTEGRATED RESOURCE PLANNING AND OBJECTIVES

The state of Washington has provided regulations for how public utility districts are to develop Integrated Resource Plans and describes the uses for the information provided in these plans. Grant PUD has used the requirements listed in these regulatory documents as objectives for this IRP.

Revised Code of Washington, Chapter 19.280

RCW 19.280 outlines the requirements of electric utility resource plans. The intent of this chapter of the Revised Code of Washington is to encourage the development of safe, clean, and reliable energy resources. Information from the integrated resource plans that are developed will be used to identify and develop: new energy generation; conservation and efficiency resources; methods, commercially available technologies, and facilities for integrated renewable resources, including addressing over-generation events; and related infrastructure to meet the state’s electricity needs. The requirements listed in RCW 19.280 for large utility districts are as follows:

(a) A range of forecasts, for at least the next ten years, of projected customer demand which takes into account econometric data and customer usage;

(b) An assessment of commercially available conservation and efficiency resources, as informed, as applicable, by the assessment for conservation potential under RCW 19.285.040 for the planning horizon consistent with (a) of this subsection. Such assessment may include, as appropriate, opportunities for development of combined heat and power as an energy and capacity resource, demand response and load management programs, and currently employed and new policies and programs needed to obtain the conservation and efficiency resources;

(c) An assessment of commercially available, utility scale renewable and nonrenewable generating technologies including a comparison of the benefits and risks of purchasing power or building new resources;

(d) A comparative evaluation of renewable and nonrenewable generating resources, including transmission and distribution delivery costs, and conservation and efficiency resources using "lowest reasonable cost" as a criterion;
(e) An assessment of methods, commercially available technologies, or facilities for integrating renewable resources, including but not limited to battery storage and pumped storage, and addressing overgeneration events, if applicable for the utility's resource portfolio.

(f) An assessment and ten-year forecast of the availability of regional generation and transmission capacity on which the utility may rely to provide and deliver electricity to its customers;

(g) A determination of resource adequacy metrics for the resource plan consistent with the forecasts;

(h) A forecast of distributed energy resources that may be installed by the utility's customers and an assessment of their effect on the utility's load and operations;

(i) An identification of an appropriate resource adequacy requirement and measurement metric consistent with prudent utility practice in implementing RCW 19.405.030 through 19.405.050;

(j) The integration of the demand forecasts, resource evaluations, and resource adequacy requirement into a long-range assessment describing the mix of supply side generating resources and conservation and efficiency resources that will meet current and projected needs, including mitigating overgeneration events and implementing RCW 19.405.030 through 19.405.050, at the lowest reasonable cost and risk to the utility and its customers, while maintaining and protecting the safety, reliable operation, and balancing of its electric system;

(k) An assessment, informed by the cumulative impact analysis conducted under RCW 19.405.140, of: Energy and nonenergy benefits and reductions of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health and environmental benefits, costs, and risks; and energy security and risk; and

(l) A ten-year clean energy action plan for implementing RCW 19.405.030 through 19.405.050 at the lowest reasonable cost, and at an acceptable resource adequacy standard, that identifies the specific actions to be taken by the utility consistent with the long-range integrated resource plan.

**Washington State Initiative measure number 937**

I-937 was the Washington State clean energy initiative passed in 2006, which is now written in the Revised Code of Washington, Chapter 19.285. I-937 requires large utilities to obtain 15% of their electricity from renewable resources by 2020.

**KEY RISKS ADDRESSED IN THE 10 YEAR IRP:**

Many different risks and uncertainties have been considered while developing Grant PUD's Integrated Resource Plan (IRP). The risks discussed below are among those expected to be significant drivers of uncertainty for Grant PUD over the next decade and beyond. Anticipating changing costs and operating conditions is clearly a critical element of prudent utility management. Each risk is discussed in detail further in the body of this IRP.

**Changing Power Market Risk**

Significant change is already influencing the WECC power markets. Over the next ten years, this change is expected to accelerate. The market of yesterday was clearly defined and understood by the stakeholders. Most utilities were primarily trading bilaterally in organized markets such as the Mid-C trading hub. Grant PUD, being a pivotal member of the Mid-Columbia region, was well positioned to both buy and sell at this trading hub.

This historic marketing structure is rapidly changing with the advent of more regionally-oriented and much more organized market structures such as the Energy Imbalance Market (EIM) and Two-Settlement RTO/ISO-managed markets evolving in our area. Fortunately, this evolution is not new or unique to our region. Markets throughout the United States have experienced these transformations since the mid-1990's. These transformations are predictable and anticipated to occur in the Pacific Northwest over the next ten years.

Grant PUD must be mindful of these evolving markets when it produces its Integrated Resource Plan. This is especially true as the
number of utilities making the transition from the old market structure to the new one grows. Some of Grant PUD’s key neighbors who have joined the EIM include Portland General Electric, Puget Sound Energy, Pacificorp, Seattle City Light and Idaho Power. Avista, Tacoma Power and BPA are slated to enter the EIM in 2022. It’s only a matter of time before those who are members of such markets become economically distinct from those who have not made the transition.

Environmental/Legislative Risk

Grant PUD faces significant uncertainty regarding the magnitude and cost of carbon-related legislative action. Washington State has passed significant legislation to reduce the carbon release related to electric generation. While the rule making for the Clean Energy Transformation Act (CETA) is still being established and won’t be fully understood for several months, this law aims to eliminate the use of coal-sourced generation by 2025 with the ultimate goal of carbon neutral generation by 2030 and greenhouse gas emission free generation by 2045. CETA is seen as a significant accomplishment for advocates of greenhouse gas reduction. This type of legislation concerning the environment and electric generation is expected to continue in the foreseeable future.

Load Risk

More than a third of Grant PUD’s demand (or load) is attributable to its industrial customers. These customers face the same kind of financial constraints and efficiency needs that all businesses face – including Grant County PUD. Consequently, they tend to be very sensitive to the price of their critical inputs which often include the energy we supply. Specific District customers such as data centers, chemical producers, and agriculture processors are particularly sensitive to rates. Competitive rates can attract significant growth in industrial load over a very short time period. This makes this customer class the highest load risk we face.

Additionally, temperatures are highly variable. Extremely hot summers can easily follow extremely cold winters. Such temperature fluctuations can cause unexpected high loads due to demand for cooling or heating.

Water Risk (and operational risk)

Grant PUD’s hydro project’s ability to produce power is highly dependent upon the quantity of water available to it in any particular year. While the entire Columbia River benefits from the extensive water regulation provided by US and Canadian entities, Grant PUD is exposed to significant annual and monthly variability in the amount of power it expects to have to serve its load. Grant PUD’s current hedging strategy of selling slices of the Priest Rapids Project resource with quantity-certain physical power buyback provisions has been successful in managing annual variability.

Fuel Risk

Grant PUD anticipates the possibility of using thermal generation to meet future capacity requirements. Consequently, this exposes Grant PUD to the variability in the cost of natural gas. Fortunately, the demand for natural gas has not been stronger than our national supply for many years and is not expected to do so for many years to come. This risk can be managed with standard hedging techniques.

Transmission Risk

Market and environmental changes are also driving a significant change in how the WECC transmission grid is expected to operate. Investment in renewable generation like wind and solar capacity will require significant investments in transmission to reduce the inevitable congestion created by the power delivered by these new resources. This effect has been seen in many regional RTOS/ISOs such as the Midwest Independent System Operator, the Southwest Power Pool, and the Electric Reliability Council of Texas. Central and Eastern Washington are being considered by many renewable developers as prime sites for additional renewable generation development. Grant PUD is currently evaluating several requests for large solar project interconnections to our system.

NORTHWEST POWER AND CONSERVATION COUNCIL SEVENTH POWER PLAN

Grant PUD has based many of its assumptions on the Northwest Power and Conservation Council ("NWPC") Seventh Power Plan. The NWPC prepares regular assessments of the regional power supply situation and projects an aggregated load resource balance into the future. This assessment includes detailed modeling of the Pacific Northwest resource mix, detailed information regarding the cost of different supply-side resource technologies, and cost-effective conservation.
In February of 2016, the Council published their Seventh Power Plan. Regional utility and other energy industry staff assisted the NWPCC in the preparation of the plan and Grant PUD staff have reviewed the findings. The Council published a Seventh Power Plan Midterm Assessment in February of 2019. Of interest to this IRP planning process are the following information and findings:

**Announced Coal Generation Retirement**

The Midterm Assessment updated the amount of coal generation capacity that is slated for retirement over the next 12 years. The following tables from the Seventh Power Plan Midterm Assessment give the specifics of these planned retirements.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Retirement Date</th>
<th>Capacity &amp; Operating Year</th>
<th>Location</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.E. Corette</td>
<td>2015</td>
<td>173 MW (1968)</td>
<td>MT</td>
<td>PPL Montana</td>
</tr>
<tr>
<td>Hardin</td>
<td>2018</td>
<td>116 MW (2006)</td>
<td>MT</td>
<td>Rocky Mountain Power¹</td>
</tr>
<tr>
<td>North Valmy 1</td>
<td>2021²</td>
<td>254 MW (1981)</td>
<td>NV</td>
<td>Idaho Power, Sierra Pacific Power (50/50)</td>
</tr>
<tr>
<td>North Valmy 2</td>
<td>2025</td>
<td>268 MW (1985)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boardman</td>
<td>2020</td>
<td>600 MW (1980)</td>
<td>OR</td>
<td>Portland General Electric, Idaho Power (90/10)</td>
</tr>
<tr>
<td>Centralia 1</td>
<td>2020</td>
<td>670 MW (1971)</td>
<td>WA</td>
<td>TransAlta</td>
</tr>
<tr>
<td>Centralia 2</td>
<td>2025</td>
<td>670 MW (1971)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colstrip 1</td>
<td>2022</td>
<td>360 MW (1975)</td>
<td>MT</td>
<td>Puget Sound Energy, Talen Energy (50/50)</td>
</tr>
<tr>
<td>Colstrip 2</td>
<td></td>
<td>360 MW (1976)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jim Bridger 1</td>
<td>2028</td>
<td>578 MW (1974)</td>
<td>WY</td>
<td>PacifiCorp (2/3)³, Idaho Power (1/3)</td>
</tr>
<tr>
<td>Jim Bridger 2</td>
<td>2032</td>
<td>578 MW (1975)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regional Utility Total</strong></td>
<td></td>
<td><strong>1,899 MW</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regional Total (incl. IPPs)</strong></td>
<td></td>
<td><strong>3,772 MW</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-5 | Announced Planned Coal Retirements in the Pacific Northwest*

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¹ Not related to PacifiCorp
² Idaho Power will end its participation in 2019, NV Energy to retire unit end of year 2021 per 2019 IRP
³ Per PacifiCorp’s 2017 IRP Update
⁴ Regional total includes only PacifiCorp’s load to the region (38%)

*For detailed project information, please see the Council’s generating resources project database

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**Figure 6-2 | Total Regional Utility + Independent Power Producer Coal Retirements**

*Note: J.E. Corette is not included in this figure because it retired in 2015. This figure shows 2018-2032.
### RESOURCES ADEQUACY IN THE NORTHWEST

The Pacific Northwest’s bulk electricity system is in transition. Historically it has been one of the least capacity constrained regions of the electric grid due to the predominant use of hydro-electric generating resources, which produced a system rich in generating capacity and flexibility, but subject to energy shortages in years with low precipitation and snowpack. As the region has added increasing amounts of renewable resources and as the hydro-electric system flexibility has declined, the region finds itself transitioning into a peak-constrained system. The industry has been working to better define appropriate resource adequacy standards during this time of transition and to better understand how individual utilities should plan and apply those standards. There is currently no formal approach to regional capacity planning in the Northwest today. Most NW utilities conduct their own reliability studies that often use very different planning methods and metrics. This lack of a centralized set of planning methods and metrics makes it difficult for anyone to know if there are enough resources (generation) to serve load under stressful grid situations such as extreme heat or cold weather. In 2019, some of the Northwest Power Pool (NWPP) entities began an effort to start a voluntary NW Resource Adequacy (RA) program. The RA program would set regional standards for planning methods and metrics, provide load and resource diversity savings, and establish a robust procurement process.

Although the design of the RA program is in its early stages, it will be structured similar to other regional RA programs and run by an organized market administrator. The program is expected to have a forward-showing period in which participating entities would need to prove they meet established regional metrics that ensure reliability. Penalties would then be assessed if these metrics could not be proved. The program would also have an operational component that would unlock the load and resource diversity benefits in times of stress across the NW.

There are many challenges that still need to be overcome for establishing a RA program unique to the NW: the lack of an organized market administrator, the large number of public utilities, the large amount of hydropower and the size and role of BPA. Grant is currently participating in the design of this market and using this effort to better understand and design its RA needs as it looks towards the next ten years.

Grant PUD is also implementing a 15% power planning margin as it models Grant’s specific resource requirements. This planning margin is designed to cover most prolonged resource outages, variations in weather, water for generation, economics, and general load growth.

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### RESOURCE ADEQUACY IN THE NORTHWEST

The Midterm Assessment indicates that the net planned reduction in generation in the West is 1,628 MW of capacity by 2030. This reduction in baseline generation will play a key role in planning for firm capacity and dealing with Resource Adequacy issues in the WECC.

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1 NWPP Seventh Power Plan Midterm Assessment page 6-10 Table 6-5
2 NWPP Seventh Power Plan Midterm Assessment page 6-11 Figure 6-2
3 NWPP Seventh Power Plan Midterm Assessment page 6-11 Table 6-6

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### Table 6-6  |  Net Balance of Coal Retirements and Anticipated New Capacity Additions In MW

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated Additions</td>
<td>17</td>
<td>379</td>
<td>1,237</td>
<td>2,155</td>
<td>3,788</td>
</tr>
<tr>
<td>Anticipated Coal Retirements (prorated to reflect % serving Northwest)</td>
<td>(1,270)</td>
<td>(981)</td>
<td>(1,010)</td>
<td>(339)</td>
<td>(3,600)</td>
</tr>
<tr>
<td>Net Balance Over Period</td>
<td>(1,253)</td>
<td>(602)</td>
<td>227</td>
<td>1,816</td>
<td>188</td>
</tr>
<tr>
<td>Cumulative balance</td>
<td>(1,253)</td>
<td>(1,855)</td>
<td>(1,628)</td>
<td>188</td>
<td></td>
</tr>
</tbody>
</table>

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All numbers in units of MW
EMERGING CARBON AND ENERGY POLICIES

Clean Energy Standard and State RPS

On May 7, 2019, Washington Governor Jay Inslee signed into law the Clean Energy Transformation Act (CETA) (E2SSB 5116 or RCW 19.405), which commits Washington to 100% greenhouse gas free electricity supply by 2045. By the end of 2025, utilities must eliminate coal-fired electricity from their state portfolios. In 2030, electric generation must be greenhouse gas neutral. To meet this goal, utilities can use a combination of non-emitting resources and renewable resources to meet 80% of their retail load over a 4-year compliance period beginning in 2030 and alternative compliance options, such as renewable energy credits (RECS) or energy transformation projects, for the remaining 20%.

Existing hydropower and incremental hydropower eligible for the state renewable portfolio standard (RPS or Energy Independence Act) are both considered a form of renewable resource under CETA. Under the state RPS, beginning in 2020, 15% of the utility’s retail load must be served with renewable energy resources and actions taken under the state RPS count toward the obligations under CETA. CETA also amends the state RPS to allow incremental efficiency increases at federal hydropower projects to count as an eligible renewable resource. By 2045, CETA requires utilities to supply Washington customers with 100% renewable or non-emitting electricity. Currently, there are no penalty provisions in the event a utility does not meet the 100% clean energy obligation. There are some cost-cap provisions and regulatory relief related to electric reliability standards and transmission availability.

CETA also expands the IRP planning process to include a social cost of greenhouse gas emissions as a cost adder and a 10-year Clean Energy Action Plan for implementing CETA’s clean energy goals at the lowest reasonable cost and at an acceptable resource adequacy standard. In 2022, each utility must also publish a clean energy implementation plan with targets for energy efficiency and renewable energy. There are also obligations to provide energy assistance to low income customers and obligations to provide an equitable distribution of energy and non-energy benefits under CETA. Each of the plans require Grant PUD Commission approval.

While there will be compliance and reporting requirements, Grant PUD is well-positioned to achieve CETA’s requirements due to its non-emitting portfolio of hydropower and wind generation. In addition, CETA has the potential to improve the market value of the Grant’s hydropower portfolio as demand increases for non-emitting and renewable resources to serve load, integrate increasing amounts of variable energy resources like wind and solar, and provide grid reliability. Grant PUD will continue to be attentive to the need to value these additional services that hydropower provides beyond just the energy. This IRP is intended to assess Grant PUD’s resource options to meet its retail load within regulatory constraints at the lowest cost.

The Washington State Department of Commerce, the Washington Utilities and Transportation Commission, and the Washington Department of Ecology have begun developing rules to implement CETA. Moderate risk is inherent in the rulemaking process which may affect the extent to which CETA fully accommodates hydropower in compliance accounting. Grant PUD is actively participating in the rulemaking process to ensure that implemented rules appropriately accommodate hydropower.

Clean Air Rule

In 2008, the Washington State Legislature passed, and the governor signed, legislation requiring reductions in GHG, initiating GHG reporting requirements, and requiring the Department of Ecology to make recommendations for the development of a market-based cap and trade system (RCW 70.235). In 2016, the Washington State Department of Ecology adopted the Clean Air Rule (WAC 173-442), whichaddressed the major sources of greenhouse gases, including certain electric generators and fuel suppliers in Washington and required businesses that are responsible for large amounts of greenhouse gas emissions to cap and reduce their carbon emissions. Grant PUD is not a covered entity under the rule. However, implementation of the law affects the electric sector and potential demand for clean electricity in Washington State. A few large industrial customers in Grant County could be affected.

In March 2018, Thurston County Superior Court ruled that parts of the Clean Air Rule were invalid. The Superior Court’s ruling prevented Ecology from implementing the Clean Air Rule regulations. On January 16, 2020, the Washington State Supreme Court ruled that the portions of the rule that applied to stationary sources were upheld, but that the portions that applied to indirect sources, such as natural gas distributors and fuel suppliers (representing the majority of emissions), were invalid. The Supreme Court remanded the case to Thurston County Superior Court to determine how to separate the rule. As the court deliberates, Ecology is considering whether and how to implement the much narrower rule.

The Court’s ruling has also spurred legislative activity to give Ecology authority over indirect emissions and other GHG reduction
strategies. In addition to a fix to the Clean Air Rule, activity in the legislature in 2020 included deeper cuts in statewide greenhouse gas emissions by 2020, 2030 and 2050, a carbon cap and invest bill, a community solar bill, a low carbon fuel standards bill and a bill requiring a report on resource adequacy in 2022. Although bills concerning carbon cap and invest, low carbon fuel standards, and Clean Air Rule fix didn’t pass in the Washington State legislature this year, similar bills could surface next year. Grant PUD will continue to monitor all legislative activity related to GHG reductions and clean energy requirements for potential effects on operations and market position.

**Climate Change**

Grant PUD is aware of scientific information regarding climate change which may result from greenhouse gas emissions and accumulations and from other factors. To the extent that regional warming increases the average temperature in the watershed that feeds the Columbia River, such warming could result in earlier run-off into the Columbia River and/or more winter precipitation and less snowpack in the mountains in the winter months. These changes could affect the timing and/or amount of power generation at Grant PUD’s hydro-electric projects. Grant PUD continues to monitor and assess the impacts of possible climate change on its operations. Impacts with a medium to high likelihood of occurring within the next 10 years have been integrated into Grant PUD’s risk management program. Among the risks evaluated were increased ambient air temperature implications for electric load, possible implications for fish associated with changing river temperatures, precipitation and snowpack effects on generation, potential extreme weather and wildfire events, and water availability. Grant PUD continues to review and update these risks. However, Grant PUD is unable to predict whether any such climate changes will occur, the nature or extent thereof, and beyond those risks identified, the effects they might have on Grant PUD’s business operations and financial condition.

State, regional and national policymakers are debating how to manage and mitigate for greenhouse gas emissions from many sectors of the economy, including electric generation. Grant PUD’s two primary hydroelectric generating facilities provide low-cost, clean, renewable power that does not generate greenhouse gas emissions. As an electric generator that relies on emission-free hydropower to serve its retail load plus provide energy to thousands of other Northwest customers, Grant PUD has a significant interest in the role that hydropower plays in climate change policy. District management and staff will continue to monitor the latest regional and federal policy proposals.
Grant PUD provides reliable power to a diverse set of residential, commercial, and industrial consumers. To accomplish this, it needs to use a combination of its own generation capacity and contracts for power from other wholesale market sources. Flexibility is important as customers’ needs change from year to year, month to month, day to day, and even moment to moment. Grant PUD does this basically on its own through wholesale energy markets. This is done through portfolio planning down to the hourly level, and by making dynamic adjustments as necessary to cover its load obligations on a moment to moment basis. A robust and liquid wholesale energy market is vital to meeting Grant PUD’s energy needs. Grant PUD currently operates within the Western Electric Coordinating Council (WECC). Within the WECC, there are numerous bilateral trading hubs such as the Mid-Columbia (Mid-C), SP15, NP15, COB, and Palo Verde. Grant PUD currently relies heavily on these markets with specific concentration at the Mid-C.

There are two other organized markets operating in WECC that Grant PUD does not currently participate in: the California Independent Operator (CAISO) and the CAISO Western Energy Imbalance Market (EIM). In addition, the CAISO is working on an initiative that will extend participation in the day-ahead market to the EIM entities in a framework similar to the existing EIM approach for the real-time market. This participation would not require full integration into the California ISO Balancing Area (BA). This initiative is called the Extended Day-Ahead Market (EDAM). Grant PUD is monitoring the continued growth in EIM participation by other WECC BAs. At this time, Grant does not believe participation in the EIM or EDAM would provide net benefits to Grant PUD customers, in part due to requisite investments in accounting, metering, and personnel. Grant will continue to evaluate and prepare for the opportunities and risks these evolving markets present.

WECC

In the western electrical interconnection of the United States, there are dozens of individual utilities and operating companies that are linked together by transmission lines collectively called the Western Interconnection (see Figure 3-1). The transmission lines allow these utilities to buy and sell power between themselves via several “markets” effectively overlaid upon the grid. Examples of these include the energy, ancillary, and green-attribute markets which separate markets into their primary product offerings. Markets are defined by the relevant time periods under which power is being traded (i.e. real-time/hourly, day-ahead, and long-term) and by the contractual terms and market organizational structures by which these transactions occur (i.e. energy imbalance markets, two-settlement markets, and bilateral markets).

In all cases, these markets are unified by their ability to facilitate the buying and selling of specific amounts of electricity and its attributes for specific periods of time in an organized manner. The benefit of using such markets is that they allow for price discovery as buyers and sellers of power meet to transact clearly defined products for defined time periods at the lowest possible transaction price. As one market evolves, it is often at the detriment to existing markets. This may prove to be the case in our region. The evolution of a new market may cause Grant PUD’s participation in a previous preferred market to become less economically viable. However, Grant PUD is aware that the costs of joining a specific market may be higher than the achievable benefits. It is also aware that joining such markets may still be the least-cost alternative. Grant PUD plans to study the relative cost/benefit of joining any of the developing markets.
Grant PUD benefits from being interconnected with the transmission facilities comprising the main Pacific Northwest energy trading hub – the Mid-C (Figure 3-2). The Mid-C is one of the most liquid trading hubs in North America and provides Grant PUD with ready access to market energy, both for sales and purchases, as well as market price discovery. Grant PUD’s information on forward market prices comes from a variety of sources. The Intercontinental Exchange (ICE) provides a clear forward market indication for both peak and off-peak energy for a ten-year period. In addition to ICE forward prices, the Northwest Power and Conservation Council (NWPCC) provides a forecast of fundamental future markets using the AURORA model and several energy inputs. By controlling inputs, the NWPCC can evaluate the potential impact of different future scenarios, such as changes in fuel prices, changes in supply and demand, and transmission grid constraints.

Mid-Columbia

Grant County Public Utility District      |      2020 Integrated Resource Plan      |     Page  17
Energy Imbalance Markets (EIM)

The CAISO Energy Imbalance Market (EIM) is a real-time voluntary energy market in the WECC. Since its launch in 2014, it has grown from its original two participants (CAISO and PacifiCorp) to eleven as of 2020. In addition, ten more participants are planning on joining by 2022 (Figure 3-3).

Unlike the hourly real-time markets in the WECC, the EIM has introduced a more efficient option of trading between utilities for smaller amounts of power in shorter time increments (5 or 15 minutes) just for the purposes of balancing. This shorter timeframe allows a utility that might use an expansive solution to balance its own load to buy its needs from another utility who is selling its power for the next 5 to 15 minutes via the EIM. This balancing of load is done by a central model with the objective to find the most efficient and least cost method within transmission constraints.

Grant PUD could potentially gain from participating in an effective EIM with its own competitively priced hydro generation capacity, desirable green attributes, and the ability to store energy as water in our reservoirs.

There are three primary ways Grant PUD may benefit financially from participating in the EIM:

1. It can reduce its balancing costs, by buying from the market whenever it is cheaper than supplying its own needs.
2. It can reduce its transactions costs by taking advantage of economies of scale offered by a single centrally organized and independently managed marketplace.
3. It can benefit from better use of existing regional transmission, allowing access to markets as distant as Southern California and Nevada – a region awash with cheap solar generation.

Extended Day Ahead Markets (EDAM)

The CAISO is also proposing an initiative that extends one variant of a fully organized market design to current EIM utilities in WECC called the Extended Day Ahead Market (EDAM). This market, like the EIM, will be voluntary in nature and will give those who are interested a chance to gain more of the benefits of an organized RTO/ISO without the risk of joining CAISO. EDAM would layer additional market services on top of the EIM. Some of these benefits include more efficient day-ahead hourly trading, more efficient day-ahead generator commitment, diversity of imbalance reserves and the potential environmental benefit of reducing renewable curtailments.

As mentioned previously, EDAM is not equivalent to becoming a full member of an ISO or RTO. EDAM participants will still be responsible for transmission planning and operational control, resource adequacy and planning, and balancing area control performance compliance.

Grant staff is actively monitoring the development of EDAM, with attention being paid to how it may affect Grant PUD and the Pacific Northwest energy markets, especially liquidity in the Mid-C day-ahead trading hub.

Further Development of Pacific Northwest Markets

The Pacific Northwest energy markets are expected to continue to move towards an organized market over the next ten years. With the continued development of renewable generation and the need to integrate these variable energy resources (VER), a move
Towards an organized market (ISO/RTO) is likely. Organized markets currently supply energy to most of the United States grid (Figure 3-4). Organized markets have many advantages such as facilitating competition among wholesale suppliers, providing non-discriminatory access to transmission by scheduling and monitoring the use of transmission, performing planning and operations of the grid to ensure its reliability, managing the interconnection of new resources, providing market oversight, and increasing the transparency of transactions on the system. Additionally, organized regional markets such as the PJM Interconnection regional transmission market, the Midcontinent Independent System Operator (MISO) market, and Southwest Power Pool (SPP) market have shown that renewable integration challenges are effectively and efficiently addressed in larger and more coordinated footprints. Grant PUD will continue to monitor the expansion of the EIM, EDAM and the possibility of a fully organized market. There are often winners and losers in any newly organized market, and Grant’s assets may or may not be more valuable in an RTO/ISO. Grant will continue to invest time and energy to analyze the evolving markets to determine the best strategy for its rate payers.

Figure 3-4  |  Organized Markets (RTO/ISO) in North America
Grant PUD maintains a detailed projection of anticipated load consumption by Grant PUD’s retail customers (“Retail Load”). It is helpful to review past Retail Loads to put forecast Retail Loads into context. Grant PUD’s 2019 sales to retail customers was 5,163,877 MWh or 589 aMW. 2019 retail sales exceeded prior year sales by 5.3%. The 2019 sales were made to the following customer classes (Chart 4-1).
Grant’s “Base” forecast is deemed to have the highest probability of realization. All other forecasts are modeled to help the PUD plan for other possible outcomes. These forecasts are depicted on Graph 4-2. The “Trended System Load” line gives the reader a view of how much the forecasted loads exceed the historical growth experienced by the PUD over the past few years.
Grant PUD’s Retail Load is increasingly influenced by a handful of large industrial customers. Grant PUD also has a significant irrigation load. The irrigation load means that Grant PUD’s summer and winter peak loads are comparable despite being a northern utility with cold winters. Grant PUD’s relatively low customer rates have resulted in significant growth in the industrial customer sector that is projected to continue into the future. Growth of industrial load introduces a challenge in terms of forecasting future need, and Grant PUD’s base load forecast by customer class is shown in Graph 4-3:

Graph 4-3 | Grant PUD 2020 Medium Load Forecast Retail Sales (Base/Medium Load Forecast)

Load forecasts are based upon our customers’ expected demand for energy assuming normal weather. Hotter or colder than normal temperatures will cause actual load to vary over time. Grant PUD’s 15% planning margin is used in part as a buffer to ensure our customers’ loads will be met regardless of these variances.

From 2009-2019, Grant’s load has experienced an average annual growth rate of 3.1%. Grant PUD’s Base forecast has an average annual growth rate of 4.9% through 2030. The medium forecast is Grant PUD’s expected forecast estimated through econometric models and input from industrial customers. The Medium High forecast adjusts the official forecast by changing the standard forecasting error from 50 percentile to 95 percentile and delaying certain customer load increases, but not decreasing the original forecast projection. The High forecast adjusts the original forecast by increasing the growth rate for non-industrial and industrial customers by 25%. The Medium Low forecast adjusts the original forecast by reducing data center load by one average data center load.
Grant PUD conducted a Conservation Potential Assessment (CPA) in 2019 to estimate the conservation potential for the coming 20 years. Grant PUD has historically been able to meet the targets set for conservation. Due to the current wholesale market rates and concern of rate increases for our customers, Grant PUD has focused the conservation efforts on the industrial customers. Grant PUD continues to offer several rebate programs for residential and non-residential applications. The full CPA has been attached as an appendix to this document so that the analysis and methodology are clearly provided (Appendix 2).

The conservation potential analysis evaluated four sectors including: residential, commercial, industrial, and agricultural. The industrial sector is where Grant PUD receives the greatest gains by installing more energy efficient cooling and power supplies in data centers, converting to more efficient lighting, upgrading refrigeration storage, and performing cold storage equipment tune-ups and retrofits. The commercial sector represents the second greatest potential for conservation with lighting and HVAC upgrades.

The following table and chart are taken directly from the CPA to illustrate the base case of where the conservation potential is through 2039. For the high, low, or accelerated cases, please see Appendix 2 containing the CPA.

Table 5-1 | Cost Effective Potential - Base Case (aMW) | (District 2019 CPA)

<table>
<thead>
<tr>
<th></th>
<th>2-Year*</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.66</td>
<td>2.18</td>
<td>3.59</td>
<td>5.71</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.82</td>
<td>3.03</td>
<td>4.83</td>
<td>6.94</td>
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<tr>
<td>Industrial</td>
<td>2.42</td>
<td>9.58</td>
<td>15.53</td>
<td>25.23</td>
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<tr>
<td>Agricultural</td>
<td>0.19</td>
<td>.63</td>
<td>1.01</td>
<td>1.27</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.09</td>
<td>15.42</td>
<td>24.96</td>
<td>39.15</td>
</tr>
</tbody>
</table>
Grant PUD will use the information from the CPA as well as this IRP to pursue its cost-effective conservation targets. The savings to participating retail customers will accumulate for many years.

Washington State recently enacted several laws that impact conservation planning. SB 1257 establishes energy performance standards for large existing commercial buildings. HB 1444 establishes efficiency standards for lights and many appliances. SB 5116 puts forward a Clean Energy Transformation Act (CETA), which was discussed previously. As the IRP is being developed, final rule making is still being developed for many provisions in these laws and as such the full effect these laws will have on Grant PUD is uncertain. CETA sets values for the social cost of carbon and the requirement that all sales be greenhouse gas neutral beginning in 2030, thus increasing the avoided cost of energy efficiency measures. HB 1444, by enacting higher lighting and appliance standards, lowers Grant PUD’s future conservation potential. As such, the provisions contained in these laws will be addressed further in the 2022 IRP when there is less uncertainty with regards to the specific implementation rules.
Grant PUD will meet the Washington State RPS (I-937) through its current investment in renewable generating projects and future investment in new renewable capacity and/or Renewable Energy Credits (REC). Grant PUD’s current sources include the Wanapum and Priest Rapids Top Spill Fish Bypasses, qualifying improvements made to Wanapum turbines and generators, and the purchase of a portion of the Nine Canyon Wind Project. Based on these investments in renewable generation and current load growth projections, Grant PUD is projected to meet the RPS requirements with existing resources until 2025 (Graph 6-1). In 2025 and beyond, Grant PUD is planning to acquire qualifying RECs and Solar to meet RPS requirements. The methods of acquiring these resources will be discussed in Section 9.

Graph 6-1  |  I-937 Eligible Position – Base Case
Grant PUD currently meets its load and other energy obligations with a portfolio of supply resources anchored by Grant PUD’s right to the output of Wanapum and Priest Rapids Hydroelectric Dams, collectively referred to as the Priest Rapids Project (PRP). Grant PUD augments the output of these facilities with contracts for Nine Canyon wind and two small irrigation projects (Quincy Chute and Potholes East Canal (PEC)). Grant PUD also receives power from the Bonneville Power Administration to meet the load in the Grand Coulee area of Grant County. Historically, this portfolio has provided a foundation for meeting Grant PUD’s load in a cost-effective manner.

**Significant attributes of Grant generation resources:**

- **Capacity:** the maximum output of electricity that a generator can produce under ideal conditions. Capacity levels are normally determined as a result of performance tests and allow utilities to project the maximum electricity load that a generator can support. Capacity is generally measured in megawatts or kilowatts.

- **Energy:** the amount of electricity that is produced over a specific period of time. This is usually measured in kilowatt-hours, megawatt-hours, or terawatt-hours.

- **Ancillary Services:** the specialty services and functions provided by the electric grid that facilitate and support the continuous flow of electricity so that supply will continually meet demand. The term ancillary services is used to refer to a variety of operations beyond generation and transmission that are required to maintain grid stability and security. These services generally include frequency control, regulation, load following, energy imbalance, spinning reserves, operating reserves, scheduling, system control, and dispatch. Some of the highest quality ancillary services are provided by generators with large spinning turbines.

- **Energy Storage:** in hydro projects like the PRP, storage is realized through the ability to store water in reservoirs to be run through turbines when the energy is desired.

- **Carbon-Free Energy and Incremental Hydro Renewable Energy Credits:** generators that are capable of producing carbon-free power will have an advantage over generators that release carbon whenever there is an explicit price on carbon. These carbon-free attributes can be monetized in the form of Renewable Energy Credits.
THE GENERATING RESOURCES AVAILABLE TO GRANT PUD TO MEET ITS OBLIGATIONS:

The Wanapum Development

The Wanapum Development consists of a dam and hydroelectric generating station with a nameplate rating of 1,204 MW. Located on the Columbia River in Grant and Kittitas Counties, about 160 air miles northeast of Portland, Oregon, 129 air miles southeast of Seattle, Washington, and 18 miles upstream of the Priest Rapids Development, the Wanapum Development includes certain switching, transmission and other facilities necessary to deliver electric output to the transmission networks of Grant PUD, Bonneville and certain other power purchasers.

The Priest Rapids Development

The Priest Rapids Development consists of a dam and hydroelectric generating station with a nameplate rating of 950 MW. Located on the Columbia River in Grant and Yakima Counties about 150 air miles northeast of Portland, Oregon, 130 air miles southeast of Seattle, Washington, and 18 miles downstream of the Wanapum Development, the Priest Rapids Development includes certain switching, transmission and other facilities necessary to deliver the electric output to the transmission networks of Grant PUD, Bonneville and certain other power purchasers.

PRP provides Grant PUD with all the significant attributes of value including energy, capacity, ancillary services, energy storage, and carbon-free green attributes defined above. Often these are used exclusively to serve customers’ needs. Any excess has value and can be marketed. These large hydroelectric resources have been Grant PUD’s foundational supply of carbon-free electricity.

EUDL Market Purchases

Grant PUD has the right to receive financial resources from the Priest Rapids Project to purchase power to serve the Estimated Unmet District Load (EUDL). The financial resources are limited to approximately 30% of the market value of the output of PRP in any given year. The energy and capacity are not received directly from the Priest Rapids Project but through market purchases. This provision allows Grant PUD to serve loads up to roughly 30% of the output of the Priest Rapids Project at the net cost of production for the Priest Rapids Project. In the accompanying graphs in Section 9, this resource is labeled “EUDL Market Purchases.” Grant PUD recognizes that this is a financial position that needs to be converted to a physically firm position though the course of Grant PUD’s hedging strategy and consistent with the Integrated Resource Plan. Graph 7-1 illustrates Grant’s forecasted system load vs the physical resources available to meet that load.
The EUDL market purchases have been able to meet our system load in the past. Section 9 will illustrate how heavily Grant relies on EUDL market purchases to meet the system load. Grant will evaluate liquidity within the markets and make strategic adjustments to ensure the ability to continue to meet physical firm requirements.

**Bonneville Power Administration Contracts**

Bonneville charges a cost-based rate, meaning it only recovers its costs. Bonneville conducts a rate case every two years to reset these cost-based rates. Grant PUD’s Priority Firm (PF) power contract with Bonneville, effective October 1, 2011, and terminating October 1, 2028, provides that Bonneville serve only Grant PUD’s loads in the Grand Coulee area (approximately 5aMW or roughly 1% of the total District load), which is a small area not interconnected to Grant PUD’s transmission system. Grant PUD does not have a contract with Bonneville to serve any other District load. Grant PUD has the right to exercise its statutory rights to apply for more PF power from BPA after 2028. Grant PUD will continue to monitor BPA’s rates in order to evaluate the value of expanding the PF power commitment post 2028.

**Nine Canyon Wind Project**

Grant PUD entered into a power purchase agreement with Energy Northwest for the purchase of 25% of the generating capacity of Phase I of the 48.1 MW Nine Canyon Wind Project. Grant PUD now receives 12.54% of the expanded Phase I, II and III Nine Canyon Wind Project, which is equivalent to the 25% share of the original Phase I project. The power purchase agreement will terminate on July 1, 2030. The Nine Canyon Wind Project is a wind energy generation project located approximately eight miles southeast of Kennewick, Washington, in the Horse Heaven Hills. In 2018, Grant PUD received approximately 30,958 MWh of wind generation output from the project and 24,931 MWh in 2019. This resource provides capacity and produces carbon-free energy with RECs.

**Quincy Chute Project**

Under an agreement with three irrigation districts, Grant PUD operates and purchases the entire capability and output of the Quincy Chute Project, a 9.4 MW hydroelectric generating facility operating seasonally during the irrigation season (March through October). Grant PUD financed, designed and constructed the project and is responsible for operation and maintenance during the period of the agreement, which expires in 2025. The Quincy Chute Project began commercial operation on October 1, 1985, and its net energy generation was 32,071 MWh in 2018 and 27,858 MWh in 2019. This resource produces capacity and carbon-free energy. Due to the
uncertainty of the renewal of this contract, it is not shown as a resource beyond the expiration date in 2025. As we get closer to the expiration of the contract, Grant PUD will evaluate this resource and may negotiate with the irrigation districts for a new contract.

**P.E.C. Headworks Power Plant Project**

Under an agreement with three irrigation districts, Grant PUD operates and purchases the entire capability and output of the 6.5 MW generating facility at the P.E.C. Headworks at the O’Sullivan Dam, which operates during the irrigation season (March through October). Grant PUD financed, designed and constructed the project and is responsible for operation and maintenance during the period of the agreement, which expires in 2030. The P.E.C. Headworks Project began commercial operation on September 1, 1990, and its net energy generation was 19,982 MWh in 2018, and 19,801 MWh in 2019. This resource produces capacity and carbon-free energy.

**Slice Contracts and Energy Purchases**

Grant PUD utilizes a “slice” hedging strategy to eliminate the volatility of river flows from year to year. This hedging strategy is accomplished by the selling of Grant PUD’s a portion of the 63.31% contractual output (energy/capacity/storage) of the Priest Rapids Project (PRP) to a counterparty and using the funds from the sale to purchase firm energy from the same counterparty.

In September 2015, Grant PUD entered into a 5-year Agreement for Pooling of PRP output (the “Pooling Agreement”) with Shell Energy North America (“SENA”). Under the Pooling Agreement, Grant PUD provides SENA 53.3% of the PRP output and SENA provides to Grant firm power sufficient to meet the Electric System’s retail load forecast net requirements (“District’s Load Forecast”). In addition, SENA provides energy scheduling services for Grant PUD and Grant PUD provides flexibility to SENA within Grant PUD’s Balancing Area. The term of this Pooling Agreement runs through September 2020.

In 2019, Grant PUD entered into a contract to sell a 10% slice of PRP to Avangrid Renewables, Inc. for the term of January 1, 2019 through December 31, 2021.

Grant is in the final stages of contract negotiations to replace the SENA Pooling Agreement with similar agreements which will also be for a 5-year period. This new Pooling Agreement will be for 33.31% of the output from PRP, leaving an additional 20% slice for Grant to sell to another counterparty. This 20% slice sale is also under current contract negotiations and will be for a term of 3-years beginning in January 2021.

Grant PUD’s hedging strategy will continue to use slice sales to mitigate water volume risk. Slice sales allow Grant PUD to transfer water risk to counter parties in exchange for average water. In addition, Grant PUD has realized a premium associated with environmental attributes and associated ancillary services. This strategy has proven to be the most effective and least-cost approach currently available to Grant PUD.
Grant PUD evaluates the various external and internal forces that can affect the size and shape of the load it serves and how to meet that load based on anticipated market prices, resource availability, and delivery constraints. Grant PUD hired the consulting firm of Energy + Environmental Economics (E3) to identify the least-cost portfolio needed to serve load growth within its service territory in the context of the broader Pacific Northwest clean energy policies and resource availability. E3 utilized its Pacific Northwest regional capacity expansion model, RESOLVE, to perform the analysis to determine the least-cost portfolio for the new loads within the Grant’s service territory (See Appendix 1). This least-cost modeling approach is consistent with Grant PUD’s mission to efficiently and reliably generate and deliver energy to our customers.

RESOLVE MODEL SUMMARY

The RESOLVE model used by E3 in their analysis was originally developed for a 2017 study sponsored by the Public Generating Pool (PGP) examining alternative policies for achieving reductions to electric sector carbon emissions in the Northwest. The model has since been updated to analyze deep decarbonization and clean energy policies in the Pacific Northwest. The model takes a regional approach, optimizing resource build for a subset of the Northwest region, labeled “Core NW” representing Washington, Oregon, and parts of Idaho and Montana. The RESOLVE model analyzed Grant’s loads representing the Medium, Medium High, and High load growth scenarios. Each load forecast was incorporated into the existing baseline load for the Pacific Northwest. All three scenarios were analyzed with the following regional policies: a). 80% Green House Gas reductions relative to 1990 levels by 2045; b). CETA compliance (elimination of coal-sourced generation by 2025, Carbon-neutral generation by 2030 and greenhouse gas emissions free generation by 2045).

RESOLVE’s optimization capabilities allow it to select from among a wide range of potential new resources. In general, the options for new investments considered in this study are limited to those technologies that are commercially available today. This approach ensures that the greenhouse gas reduction portfolios developed in the IRP can be achieved without relying on assumed future technological breakthroughs. The full range of resource options considered by RESOLVE in this study is shown in Table 8-1.
<table>
<thead>
<tr>
<th>Resource Option</th>
<th>Examples of Available Resources</th>
<th>Functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas Generation</td>
<td>• Simple cycle gas turbines&lt;br&gt;• Reciprocating engines&lt;br&gt;• Combined cycle gas turbines&lt;br&gt;• Repowered CCGTs</td>
<td>• Dispatches economically based on heat rate, subject to ramping limitations&lt;br&gt;• Contributes to meeting minimum generation and ramping constraints</td>
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<td>Renewable Generation</td>
<td>• Geothermal&lt;br&gt;• Hydro upgrades&lt;br&gt;• Solar PV&lt;br&gt;• Wind</td>
<td>• Dynamic downward dispatch (with cost penalty) of renewable resources to help balance load&lt;br&gt;• Hydro resources have full up and downward flexibility to balance load.</td>
</tr>
<tr>
<td>Energy Storage</td>
<td>• Batteries (&gt;1 hr)&lt;br&gt;• Pumped Storage (&gt;12 hr)</td>
<td>• Stores excess energy for later dispatch&lt;br&gt;• Contributes to meeting minimum generation and ramping constraints</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>• HVAC&lt;br&gt;• Lighting&lt;br&gt;• Dryer, refrigeration, etc.</td>
<td>• Reduces load, retail sales, planning reserve margin need</td>
</tr>
<tr>
<td>Demand Response</td>
<td>• Interruptible tariff (ag)&lt;br&gt;• DLC: space &amp; water heating (res)</td>
<td>• Contributes to planning reserve margin needs</td>
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The model selects the lowest cost options to meet Grant’s loads with a high degree of reliability and full compliance with carbon mandates. The RESOLVE model results indicate solar is the marginal resource added to Grant’s portfolio for energy and natural gas is the marginal resource added for capacity. These results were consistent for all load scenarios analyzed. Grant PUD does not anticipate owning either of these resources in the next ten years, but significant load growth or a change in regulatory requirements may make ownership beneficial. Assuming no change in the carbon constraints in Washington, the District projects adding solar generation for energy deficits through market purchases or purchase power agreements beginning in 2026. If Grant PUD is required to purchase capacity, combined cycle natural gas generation would be the least cost option. Capacity deficits are not forecasted until 2026. Medium High or High load growth would necessitate acquiring these additional resources sooner.

Grant PUD is in the process of assembling a team of internal and external experts to evaluate the future energy and capacity needs of our customers. Their findings will guide the PUD’s decisions regarding resource requirements and acquisition possibilities.
The Base Case represents the expected outcome for Grant PUD under current carbon regulation (I-937 and CETA). Grant PUD is constantly monitoring changes to forecasted loads, resource availability, market prices, market liquidity, and legislation that could affect the price and/or availability of resources. Each of the scenarios modeled in the IRP assumes that we are using our current physical resources or will acquire firm energy and capacity to meet our expected monthly load. Grant PUD will also acquire firm capacity as necessary to meet our 15% planning margin. Table 9-1 below lists the scenarios selected for discussion in this IRP.

Table 9-1 | IRP Scenarios

<table>
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<th>Grant PUD Load Forecasts</th>
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<tr>
<td>Medium Low Load</td>
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<tr>
<td>Base Load</td>
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<td>Medium High Load</td>
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<td>High Load</td>
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**Base Case**

The Base Case represents Grant PUD’s least-cost path forward to serve expected load requirements under current market conditions. This means Grant PUD is using the base load forecast, existing resources, and selecting new resources under the current legislative environment. Under the Base Case, Grant PUD has enough existing capacity to meet expected load growth on an annual basis through 2028 (Graph 9-3). Grant is forecasting to be capacity deficit on average in the summer of 2027 (Graph 9-4). The RESOLVE model recommends Grant PUD acquire solar purchase power agreements (PPAs) for energy deficits and natural gas PPAs for generation capacity requirements.

It is important to note that a significant portion of Grant PUD’s resources to meet load is provided though the Estimated Unmet District Load (EUDL). The “EUDL-Market” in the graphs is a financial resource (dollars) which is used to purchase firm energy in the open market on an annual basis. While acquiring these resources has not been a challenge in the past, Grant is examining alternatives to annual purchases to increase certainty of availability.

Grant PUD will continue to analyze the costs and benefits of building and operating power resources versus purchasing power and/or capacity through PPAs. For purposes of this presentation, PPAs’s will be shown as the resource of choice to meet energy and capacity shortfalls due to its relative ease of acquisition vs building and operating. Firm purchases of Market energy and capacity will also be shown where the deficit is insufficient for economical acquisition of a PPA. Grant recognizes that Resource Adequacy concerns in the WECC will require careful consideration and planning to maintain reliable resources to meet our load.

The graphs below represent Grant PUD’s annual and summer cases which may include:

**Existing District Resources:**

- **PRP**: The Priest Rapids Project consisting of Wanapum and Priest Rapids Hydro Election Dams
- **Other Generation**: including Nine Canyon, Quincy Chute, PEC, BPA, and Exchange Agreements

- **EUDL-Market**: Power Purchases assumed to be converted to firm physical energy up to Grant Load

- **Market**: Firm physical energy purchases

- **Solar - PPA**: Purchase power agreement for renewable solar resources

- **Combined Cycle - PPA**: Purchase Power Agreement for natural gas generation

- **Gas Peak Plant - PPA**: Purchase Power Agreement for natural gas generation

- **Capacity Option**: Call option on physically firm capacity

- **System Load**: Grant PUD load forecast (See Section 5)

- **Load +15%**: Planning margin on system load

- **Peak Load**: Used for Capacity planning purposes and represents the maximum forecasted demand

- **Peak Load +15%**: Planning margin on Peak Load
Medium High Load Case

In the Medium High Load Case, all assumptions are the same as the Base Case but with higher load growth. Under this case, Grant PUD, on an annual basis, is expected to require market purchases beginning in 2025 beyond what is supplied through EUDL - Market. Starting in 2026, Grant PUD is forecasted to enter into a PPA for a solar resource to meet its annual load requirements and a PPA for natural gas Combined Cycle (Graph 9-5). Grant is forecasting the need for Gas Peak Plant PPAs to meet its Average Summer Capacity needs beginning in 2025 (Graph 9-6).
**High Load Case**

In the High Load Case all assumptions are the same as the Base Case but with the highest load growth forecast. Under this case, Grant PUD is not able to meet, on an annual basis, the expected load with existing physical resources and EUDL-Market purchases, starting in 2026. Grant PUD expects to enter into Solar and Combined Cycle PPA’s beginning in 2026 (Graph 9-7). Capacity Options are forecasted to be used to meet summer peaks (Graph 9-8).

**Graph 9-7 | Annual Loads and Resources – High Load Case – Added Resources**

**Graph 9-8 | Average Summer Capacity – High Case – Added Resources**
Medium Low Load Case

In the Medium Low Load Case, all assumptions are the same as the Base Case but with lower load growth. Under this case, Grant PUD is able to meet, on an annual basis, the expected load through the 10-year planning horizon with existing resources and EUDL Market Purchases (Graph 9-9). Grant PUD will still use market purchases to meet the 15% planning margin starting in 2026 with solar and Combined Cycle PPA’s to meet the 15% planning margin. The Average Summer Capacity is forecasted to also require the addition of Capacity Call Options (Graph 9-10).
CONCLUSIONS

Grant PUD draws the following conclusions from the IRP analyses:

1. Current Grant PUD strategy of large market purchases made to cover Estimated Unmet District Load (EUDL) needs to be reconsidered due to possible resource adequacy issues in the WECC.

2. Based on the anticipated annual energy projections, Grant PUD has enough existing physical resources and EUDL dollars to meet expected load growth on an annual basis through 2028.

3. As a result of the 15% planning margin, additional resources requirements are forecasted as soon as 2026.

4. Grant PUD is forecasting to be seasonally capacity-deficient during summer of 2026.

5. To meet these seasonal deficiencies, current models indicate the least-cost resources to be power purchase agreements of solar and natural gas generation with an emphasis on firm delivery. Market purchases will also be necessary to fill in any gaps that are not economical to fill with purchase power agreements.

6. Grant PUD will continue to meet its renewable portfolio obligations without acquiring new resources until 2025. At that time Grant PUD will acquire any expected RPS deficits with market purchases of eligible RECs and other qualifying resources such as solar.

7. Grant PUD’s load forecast contains significant uncertainty due to the relatively high percentage of industrial load. Industrial loads could be significantly higher or lower than the forecast based on a number of factors, many of which are outside Grant PUD’s control. Grant PUD has reviewed the potential risks associated with this load uncertainty and will continue monitoring these loads and expectations of this customer segment.

8. Grant PUD will need to stay abreast of changes in the utility industry affecting the District’s planning processes.
ACTION PLAN

Grant PUD should take the following actions based on the results of this IRP.

1. Assemble a team of internal subject matter experts to determine strategy and execute a plan to research the acquisition of resources to meet forecasted energy and capacity needs. This will most likely include one or more full-time IRP staff resources. Monitor opportunities to procure low-cost, long-term generating resources (particularly resources that qualify for I-937 and CETA compliance), with an eye towards opportunities priced better than new-build costs. Preference will be given to firm resources to address regional Resource Adequacy concerns.

2. Continue to implement and achieve cost-effective conservation available within the county as indicated in Grant PUD’s Conservation Potential Assessment.

3. Continue to enhance the capacity planning process and standards to ensure Grant PUD adequately plans to reliably meet both the energy and peaking needs of Grant PUD’s electric system. Grant’s capacity planning process and standard should conform to the evolution in power planning for the Pacific Northwest. Therefore, Grant PUD should participate in and monitor regional forums related to resource planning.

4. Continue to refine and improve the retail energy load forecasts, with an emphasis on monitoring changes from the large industrial customers, given their ability to affect Grant’s load and resource balance.

5. Evaluate the opportunities presented by the expansion of the Northwest EIM and the possible growth of the California Independent System Operator into the Northwest. Grant PUD should work to identify the best strategy (from a cost, opportunity and risk basis) to interact with this evolving market.

6. Continue to participate in regional utility groups that monitor and influence legislation that could affect Grant PUD’s ratepayers.
Appendix 1:

RESOLVE Model Description

OVERVIEW

RESOLVE is a resource investment model that uses linear programming to identify optimal long-term generation and transmission investments in an electric system, subject to reliability, technical, and policy constraints. Designed specifically to address the capacity expansion questions for systems seeking to integrate large quantities of variable resources, RESOLVE layers capacity expansion logic on top of a production cost model to determine the least-cost investment plan, accounting for both the up-front capital costs of new resources and the variable costs to operate the grid reliably over time. In an environment in which most new investments in the electric system have fixed costs significantly larger than their variable operating costs, this type of model provides a strong foundation to identify potential investment benefits associated with alternative scenarios.

RESOLVE’s optimization capabilities allow it to select from among a wide range of potential new resources. In general, the options for new investments considered in this study are limited to those technologies that are commercially available today. This approach ensures that the greenhouse gas reduction portfolios developed in this study can be achieved without relying on assumed future technological breakthroughs. At the same time, it means that emerging technologies that could play a role in a low-carbon future for the Northwest—for instance, small modular nuclear reactors—are not evaluated within this study. This modeling choice is not meant to suggest that such emerging technologies should not have a role in meeting regional greenhouse gas reduction goals, but instead reflects a simplifying assumption made in this study. The full range of resource options considered by RESOLVE in this study is shown in Table 2-1.

Table 2-1. Resource options considered in RESOLVE

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</table>
1.1.2 OPERATIONAL SIMULATION

To identify optimal investments in the electric sector, maintaining a robust representation of prospective resources’ impact on system operations is fundamental to ensuring that the value each resource provides to the system is captured accurately. At the same time, the addition of investment decisions across multiple periods to a traditional unit commitment problem increases its computational complexity significantly. RESOLVE’s simulation of operations has therefore been carefully designed to simplify traditional unit commitment problem where possible while maintaining a level of detail sufficient to provide a reasonable valuation of potential new resources. The key attributes of RESOLVE’s operational simulation are enumerated below:

+ **Hourly chronological simulation**: RESOLVE’s representation of system operations uses an hourly resolution to capture the intraday variability of load and renewable generation. This level of resolution is necessary in a planning-level study to capture the intermittency of potential new wind and solar resources, which are not available at all times of day to meet demand and must be supplemented with other resources.

+ **Aggregated generation classes**: rather than modeling each generator within the study footprint independently, generators in each region are grouped together into categories with other plants whose operational characteristics are similar (e.g. nuclear, coal, gas CCCT, gas CT). Grouping like plants together for the purpose of simulation reduces the computational complexity of the problem without significantly impacting the underlying economics of power system operations.

+ **Linearized unit commitment**: RESOLVE includes a linear version of a traditional production simulation model. In RESOLVE’s implementation, this means that the commitment variable for each class of generators is a continuous variable rather than an integer variable. Additional constraints on operations (e.g. Pmin, Pmax, ramp rate limits, minimum up and down time) further limit the flexibility of each class’ operations.

+ **Zonal transmission topology**: RESOLVE uses a zonal transmission topology to simulate flows among the various regions in the Western Interconnection. RESOLVE includes six zones: the Core Northwest region and five external areas that represent the loads and resources of utilities throughout the rest of the Western Interconnection.

+ **Co-optimization of energy and ancillary services**: RESOLVE dispatches generation to meet load across the Western Interconnection while simultaneously reserving flexible capacity within the Primary Zone to meet the contingency and flexibility reserve needs. As systems become increasingly constrained on flexibility, the inclusion of ancillary service needs in the dispatch problem is necessary to ensure a reasonable dispatch of resources that can serve load reliably.

+ **Smart sampling of days**: whereas production cost models are commonly used to simulate an entire calendar year (or multiple years) of operations, RESOLVE simulates the operations of the WECC system for 41 independent days. Load, wind, and solar profiles for these 41 days, sampled from the historical meteorological record of the period 2007-2009, are selected and assigned weights so that taken in aggregate, they produce a reasonable representation of complete distributions of potential conditions; daily hydro conditions are sampled separately from low (2001), average (2005), and high (2011) hydro years to provide a complete distribution of potential hydro conditions. This allows RESOLVE to approximate annual operating costs and dynamics while simulating operations for only the 41 days.

+ **Hydro dispatch informed by historical operations**: RESOLVE captures the inherent limitations of the generation capability of the hydroelectric system by deriving constraints from actual operational data. Three types of constraints govern the operation of the hydro fleet as a whole: daily energy budgets, which limit the amount of hydro generation in a day; (2) maximum and minimum hydro generation levels, which constrain the hourly hydro generation; and (3) maximum multi-hour ramp rates, which limit the rate at which the output of the collective hydro system can change its output across periods from one to four hours. Collectively, these constraints limit the generation of the hydro fleet to reflect seasonal limits on water availability, downstream flow requirements, and non-power factors that impact the operations of the hydro system. The derivation of these constraints from actual hourly operations makes this representation of hydro operations conservative with respect to the amount of potential flexibility in the resource.

1.1.3 ADDITIONAL CONSTRAINTS

RESOLVE layers investment decisions on top of the operational model described above. Each new investment identified in RESOLVE has an impact on how the system operates; the portfolio of investments, as a whole, must satisfy a number of additional conditions.
Planning reserve margin: When making investment decisions, RESOLVE requires the portfolio to include enough firm capacity to meet 1-in-2 system peak plus additional 15% of planning reserve margin (PRM) requirement. The contribution of each resource type towards this requirement depends on its attributes and varies by type: for instance, variable renewables are discounted more compared to thermal generations because the uncertainties of generation during peak hours.

Renewables Portfolio Standard (RPS) requirement: RPS requirements have become the most common policy mechanism in the United States to encourage renewable development. RESOLVE enforces an RPS requirement as a percentage of retail sales to ensure that the total quantity of energy procured from renewable resources meets the RPS target in each year.

Greenhouse gas cap: RESOLVE also allows users to specify and enforce a greenhouse gas constraint on the resource portfolio for a region. As the name suggests, the emission cap type policy requires that annual emission generated in the entire system to be less than or equal to the designed maximum emission cap. This type of policy is usually implemented by having limited amount of emission allowances within the system. As a result, thermal generators need to purchase allowances for the carbon they produced from the market or from carbon-free generators.

Resource potential limitations: Many potential new resources are limited in their potential for new development. This is particularly true for renewable resources such as wind and solar. RESOLVE enforces limits on the maximum potential of each new resource that can be included in the portfolio, imposing practical limitations on the amount of any one type of resource that may be developed.

RESOLVE considers each of these constraints simultaneously, selecting the combination of new generation resources that adheres to these constraints while minimizing the sum of investment and operational costs.

An optimization algorithm is used to select the days and identify the weight for each day such that distributions of load, net load, wind, and solar generation match long-run distributions. Sometimes hydro operators can shift hydro energy from day to day: for example, if hydro operators know that tomorrow will be a peak day, they can save some hydro energy today and use them tomorrow to meet the system need. This flexibility can help integrating renewable into the system and it is going to be more and more valuable as the % of system renewable penetration increases. To capture this flexibility, model allows up to 5% of the hydro energy in each day to be shifted around within two months.

1.4 KEY MODEL OUTPUTS

RESOLVE produced a large amount of results from technology level unit commitment decisions to total GHG emission in the system. This extensive information gives users a complete view of the future system and makes RESOLVE versatile for different analysis. The following list of outputs is produced by RESOLVE and are the subject of discussion and interpretation in this study:

Total revenue requirement ($/yr): The total revenue requirement reports the total costs incurred by utilities in the study footprint (the combination of Washington and Oregon) to provide service to its customers. This study focuses on the relative differences in revenue requirement among scenarios, generally measuring changes in the revenue requirement relative to the Reference Case. The cost impacts for each scenario comprise changes in fixed costs (capital & fixed O&M costs for new generation resources, incremental energy efficiency, new energy storage devices, and the required transmission resources with the new generation) and operating costs (variable O&M costs, fuel costs, costs of market purchases and revenues from surplus sales).

Greenhouse gas emissions (MMTCO2e): This result summarizes the total annual GHG emission in the system with imports and exports adjustments. The GHG emission is one of the most important metrics for the studies. By comparing the GHG emission and total resource costs between different policy scenarios, we can conclude the relative effectiveness of policies in GHG reduction.

Resource additions for each period (MW): The selected investment summarizes the cumulative new generation capacity investments by resources types. It provides an overview of what kinds of generation are built and the timing of the investments.

Annual generation by resource type (aMW): Energy balance shows the annual system load and energy produced by each resource type at yearly intervals. It provides insights from a different angle than capacity investments. It can help answer questions
like: Which types of resources are dispatched more? How do the dispatch behaviors change over the years? And how do curtailment, imports, and exports vary year by year?

- **Renewable curtailment (aMW):** RESOLVE estimates the amount of renewable curtailment that would be expected in each year of the analysis as a result of “oversupply”—when the total amount of must-run and renewable generation exceeds regional load plus export capability—based on its hourly simulation of operations. As the primary renewable integration challenge at high renewable penetrations, this measure is a useful proxy for renewable integration costs.

- **Wholesale market prices ($/MWh):** outputs from RESOLVE can be used to estimate wholesale market prices on an hourly basis (or during the standard HLH and LLH trading periods). As an optimization model, RESOLVE produces “shadow prices” in each hour that represent the marginal cost of generation given all the resources available at the time; these marginal costs serve as a proxy for wholesale market prices.

- **Average greenhouse gas abatement cost ($/metric ton):** RESOLVE results can also be used to estimate average and marginal costs of greenhouse gas abatement by comparing the amount of greenhouse gas abatement achieved (relative to a Reference Case) and the incremental cost (relative to that same case).

### 1.2 STUDY FOOTPRINT

This report analyzes the different policy mechanisms that could be used to achieve GHG reduction goals in predominantly Washington and Oregon, with a small portion of Idaho and Montana loads that fall in BPA and AVA control areas. In this respect, the footprint of this study differs from the Northwest Regional Planning Area established by the Pacific Northwest Electric Power Planning and Conservation Act and used by regional planning entities in much of their work. This narrower study footprint representing only a portion of what is traditionally considered the Pacific Northwest is motivated by the desire to focus on the electric power sector within the states of Oregon and Washington, where policy discussions surrounding potential measures to facilitate decarbonization are considerably more advanced than elsewhere in the Pacific Northwest. Figure 2-1 shows a diagram summarizing the study footprint.

This study focuses on the ratepayers of Grant PUD in addition to the Core Northwest region shown as the “Primary Zone”—the zone for which RESOLVE makes generation investment decisions. For the purposes of simulating west-wide operations, the remaining balancing authorities outside of the Core Northwest are grouped into five additional “Secondary Zones.” Investments in these zones are not optimized; the trajectory of new build for the external regions is based on regional capacity needs to meet PRM targets, as well as renewable needs to comply with existing RPS policies in those regions.
Table 2-2. Balancing authorities included in each study region.

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<th>Constituent Balancing Authorities</th>
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<td></td>
<td>Other Northwest</td>
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<td></td>
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<td>• NorthWestern Energy (NWMT)</td>
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<td></td>
<td>• Los Angeles Department of Water and Power (LADWP)</td>
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<td>• Public Service Company of New Mexico (PNM)</td>
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<td></td>
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<td>• Salt River Project (SRP)</td>
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<td>• Tucson Electric Power (TEP)</td>
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<td>• WAPA – Lower Colorado</td>
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<td>• Alberta Electric System Operator (AESO)</td>
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<td>• British Columbia Transmission Company (BCTC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CFE (CFE)</td>
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</table>

Alberta and British Columbia and their interactions with the rest of the Western Interconnection are not modeled in the scenarios due to lack of publicly available data. While its interactions with the Canadian provinces is an important characteristic of the Northwest electricity system, the omission of this portion of the Western Interconnection is not expected to fundamentally alter the general dynamics or overall findings of this analysis.
Appendix 2

Grant County County Public Utility District

2019 Conservation Potential Assessment
Final Report

October 23, 2019

Prepared by:

EES Consulting
570 Kirkland Way, Suite 100
Kirkland, Washington 98033
A registered professional engineering corporation with offices in
Kirkland, WA and Portland, OR
Telephone: (425) 889-2700 Facsimile: (425) 889-2725
October 23, 2019

Mr. Richard Cole
Grant County Public Utility District
30 C Street, SW
Ephrata, WA 98823

SUBJECT: 2019 Conservation Potential Assessment

Dear Mr. Cole:

Please find attached the final report summarizing the 2019 Grant County Public Utility District (Grant PUD) Conservation Potential Assessment.

This report covers the 20-year time period from 2020 through 2039. The measures and information used to develop Grant PUD’s conservation potential incorporate the most current information available for Energy Independence Act reporting. The near-term potential has increased slightly from the 2017 assessment, due to a multitude of competing factors. Over the 20-year study period, savings potential is down slightly.

We would like to acknowledge and thank you and your staff for the excellent support in developing and providing the baseline data for this project.

Regards,

Ted Light
Senior Project Manager

570 Kirkland Way, Suite 100
Kirkland, Washington 98033

Telephone: 425 889-2700 Facsimile: 425 889-2725

A registered professional engineering corporation with offices in Kirkland, WA and Portland, OR
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Executive Summary

This report describes the methodology and results of the 2019 Conservation Potential Assessment (CPA) for Grant County Public Utility District (Grant PUD). This assessment provides estimates of energy savings for the period 2020 to 2039. The assessment considered a wide range of conservation resources that are reliable, available, and cost-effective within the 20-year planning period.

Background

Grant PUD provides electricity service to more than 46,900 customers in Grant County, Washington.

Washington’s Energy Independence Act (EIA), effective January 1, 2010 and modified October 4, 2016, requires that utilities with more than 25,000 customers (known as qualifying utilities) pursue all cost-effective conservation resources and meet conservation targets set using a utility-specific conservation potential assessment methodology.

The EIA sets forth specific requirements for setting, pursuing and reporting on conservation targets. The methodology used in this assessment complies with RCW 19.285.040 and WAC 19437-070 Section 5 parts (a) through (d) and is consistent with the methodology used by the Northwest Power and Conservation Council (Council) in developing the Seventh Power Plan. Thus, this Conservation Potential Assessment will support Grant PUD’s compliance with EIA requirements.

This assessment was built on the same model used in the 2017 CPA, which was based on the completed Seventh Power Plan. The model was updated to reflect changes since the completion of the 2017 CPA. The primary model updates included the following:

- Avoided Cost  
  - Recent forecast of wholesale power market prices  
  - New transmission and distribution capacity costs based on new values from the Council  
  - New environmental costs due to legislation, including the social costs of carbon and standards for carbon-neutral energy specified by Washington’s Clean Energy Transformation Act
- A peak hour definition specific to Grant PUD
- Customer Characteristics Data
- Updated Customer Characteristics Data  
  - New residential home counts and characteristics  
  - Updated commercial floor area  
  - Updated industrial sector consumption  
  - New forecast of data center loads

District — Conservation

- Measure Updates  
  - Measure savings, costs, and lifetimes were updated based on the latest updates available from the Regional Technical Forum (RTF)
- New measures not included in the Seventh Plan but subsequently reviewed by the RTF were added
  - Accounting for recent achievements in Grant PUD’s programs
The first step of this assessment was to carefully define and update the planning assumptions using the current data and forecasts. The Base Case conditions were defined as the most likely market conditions over the planning horizon, and the conservation potential was estimated based on these assumptions. Additional scenarios were also developed to test a range of conditions and evaluate risk.

Results

Table ES-1 and Figure ES-1 show the high-level results of this assessment, the cost-effective potential by sector in 2, 6, 10, and 20-year increments. The total 20-year energy efficiency potential is 39.15 aMW. The most important numbers per the EIA are the 10-year potential of 24.95 aMW, and the 2-year potential of 4.09 aMW.

<table>
<thead>
<tr>
<th></th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.66</td>
<td>2.18</td>
<td>3.59</td>
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</tr>
<tr>
<td>Commercial</td>
<td>0.82</td>
<td>3.03</td>
<td>4.83</td>
<td>6.94</td>
</tr>
<tr>
<td>Industrial</td>
<td>2.42</td>
<td>9.58</td>
<td>15.53</td>
<td>25.23</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.19</td>
<td>0.63</td>
<td>1.01</td>
<td>1.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.09</strong></td>
<td><strong>15.42</strong></td>
<td><strong>24.95</strong></td>
<td><strong>39.15</strong></td>
</tr>
</tbody>
</table>

These estimates include energy efficiency that could be achieved through Grant PUD’s own utility programs, through its share of the Northwest Energy Efficiency Alliance (NEEA) accomplishments, and also through the utility’s share of future momentum savings (defined as energy efficiency that occurs outside of utility programs). In addition, it is likely that some of the potential will be achieved through codes and standards, especially in the later years.
Energy efficiency also has the potential to reduce peak demands. Based on the hourly load profiles developed for the Seventh Power Plan and load data provided by Grant PUD, the reductions in peak demand provided by energy efficiency are summarized in Table ES-2 below. Grant PUD’s system was assumed to peak in both summer evenings and winter mornings. The peak demand savings, measured in megawatts, are nearly double the annual energy savings. In addition to these peak demand savings, additional demand savings would occur throughout the year.

<table>
<thead>
<tr>
<th></th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.82</td>
<td>4.19</td>
<td>10.26</td>
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</tr>
<tr>
<td>Commercial</td>
<td>0.68</td>
<td>3.48</td>
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<tr>
<td>Industrial</td>
<td>2.66</td>
<td>7.63</td>
<td>11.89</td>
<td>17.74</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.06</td>
<td>0.14</td>
<td>0.19</td>
<td>0.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.22</strong></td>
<td><strong>15.44</strong></td>
<td><strong>30.47</strong></td>
<td><strong>61.88</strong></td>
</tr>
</tbody>
</table>

The 20-year energy efficiency potential is shown on an annual basis in Figure ES-2. This assessment shows annual potential starting at 2.01 aMW in 2020 and ramping up to a maximum of 3.40 aMW in 2024. Potential gradually ramps down through the remaining years of the planning period.

Ramp rates from the Northwest Power and Conservation Council’s (Council) Seventh Power Plan technical documentation were used to develop the annual savings potential over the 20-year study for the residential, commercial, and agriculture sectors. Some measures in these sectors were assigned lower ramp rates than what was used in the Seventh Power Plan to more closely match Grant PUD’s recent program achievement levels. Industrial measures were assigned a custom ramp rate developed by EES. Compared with the Seventh Power Plan, the EES industrial ramp rate smooths potential out over a longer period of time. The EES ramp rate reflects Grant PUD’s historic achievement patterns where large industrial projects are completed as both
the PUD and the companies are able to budget for those projects. Historically, Grant PUD has saved an average of 1.05 aMW in the industrial sector (2014-2017), although larger savings are sometimes achieved with the construction of new data centers.

The largest share of potential is available in Grant PUD’s industrial sector, which includes data centers. The notable areas for industrial potential include:

- Energy management measures, including Strategic Energy Management and the efficient operation of other motor-driven industrial systems
- Data center efficiency measures
- Lighting – including high bay and other efficient lighting
- Refrigerated storage – including fruit, food and cold storage equipment tune-ups and retrofits

Significant potential is also available in the commercial sector. Commercial sector potential falls into the main categories of commercial energy usage, lighting and HVAC, with additional savings potential available across a variety of other end uses.
Comparison to Previous Assessment

Table ES-3 shows a comparison of 2 and 10-year conservation potential by customer sector for this assessment and the results of Grant PUD’s 2017 CPA.

<table>
<thead>
<tr>
<th></th>
<th>2-Year 2019</th>
<th>% Change</th>
<th>10-Year 2019</th>
<th>% Change</th>
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<tr>
<td></td>
<td>2017</td>
<td>2019</td>
<td></td>
<td>2017</td>
</tr>
<tr>
<td>Residential</td>
<td>0.23</td>
<td>0.66</td>
<td>190%</td>
<td>3.44</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.47</td>
<td>0.82</td>
<td>74%</td>
<td>5.22</td>
</tr>
<tr>
<td>Industrial</td>
<td>2.40</td>
<td>2.42</td>
<td>0%</td>
<td>10.74</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.56</td>
<td>0.19</td>
<td>-65%</td>
<td>2.92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.67</strong></td>
<td><strong>4.09</strong></td>
<td><strong>12%</strong></td>
<td><strong>22.32</strong></td>
</tr>
</tbody>
</table>

Notes:

1. Note that the 2017 columns refer to the CPA completed in 2017 for the time period of 2018 through 2037. The 2019 assessment is for the timeframe: 2020 through 2039.
2. Distribution system potential was not included in the 2017 or 2019 CPA. Grant PUD is unable to measure savings from distribution system efficiency projects; therefore, these measures were excluded from both potential and achievement.

The changes in conservation potential estimated since the 2017 study are the result of several changes to the input assumptions, including measure data and avoided cost assumptions. These are discussed below.

**Measure Data**

A lighting standard that impacts many common screw-in bulbs takes effect in 2020 and eliminated the consideration of many residential and some commercial lighting measures. The standard requires levels of efficiency found only in CFL and LED technologies. Studies of the lighting market show that CFL bulbs are quickly exiting the market, meaning that consumers will likely only be able to purchase LED bulbs beginning in 2020. This would leave little to no opportunities for utility programs to provide incentives.

**Industrial Potential**

The industrial potential was updated to include data centers, which were previously counted in the commercial sector. An updated data center forecast and updated industrial sector loads resulted in higher potential in this sector.

**Avoided Cost**

The Council updated its assumptions on the value of deferred capital expenditures for transmission and distribution capacity, with the new values being significantly lower. The extent to which each measure realizes these values depends on its contribution to reducing peak demands, so measures in the residential and commercial sectors, which tend to contribute more to reducing system peaks, were more impacted. Savings in the industrial sector tend to be more evenly distributed across time, so the changes in assumptions had less of an impact to the industrial sector.
Additionally, Washington state’s recently enacted Clean Energy Transformation Act (CETA) will define a specific set of values for the social cost of carbon and set requirements for greenhouse gas neutral power in 2030, with alternate modes of compliance available until 2045. EES has included values that reflect these requirements and rulemaking completed to date. These changes increase the avoided cost of energy efficiency measures.

Ramp Rates

As part of the modeling process, EES uses ramp rates to align near term potential with recent levels of program achievement. This process resulted in further changes to the estimated availability of conservation potential.

Targets and Achievement

Figure ES-3 compares Grant PUD’s historic conservation achievement with its targets. The 2020 and 2021 potential estimates are based on the Base Case results of this assessment. The savings from 2018 includes large savings from data center projects. With an average achievement of 3.5 aMW per year between 2012 and 2018, the potential estimates for 2020-2021 of 2.05 aMW per year are achievable through Grant PUD’s utility energy efficiency programs, the utility’s share of NEEA savings, and Grant PUD’s share of future momentum savings.¹

Figure ES-3
Historic Achievement and Targets

¹ Targets and potential shown in the figure are based on numbers reported to Washington State Department of Commerce. Note that savings significantly declined in 2014 due to a reduction in Scientific Irrigation Scheduling claimed by Grant PUD.
Summary

This report summarizes the CPA conducted for Grant PUD for the 2020 to 2039 timeframe. Many components of the CPA have been updated from the previous CPA, including items such as customer load forecasts, the energy market price forecast, code and standard changes, recent conservation achievements, and revised savings values for RTF and Council measures.

Additionally, the state’s new clean energy law required changes to the avoided cost assumptions.

Based on the results of the Base Case scenario, the total 10-year cost effective potential is 24.95 aMW and the 2-year potential is 4.09 aMW.
Introduction

Objectives

The objective of this report is to describe the results of the Grant County Public Utility District (Grant PUD) 2019 Conservation Potential Assessment (CPA). This assessment provides estimates of energy savings for the period 2020 to 2039, with the primary focus on 2018 to 2027 (10 years). This analysis has been conducted in a manner consistent with requirements set forth in 19.285 RCW (EIA) and 194-37 WAC (EIA implementation) and is part of Grant PUD’s compliance documentation. The results and guidance presented in this report will also assist Grant PUD in strategic planning for its conservation programs in the near future. Finally, the resulting conservation supply curves can be used in Grant PUD’s integrated resource plan (IRP).

The conservation measures used in this analysis are based on the measures that were included in the Council’s Seventh Power Plan and were updated with subsequent changes and new measures approved by the Regional Technical Forum (RTF). The assessment considered a wide range of conservation resources that are reliable, available, and cost effective within the 20-year planning period.

Energy Independence Act

Chapter 19.285 RCW, the Energy Independence Act, requires that, “each qualifying utility pursue all available conservation that is cost-effective, reliable and feasible.” The timeline for requirements of the Energy Independence Act are detailed below:

- **By January 1, 2010** – Identify achievable cost-effective conservation potential for the upcoming ten years using methodologies consistent with the Pacific Northwest Power and Conservation Council’s (Council) latest power planning document.

- **By January 1 of each even-numbered year**, each utility shall establish a biennial acquisition target for cost-effective conservation that is no lower than the utility’s pro rata share of the ten-year cost-effective conservation potential for the subsequent ten years.

- **By June 1 of each year**, each utility shall submit an annual conservation report to the department (the department of commerce or its successor). The report shall document the utility’s progress in meeting the targets established in RCW 19.285.040.

- **Beginning on January 1, 2014**, cost-effective conservation achieved by a qualifying utility in excess of its biennial acquisition target may be used to help meet the immediately subsequent two biennial acquisition targets, such that no more than twenty percent of any biennial target may be met with excess conservation savings.

This report summarizes the results of a comprehensive CPA conducted following the requirements of the EIA. A checklist of how this analysis meets EIA requirements is included in Appendix III.
Other Legislative Considerations

Washington state recently enacted several laws that impact conservation planning. Washington HB 1444 enacts efficiency standards for a variety of appliances, some of which are included as measures in this CPA. This law takes effect on July 28, 2019 and applies to products manufactured after January 1, 2021. As the law applies to the manufacturing date, products not meeting the efficiency levels set forth in the law could continue to be sold in 2021 and a reasonable time of six months or more may be necessary for product inventories to turn over. As such, the standards contained in this law will be addressed in the 2021 CPA. HB 1444 also contains a duplicate requirement of the federal lighting standard scheduled to take effect in 2020. While there currently is some doubt about whether the federal standard will come into effect, HB 1444 ensures that the same standards will apply to lighting in Washington state and with the same timing as the federal standard.

Washington also recently enacted the Clean Energy Transformation Act (CETA). The law contains two provisions that impact potential assessments: the use of a specific set of values for the social cost of carbon and the requirement that all sales be greenhouse gas neutral beginning in 2030, although there are alternate modes of compliance available until 2045. These provisions of the law have been incorporated into the assumptions of this CPA.

Study Uncertainties

The savings estimates presented in this study are subject to the uncertainties associated with the input data. This study utilized the best available data at the time of its development; however, the results of future studies will change as the planning environment evolves. Specific areas of uncertainty include the following:

- Customer characteristic data – Residential and commercial building data and appliance saturations are in many cases based on regional studies and surveys. There are uncertainties related to the extent that Grant PUD’s service area is similar to that of the region, or that the regional survey data represents the population.
- Measure data – In particular, savings and cost estimates (when comparing to current market conditions), as prepared by the Council and RTF, will vary across the region. In some cases, measure applicability or other attributes have been estimated by the Council or the RTF based on professional judgment or limited market research.
- Market price forecasts – Market prices and forecasts are continually changing. The market price forecasts for electricity and natural gas utilized in this analysis represent a snapshot in time. Given a different snapshot in time, the results of the analysis would vary. Different avoided cost scenarios are included in the analysis to consider the sensitivity of the results to different market prices over the study period.
- Utility system assumptions – Credits have been included in this analysis to account for the avoided costs of transmission and distribution system expansion. Though potential transmission and distribution system cost savings are dependent on local conditions, the Council considers these credits to be representative estimates of these avoided costs. A value for generation capacity was also included but may change as the Northwest market continues to evolve.
- Discount and finance rate – For this study, a discount rate specific to Grant PUD was used. Assumptions from the Seventh Plan about measure financing costs were also applied in the model. The Council develops a finance rate for each power plan based on the relative share of the costs of conservation and the cost of capital for the various program sponsors. The Council has estimated these figures using the most current
available information. While this study reflects current values for the discount and finance rates, changes in market rates will likely vary over the study period.

- Load and customer growth forecasts – The CPA bases the 20-year potential estimates on forecasted loads and customer growth. Each of these forecasts includes a level of uncertainty.

- Load shape data – The Council provides conservation load shapes for evaluating the timing of energy savings. In practice, load shapes will vary by utility based on weather, customer types, and other factors. This assessment uses the hourly load shapes used in the Seventh Plan to estimate peak demand savings over the planning period, based on shaped energy savings. Since the load shapes are a mix of older Northwest and California data, peak demand savings presented in this report may vary from actual peak demand savings.

- Frozen efficiency – Consistent with the Council’s methodology, the measure baseline efficiency levels and end-using devices do not change over the planning period. In addition, it is assumed that once an energy efficiency measure is installed, it will remain in place over the remainder of the study period.

- Due to these uncertainties and the changing environment, under the EIA, qualifying utilities must update their CPAs every two years to reflect the best available information.

**Report Organization**

The main report is organized with the following main sections:

- Methodology – CPA methodology along with some of the overarching assumptions
- Recent Conservation Achievement – Grant PUD’s recent achievements and current energy efficiency programs
- Customer Characteristics – Housing and commercial building data for updating the baseline conditions
- Results – Energy savings and costs – Primary base case results
- Scenario Results – Results of all scenarios
- Summary
- References & Appendices
CPA Methodology

This study is a comprehensive assessment of the energy efficiency potential in Grant PUD’s service area. The methodology complies with RCW 19.285.040 and WAC 194-37-070 Section 5 parts (a) through (d) and is consistent with the methodology used by the Northwest Power and Conservation Council (Council) in developing the Seventh Power Plan. This section provides a broad overview of the methodology used to develop Grant PUD’s conservation potential estimates. Specific assumptions and methodology as it pertains to compliance with the EIA is provided in the appendix of this report.

Basic Modeling Methodology

The basic methodology used for this assessment is illustrated in Figure 1. A key factor is the energy saved annually from the installation of an individual energy efficiency measure. The savings from each measure is multiplied by the total number of measures that could be installed over the study period. Savings from each individual measure are then aggregated to produce the total potential. The detailed methodology summary that follows the EIA requirements is listed in Appendix III.

Figure 1
Conservation Potential Assessment Process
Customer Characteristic Data

Assessment of customer characteristics includes estimating both the number of locations where a measure could be feasibly installed as well as the share—or saturation—of measures that have already been installed. For this analysis, the characterization of Grant PUD’s baseline was determined based on information provided by Grant PUD’s staff, NEEA’s commercial and residential building stock assessments, and census data. Details of data sources and assumptions are described for each sector later in the report.

This assessment primarily sourced baseline measure saturation data from the Council’s Seventh Plan measure workbooks. The Council’s data was developed from NEEA’s Building Stock Assessments, studies, market research and other sources. This data was updated with NEEA’s 2016 Residential Building Stock Assessment and Grant PUD’s program achievements. Grant PUD’s historic achievement is discussed in detail in the next section.

Energy Efficiency Measure Data

The characterization of efficiency measures includes measure savings, costs, and lifetime. Other features, such as measure load shape, operation and maintenance costs, and non-energy benefits are also important for measure definition. The Council’s Seventh Power Plan is the primary source for conservation measure data. Where appropriate, the Council’s Seventh Plan supply curve workbooks have been updated to include any subsequent updates from the RTF. New measures reviewed by the RTF were also added to the model.

The measure data include adjustments from raw savings data for several factors. The effects of space-heating interaction, for example, are included for all lighting and appliance measures, where appropriate. For example, if an electrically-heated house is retrofitted with efficient lighting, the heat that was originally provided by the inefficient lighting will have to be made up by the electric heating system. These interaction factors are included in measure savings data to produce net energy savings.

Other financial-related data needed for defining measure costs and benefits include: discount rate, line losses, and deferred capacity-expansion benefits.

A list of measures by end-use is included in this CPA is included in Appendix V.

Types of Potential

Once the customer characteristics and energy efficiency measures are fully described, energy efficiency potential can be quantified. Three types of potential are used in this study: technical, achievable, and economic or cost-effective potential. Technical potential is the theoretical maximum efficiency available in the service territory if cost and market barriers are not considered. Market barriers and other consumer acceptance constraints reduce the total potential savings of an energy efficient measure. When these factors are applied, the remaining potential is called the achievable potential. Economic potential is a subset of the achievable potential that has been screened for cost effectiveness through a benefit-cost test. Figure 2 illustrates the three types of potential followed by more detailed explanations.
Technical potential is the amount of energy efficiency potential that is available, regardless of cost or other technological or market constraints, such as customer willingness to adopt a given measure. It represents the theoretical maximum amount of energy efficiency that is possible in a utility’s service territory absent these constraints.

Estimating the technical potential begins with determining a value for the energy efficiency measure savings. Additionally, the number of applicable units must be estimated. Applicable units are the units across a service territory where the measure could feasibly be installed. This includes accounting for units that may have already been installed. The value is highly dependent on the measure and the housing stock. For example, a heat pump measure may only be applicable to single family homes with electric space heating equipment. A saturation factor accounts for measures that have already been completed.

In addition, technical potential considers the interaction and stacking effects of measures. For example, interaction occurs when a home installs energy efficient lighting and the demands on the heating system rise due to a reduction in heat emitted by the lights. If a home installs both insulation and a high-efficiency heat pump, the total savings of these stacked measures is less than if each measure were installed individually because the demands on the heating system are lower in a well-insulated home. Interaction is addressed by accounting for impacts on other energy uses. Stacked measures within the same end use are often addressed by considering the savings of each measure as if it were installed after other measures that impact the same end use.

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2 Reproduced from U.S. Environmental Protection Agency. Guide to Resource Planning with Energy Efficiency. Figure 2-1, November 2007
The total technical potential is often significantly more than the amount of achievable and economic potential. The difference between technical potential and achievable potential is a result of the number of measures assumed to be affected by market barriers. Economic potential is further limited due to the number of measures in the achievable potential that are not costeffective.

**Achievable Technical** – Achievable technical potential, also referred to as achievable potential, is the amount of potential that can be achieved with a given set of market conditions. It takes into account many of the realistic barriers to adopting energy efficiency measures. These barriers include market availability of technology, consumer acceptance, non-measure costs, and the practical limitations of ramping up a program over time. The level of achievable potential can increase or decrease depending on the given incentive level of the measure. The Council assumes that 85% of technical potential can be achieved over the 20-year study period. This is a consequence of a pilot program offered in Hood River, Oregon where home weatherization measures were offered at no cost. The pilot was able to reach 85% of homes. The Council also uses a variety of ramp rates to estimate the rate of achievement over time. This CPA follows the Council’s methodology, including both the achievability and ramp rate assumptions.

**Economic** – Economic potential is the amount of potential that passes an economic benefit-cost test. In Washington State, EIA requirements stipulate that the total resource cost test (TRC) be used to determine economic potential. The TRC evaluates all costs and benefits of the measure regardless of who pays a cost or receives the benefit. Costs and benefits include the following: capital cost, O&M cost over the life of the measure, disposal costs, program administration costs, avoided social costs of carbon emissions, reduced renewable portfolio standard costs, distribution and transmission benefits, energy savings benefits, economic effects, and nonenergy savings benefits. Non-energy costs and benefits can be difficult to enumerate, yet nonenergy costs are quantified where feasible and realistic. Examples of non-quantifiable benefits might include: added comfort and reduced road noise from better insulation or increased real estate value from new windows. A quantifiable non-energy benefit might include reduced detergent costs or reduced water and sewer charges from energy efficient clothes washers.

For this potential assessment, the Council’s ProCost model was used to determine the cost effectiveness of each energy efficiency measure. The ProCost model values measure energy savings by time of day using conservation load shapes (by end-use) and segmented energy prices. The version of ProCost used in the 2019 CPA evaluates measure savings on an hourly basis, but ultimately values the energy savings during two segments covering high and low load hour time periods. The avoided costs used in the economic screening are discussed below.

**Avoided Cost**

The avoided cost of energy is the cost that is avoided through the acquisition of energy efficiency in lieu of other resources. Avoided costs are used to value energy savings benefits when conducting cost effectiveness tests and are included in the numerator in a benefit-cost test. The avoided costs typically include energy-based values and values associated with the demand savings provided by energy efficiency. These energy benefits are often based on the cost of a generating resource, a forecast of market prices, or the avoided resource identified in the IRP process.
Each component of the avoided cost of energy efficiency measure savings is described below. Additional information regarding the avoided cost forecast is included in Appendix IV. **Energy**

The EIA requires that utilities “…set avoided costs equal to a forecast of market prices.” Figure 3 shows the price forecast used as the primary avoided cost component for the planning period.

The price forecast is shown for heavy load hours (HLH), light load hours (LLH), and average load hours (ALH). The market price forecast was provided by the utility and is used by the utility for power planning purposes. The levelized value of market prices over the study period is $44.75/MWh, assuming a 7 percent nominal discount rate.

![Figure 3](image)

**Social Cost of Carbon**

In addition to the avoided cost of energy, energy efficiency provides the benefit of reducing carbon emissions. The revised EIA rules require the inclusion of the social cost of carbon, which is a cost that society incurs when fossil fuels are burned to generate electricity. Further, Washington state’s recently enacted Clean Energy Transformation Act (CETA) specified that utilities use the social cost of carbon developed by the federal Interagency workgroup using the 2.5 percent discount rate. These values were used in the base and high scenarios of the CPA. The CPA also included assumptions about the carbon intensity of Grant PUD’s marginal resource as well as the recently expanded Renewable Portfolio Standard (RPS) requirements, discussed below.

**Renewable Portfolio Standard Compliance Cost**

By reducing Grant PUD’s overall load, energy efficiency provides a benefit of reducing the RPS requirement. The EIA currently requires Grant PUD to source 9% of its energy from renewable energy sources. In 2020, the requirement increases to 15% and Washington’s CETA requires that all sales be greenhouse gas neutral in 2030, with an allowance that up to 20% of the requirement can be met through REC purchases. Under a 15% RPS
requirement, for every 100 units of conservation achieved, the RPS requirement is reduced by 15 units. After 2030, due to the increased requirement, the CPA assumes that the marginal cost of power includes the full price of a REC when the marginal resource is assumed to be carbon emitting.

**Transmission and Distribution System Benefits**

The EIA requires that deferred capacity expansion benefits for transmission and distribution systems be included in the CPA cost-effectiveness analysis. The Council recently updated its previous estimates for these capacity savings, which were $31/kW-year and $26/kW-year for distribution and transmission systems, respectively ($2012). These values were used in the Seventh Plan. The new values, $3.08/kW-year and $6.85/kW-year for transmission and distribution systems, respectively, will be used in the next Power Plan.

**Generation Capacity**

New to the Seventh Plan was the explicit calculation of a value for avoided generation capacity costs. Since the Northwest does not have an organized capacity market, the uncertainty of this value was addressed through a scenario analysis, where low, base, and high values were considered. For the base scenario, a three percent premium was added to market energy prices, which represents the premium value for capacity made available for sale through energy efficiency.

**Risk Analysis**

In the past, Grant PUD’s CPAs have included risk mitigation credits in the scenario analysis to account for risks that were not quantified. Rather than including an explicit risk credit in each of the scenarios, this CPA addresses the uncertainty of the inputs by varying the avoided cost values. The avoided cost components that were varied included the energy prices, generation capacity value, and the social cost of carbon. Through the variance of these components, implied risk credits averaging $6/MWh and $115/kW-year were included in the high avoided cost scenario.

Additional information regarding the avoided cost forecast and risk mitigation credit values is included in Appendix IV.

**Pacific Northwest Electric Power Planning and Conservation Act Credit**

Finally, a 10 percent benefit was also added to measures per the Pacific Northwest Electric Power Planning and Conservation Act and as required by the EIA.

**Discount and Finance Rate**

A discount rate is used to convert future cost and benefit streams into present values. The present values are then used to compare net benefits across measures that realize costs and benefits at different times and over different useful lives. This analysis uses a nominal discount rate of 7 percent (equivalent to a 5.7 percent real discount rate).

In addition, the Council uses a finance rate developed from two sets of assumptions. The first set of assumptions describes the relative shares of the cost of conservation distributed to various sponsors.
Conservation is funded by both utilities and customers. The second set of assumptions looks at the financing parameters for each of these entities to establish the after-tax average cost of capital for each group. These figures are then weighted, based on each group’s assumed share of project cost to arrive at a composite finance rate.

Recent Conservation Achievement

Grant PUD has pursued conservation and energy efficiency resources for many years. Currently, the utility offers several rebate programs for both residential and non-residential applications. These include incentives for weatherization upgrades, heat pumps and ductless heat pumps, and custom projects. In addition to utility programs, Grant PUD receives credit for market transformation activities that impact its service territory. These market-transformation activities are accomplished by the Northwest Energy Efficiency Alliance (NEEA). Figure 4 shows Grant PUD’s conservation achievement from 2014 through 2018.

Grant PUD has achieved an average of 3.51 aMW of energy savings per year since 2014. This includes savings achieved through utility program efforts and NEEA savings. More detail on Grant PUD’s utility program achievement is provided below for each customer sector.
Residential

Figure 5 shows recent conservation achievement by program in the residential sector. Due to the large share of electric heat in Grant PUD’s service area, heating and weatherization measures account for just under half of the savings in the residential sector. Lighting savings account for the largest portion of recent program history, but these savings were not included in this CPA due to product standards taking effect in 2020.

![Figure 5: 2017-2018 Residential Savings](image)

Commercial

Historic achievement in the commercial sector is primarily due to lighting projects. Figure 6 shows the breakdown of commercial sector achievement from 2017-2018.

![Figure 6: 2017-2018 Commercial Savings](image)
Industrial

Recent industrial achievement has been acquired through custom projects at Grant PUD’s large data centers as well as smaller savings from other end uses. Figure 7 summarizes the industrial sector achievement in 2017-18.

Agriculture

Agriculture program achievement has been acquired through irrigation hardware and other system upgrades, such as variable frequency drives. Achievement from 2017-2018 in this sector totals 0.16 aMW.
**Summary**

Grant PUD plans to continue offering incentives for energy efficiency investments. The results of this study will assist Grant PUD program managers in strategic planning for energy efficiency program offerings, incentive levels, and program review.

**Customer Characteristics Data**

Grant PUD serves over 46,900 electric customers in Grant County, Washington, with a service area population of approximately 97,331. A key component of an energy efficiency assessment is to understand the characteristics of these customers – primarily the building and end-use characteristics. These characteristics for each customer class are described below.

**Residential**

For the residential sector, the key characteristics include house type, space-heating fuel, and water heating fuel. Tables 1, 2, and 3 show relevant residential data for single family, multifamily and manufactured homes in Grant PUD’s service territory. Residential characteristics are based on data collected through home audits provided by Grant PUD. These data provide estimates of the current residential characteristics in Grant PUD’s service territory and are utilized as the baseline in this study.

This assessment assumes an average annual residential growth rate of 1.2 percent, based on sales forecasts, and uses the regional average annual demolition rate.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Residential Building Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating Zone</td>
<td>Cooling Zone</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Electric Heat/Cooling System Saturations</th>
<th>Single Family</th>
<th>Multifamily - Low Rise</th>
<th>Manufactured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Pump</td>
<td>25%</td>
<td>1%</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Ductless Heat Pump</td>
<td>35%</td>
<td>1%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Electric Zonal/Baseboard</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Central Air Conditioning</td>
<td>48%</td>
<td>2%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Room Air Conditioners</td>
<td>42%</td>
<td>35%</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New Homes - Heating / Cooling System Saturations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Heat/Cooling System Saturations</td>
</tr>
<tr>
<td>Air Furnace</td>
</tr>
<tr>
<td>Appliance Saturation</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>Electric Forced Air Furnace</td>
</tr>
<tr>
<td>Heat Pump</td>
</tr>
<tr>
<td>Ductless Heat Pump</td>
</tr>
<tr>
<td>Electric Zonal/Baseboard</td>
</tr>
<tr>
<td>Central Air Conditioning</td>
</tr>
<tr>
<td>Room Air Conditioners</td>
</tr>
</tbody>
</table>

Table 3

Existing Homes - Appliance Saturations

<table>
<thead>
<tr>
<th>Appliance Saturation</th>
<th>Multifamily - Low</th>
<th>Rise</th>
<th>Manufactured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Water Heaters</td>
<td>97%</td>
<td>97%</td>
<td>97%</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>129%</td>
<td>103%</td>
<td>121%</td>
</tr>
<tr>
<td>Freezer</td>
<td>53%</td>
<td>4%</td>
<td>43%</td>
</tr>
<tr>
<td>Clothes Washer</td>
<td>99%</td>
<td>47%</td>
<td>99%</td>
</tr>
<tr>
<td>Clothes Dryer</td>
<td>98%</td>
<td>47%</td>
<td>95%</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>89%</td>
<td>78%</td>
<td>77%</td>
</tr>
<tr>
<td>Electric Oven</td>
<td>98%</td>
<td>97%</td>
<td>98%</td>
</tr>
<tr>
<td>Desktop</td>
<td>96%</td>
<td>44%</td>
<td>71%</td>
</tr>
<tr>
<td>Laptop</td>
<td>68%</td>
<td>26%</td>
<td>42%</td>
</tr>
<tr>
<td>Monitor</td>
<td>102%</td>
<td>45%</td>
<td>72%</td>
</tr>
</tbody>
</table>

New Homes - Appliance Saturations

<table>
<thead>
<tr>
<th>Appliance Saturation</th>
<th>Multifamily - Low</th>
<th>Rise</th>
<th>Manufactured</th>
</tr>
</thead>
<tbody>
<tr>
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<td>99%</td>
<td>99%</td>
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<td>103%</td>
<td>121%</td>
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<td>Freezer</td>
<td>53%</td>
<td>4%</td>
<td>43%</td>
</tr>
<tr>
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<td>99%</td>
<td>47%</td>
<td>99%</td>
</tr>
<tr>
<td>Clothes Dryer</td>
<td>99%</td>
<td>47%</td>
<td>99%</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>89%</td>
<td>78%</td>
<td>77%</td>
</tr>
<tr>
<td>Electric Oven</td>
<td>98%</td>
<td>97%</td>
<td>98%</td>
</tr>
</tbody>
</table>
Commercial

Building floor area is the key parameter in determining conservation potential for the commercial sector, as many of the measures are based on savings as a function of building area. Grant PUD provided 2018 consumption for each of the 18 building categories shown in Table 4. Floor area for each category was calculated based on 2018 consumption and regional energy use intensity (EUI) values. The regional EUI values used for this assessment are based on data collected for the 2014 Commercial Building Stock Assessment (CBSA).

Commercial square footage estimates for this assessment are slightly higher than those used in the 2017 CPA.

A growth rate of 2.2 percent was used based on the forecast of sales for the commercial rate class. In addition, a demolition rate was used based on the Council’s regional assumption.

### Table 4
**Commercial Building Square Footage by Segment**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Area (Square Feet)</th>
<th>EUI (kWh/sf)*</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Office</td>
<td>22,128</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>Medium Office</td>
<td>777,053</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>Small Office</td>
<td>1,035,713</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>Extra Large Retail</td>
<td>730,992</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Large Retail</td>
<td>225,658</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Medium Retail</td>
<td>773,412</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Small Retail</td>
<td>1,723,534</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>K-12 Schools</td>
<td>4,019,941</td>
<td>9.77</td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>883,927</td>
<td>17.9</td>
<td></td>
</tr>
<tr>
<td>Warehouse</td>
<td>23,158,268</td>
<td>5.46</td>
<td></td>
</tr>
<tr>
<td>Supermarket</td>
<td>348,008</td>
<td>54.6</td>
<td></td>
</tr>
<tr>
<td>Mini Mart</td>
<td>203,509</td>
<td>54.6</td>
<td></td>
</tr>
<tr>
<td>Restaurant</td>
<td>467,747</td>
<td>44.1</td>
<td></td>
</tr>
<tr>
<td>Lodging</td>
<td>2,137,264</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>632,421</td>
<td>23.7</td>
<td></td>
</tr>
<tr>
<td>Residential Care</td>
<td>42,059</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Assembly Hall</td>
<td>1,434,465</td>
<td>14.5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5,640,209</td>
<td>11.6</td>
<td></td>
</tr>
</tbody>
</table>

---

The Council includes data center savings potential in the commercial sector as the Seventh Plan analysis focuses on server room measures. Since Grant PUD data centers are large centralized loads, these are treated as industrial customers in the next section.

**Industrial**

The methodology for estimating industrial potential is different than approaches used for the residential and commercial sectors primarily because industrial energy efficiency opportunities are based on the distribution of electricity use among processes at industrial facilities. Industrial potential for this assessment was estimated based on the Council’s top-down methodology that utilizes annual consumption by industrial segment and then disaggregates total electricity usage by process shares to create an end-use profile for each segment. Estimated measure savings are applied to each sector’s process shares.

Grant PUD provided 2018 energy use for its industrial customers. Individual industrial customer usage is summed by industrial segment in Table 5. The 2018 industrial sector consumption totaled 1,551 GWh compared with 1,658 GWh in 2016. Grant PUD’s sales forecast projects a growth of 1.2% for the industrial sector.

<table>
<thead>
<tr>
<th>Segment</th>
<th>MWh</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>14,914</td>
<td></td>
</tr>
<tr>
<td>Foundries</td>
<td>28,022</td>
<td></td>
</tr>
<tr>
<td>Frozen Food</td>
<td>236,214</td>
<td></td>
</tr>
<tr>
<td>Other Food</td>
<td>17,099</td>
<td></td>
</tr>
<tr>
<td>Silicon</td>
<td>50,340</td>
<td></td>
</tr>
<tr>
<td>Metal Fabrication</td>
<td>3,281</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>140,923</td>
<td></td>
</tr>
<tr>
<td>Cold Storage</td>
<td>40,047</td>
<td></td>
</tr>
<tr>
<td>Fruit Storage</td>
<td>42,111</td>
<td></td>
</tr>
<tr>
<td>Refinery</td>
<td>158,970</td>
<td></td>
</tr>
<tr>
<td>Chemical</td>
<td>555,539</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Manufacturing</td>
<td>422,780</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,551,271</strong></td>
<td><strong>1.2%</strong></td>
</tr>
</tbody>
</table>

The table above does not include data centers, which represent a large portion of Grant PUD’s load and have been an occasional source of large amounts of savings. Through discussions with Grant PUD staff, it was determined the opportunities to work with these customers on energy efficiency generally occurs during
construction, and typically on measures relating to the shell and mechanical systems. Many data center operators are intrinsically motivated to install energy efficient servers, or their business model prevents such upgrades from happening after the start of operations. As such, of the measures applicable to data centers, only the measures relating to building shell and mechanical systems were included, and the opportunities were quantified based only on the forecasted growth of data centers.

**Agriculture**

To determine agriculture sector characteristics in Grant PUD’s service territory, EES utilized data provided by the United States Department of Agriculture (USDA). The USDA conducts a census of farms and ranches in the U.S. every five years. The most recent available data for this analysis is from the 2012 census, which was published in 2014.⁴ EES further refined this data based on zip code data published in an earlier census.

Irrigated acreage of 406,093 acres was used for this assessment, down slightly from the 2017 CPA. Dairy farms with a total of 28,103 cattle was also used to quantify dairy farm potential.

According to our estimates, there are 1,517 farms in Grant PUD’s service territory. The number of farms is used to determine potential for an area lighting measure. Table 6 shows key agriculture sector characteristics and applicable data.

<table>
<thead>
<tr>
<th>Agriculture Data</th>
<th>Count</th>
<th>2012 Census Data Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Farms</td>
<td>1,517</td>
<td>Total number of farms</td>
</tr>
<tr>
<td>Irrigated Acres</td>
<td>406,093</td>
<td>Irrigated land</td>
</tr>
<tr>
<td>Dairy Cows</td>
<td>28,103</td>
<td>Milk Cows</td>
</tr>
</tbody>
</table>

Conservation potential for Scientific Irrigation Scheduling (SIS) was excluded from this assessment, as was done in the 2017 CPA. A review of savings conducted by the Bonneville Power Administration confirmed Grand PUD’s findings that the measures do not provide savings.

Achievable Conservation Potential

Achievable potential is the amount of energy efficiency potential that is available regardless of cost. It represents the theoretical maximum amount of achievable energy efficiency savings.

Figure 8 below shows a supply curve of the 20-year, achievable potential. A supply curve is developed by plotting cumulative energy efficiency savings potential against the levelized cost of savings when measures are sorted in order of ascending cost. The potential has not been screened for cost effectiveness. Costs are levelized, allowing for the comparison of measures with different lives. The supply curve facilitates comparison of demand-side resources to supply-side resources and is often used in conjunction with integrated resource plans. The cost used is the net levelized cost, and includes credits for deferred transmission and distribution system costs, avoided periodic replacements, non-energy impacts, etc. As such, some measures with non-energy savings like clothes washers and showerheads, measures that avoid future equipment costs like long-lasting LED lighting, and measures that provide significant reductions in peak demand have a negative net levelized cost. This net levelized cost facilitates a more direct comparison to other supply-side options.

Figure 8 shows that approximately 38.6 aMW of savings potential is available for less than $30/MWh and 52.7 aMW are available for under $80/MWh. The total achievable potential for Grant PUD is approximately 70 aMW over the 20-year study period.

While useful for considering the costs of conservation measures, supply curves based on levelized cost are limited in that not all energy savings are equally valued. Another way to depict a supply curve is based on the
benefit-cost ratio, as shown in Figure 9 below. This figure repeats the overall finding that approximately 39 aMW of potential is cost-effective with a benefit-cost ratio greater than or equal to 1.0. The potential rises and falls steeply to the right of the line where the benefit-cost ratio equals 1.0, suggesting significant changes in potential if avoided cost parameters are changed in either direction.

![Figure 9: 20-Year Benefit-Cost Ratio Supply Curve](image)

**Economic Conservation Potential**

Economic or cost-effective potential is the amount of potential that passes the Total Resource Cost (TRC) test. This means the present value of the benefits attributed to the conservation measure exceeds the present value of the measure costs over its lifetime.

Table 7 shows aMW of economic (cost-effective) potential by sector in 2, 6, 10 and 20-year increments. Compared with the achievable potential, it shows that 39.15 aMW of the total 70 aMW is cost effective for Grant PUD. The last section of this report discusses how these values could be used for setting targets.

<table>
<thead>
<tr>
<th>Sector</th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.66</td>
<td>2.18</td>
<td>3.59</td>
<td>5.71</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.82</td>
<td>3.03</td>
<td>4.83</td>
<td>6.94</td>
</tr>
<tr>
<td>Industrial</td>
<td>2.42</td>
<td>9.58</td>
<td>15.53</td>
<td>25.23</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.19</td>
<td>0.63</td>
<td>1.01</td>
<td>1.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.09</strong></td>
<td><strong>15.42</strong></td>
<td><strong>24.95</strong></td>
<td><strong>39.15</strong></td>
</tr>
</tbody>
</table>
Section Summary

Figure 10 shows the cost-effective potential by sector on an annual basis.

Annual Cost-Effective Potential by Sector

![Figure 10](image)

The largest share of the potential is in the industrial sector followed by savings potential in commercial and residential sectors. Achievement levels are affected by factors including timing and availability of measure installation, program maturity, and current utility staffing and funding. Figure 10 shows savings estimates are ramped up over the initial years of the study period as opportunities in each sector grow. The ramp rates selected reflect both resource availability and Grant PUD’s current program levels and achievements.

*Residential*

Within the residential sector, water heating and HVAC measures, which includes both heating equipment and weatherization measures, account for a significant share of cost-effective conservation (Figure 11). In the water heating end use, heat pump water heaters, clothes washers, and showerheads provide the most opportunity. Notable savings are available through duct sealing and weatherization measures within the HVAC category. Lighting measures were a leading measure in the 2017 CPA but were not included in the 2019 assessment due to product standards that take effect in 2020.

![Figure 11](image)

Annual Residential Potential by End Use
Figure 12 shows how the 10-year residential potential breaks down into end uses and key measure categories. The area of each block represents its share of the total 10-year residential potential.

Figure 12
Residential Potential by End Use and Measure Category
**Commercial**

Lighting measures continue to make up the largest share of commercial conservation potential (Figure 13). This assessment shows the savings from those measures declining later in the study, suggesting that the remaining opportunities may be limited.

![Figure 13](image)

**Figure 13**
Annual Commercial Potential by End Use

Consistent with the 2017 CPA, the end use with the next highest amount of potential is the HVAC category. Measures with high potential in this category include rooftop controllers, energy management, and economizer retrofits. A variety of end uses make up the remaining commercial potential, reflecting the variety of systems used across the different building types.

The key end uses and measures within the commercial sector are shown in Figure 14. The area of each block represents its share of the 10-year commercial potential.

![Figure 14](image)

**Figure 14**
Commercial Potential by End Use and Measure Category
### Industrial

Savings from large data centers make up the largest share of potential in the industrial sector, followed by energy management measures. The energy management category includes Strategic Energy Management measures, such as those implemented in Grant PUD’s Track & Tune program, as well as the efficient operation of motor-driven industrial systems.

Industrial potential was adjusted for Grant PUD’s historic industrial sector achievement through the application of a custom ramp rate. This ramp rate aligns with Grant PUD’s recent level of industrial sector achievement and holds steady over time. This allows for the utility and the industrial facilities to budget for larger industrial projects over time while still acquiring all cost-effective potential. The potential with data centers was modeled independently and is based on the forecast of new data center load in Grant PUD’s service territory.

**Figure 15**

Annual Industrial Potential by End Use

![Industrial Potential by End Use Diagram](image-url)
Figure 16 shows how the 10-year industrial potential breaks down by end use and measure categories.

**Agriculture**

The agriculture sector potential is a product of total acres under irrigation in Grant PUD's service territory, amount of dairy production, number of pumps, and the number of farms. As shown in Figure 17, irrigation
measures account for the largest area of conservation potential in the agriculture sector. The irrigation category includes irrigation hardware measures as well as the conversion of irrigation systems to more efficient, lower pressure systems. Additional savings are available from irrigation pump motors, lighting, and dairy systems, but these savings categories are relatively small.

**Figure 17**
Annual Agriculture Potential by End Use

<table>
<thead>
<tr>
<th>Cost</th>
<th>First Year MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>$168</td>
<td></td>
</tr>
<tr>
<td>$159</td>
<td></td>
</tr>
<tr>
<td>$155</td>
<td></td>
</tr>
<tr>
<td>$149</td>
<td></td>
</tr>
</tbody>
</table>

**Cost**

Budget costs can be estimated at a high level based on the incremental cost of the measures (Table 8). The assumptions in this estimate include: 20 percent of measure cost for administrative costs and 40 percent of the incremental cost for incentives is assumed to be paid by the utility. A 20 percent allocation of measure costs to administrative expenses is a standard assumption for conservation programs. This assumption was used in the Council’s analysis for the Seventh Power Plan. Both the administrative cost allocation and the utility incentive share assumptions are consistent with assumptions used in Grant PUD’s 2015 and 2017 CPAs.

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Agricultural</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Year</td>
<td>$1,674,000</td>
<td>$1,341,000</td>
<td>$2,720,000</td>
<td>$275,000</td>
</tr>
<tr>
<td>6-Year</td>
<td>$5,167,000</td>
<td>$4,897,000</td>
<td>$10,623,000</td>
<td>$809,000</td>
</tr>
<tr>
<td>10-Year</td>
<td>$7,615,000</td>
<td>$7,870,000</td>
<td>$17,244,000</td>
<td>$1,193,000</td>
</tr>
<tr>
<td>20-Year</td>
<td>$9,604,000</td>
<td>$11,653,000</td>
<td>$28,346,000</td>
<td>$1,436,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$/First Year MWh</td>
<td>$168</td>
<td>$159</td>
<td>$155</td>
<td>$149</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$6,010,000</td>
<td>$21,496,000</td>
<td>$33,922,000</td>
<td>$51,039,000</td>
</tr>
<tr>
<td>Commercial</td>
<td>$1,341,000</td>
<td>$4,897,000</td>
<td>$7,870,000</td>
<td>$11,653,000</td>
</tr>
<tr>
<td>Industrial</td>
<td>$2,720,000</td>
<td>$10,623,000</td>
<td>$17,244,000</td>
<td>$28,346,000</td>
</tr>
<tr>
<td>Agricultural</td>
<td>$275,000</td>
<td>$809,000</td>
<td>$1,193,000</td>
<td>$1,436,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Table 8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Utility Program Costs (2019$)</td>
</tr>
<tr>
<td></td>
<td>Residential</td>
</tr>
<tr>
<td></td>
<td>Commercial</td>
</tr>
<tr>
<td></td>
<td>Industrial</td>
</tr>
<tr>
<td></td>
<td>Agricultural</td>
</tr>
<tr>
<td>Total</td>
<td>$6,010,000</td>
</tr>
<tr>
<td>$/First Year MWh</td>
<td>$168</td>
</tr>
</tbody>
</table>
This table shows that Grant PUD can expect to spend approximately $6 million in order to acquire estimated savings over the next two years. This estimate includes program administration costs and incentives provided by Grant PUD’s programs. The estimated cost is higher than the cost estimated in the 2017 CPA, largely due to the elimination of cost-effective lighting measures.

The cost estimates presented in this report are conservative estimates for future expenditures since they are based on historic values. Future conservation achievement may be more costly since utilities often choose to implement the lowest cost programs first. In addition, as energy efficiency markets become more saturated, it may require more effort from Grant PUD to acquire conservation through its programs. The additional effort may increase administrative or incentive costs.

Besides looking at the utility cost, Grant PUD may also wish to consider the total resource cost (TRC) cost of energy efficiency. The total resource cost reflects the cost the utility and ratepayers will together pay for conservation, similar to how the costs of other power resources are paid. The TRC costs are shown below (Table 9), levelized over the measure life of each measure. Most measures are in the neighborhood of $30 to $40 per MWh.

<table>
<thead>
<tr>
<th></th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$37</td>
<td>$36</td>
<td>$34</td>
<td>$30</td>
</tr>
<tr>
<td>Commercial</td>
<td>$37</td>
<td>$37</td>
<td>$37</td>
<td>$37</td>
</tr>
<tr>
<td>Industrial</td>
<td>$32</td>
<td>$33</td>
<td>$33</td>
<td>$33</td>
</tr>
<tr>
<td>Agricultural</td>
<td>$36</td>
<td>$34</td>
<td>$31</td>
<td>$30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$34</strong></td>
<td><strong>$34</strong></td>
<td><strong>$34</strong></td>
<td><strong>$32</strong></td>
</tr>
</tbody>
</table>
Scenario Results

The costs and savings discussed up to this point describe the Base Case scenario. Under this scenario, annual potential for the planning period was estimated using Grant PUD’s expected avoided costs. Additional scenarios were then tested to identify the change in cost-effective potential when key avoided cost inputs were changed.

The additional scenarios identify a range of possible outcomes that account for uncertainties over the planning period. In addition to the Base Case scenario, this assessment tested low and high scenarios to test the sensitivity of the results to different future avoided cost values. The avoided cost values in the low and high scenarios reflect values that are realistic and lower or higher, respectively, than the Base Case assumptions.

To understand the sensitivity of the identified savings potential to avoided cost values alone, all other inputs were held constant while varying avoided cost inputs.

Table 10 summarizes the Base, Low, and High avoided cost input values. Rather than using a single generic risk adder applied to each unit of energy, the Low and High avoided cost values consider lower and higher potential future values for each avoided cost input where uncertainty exists. These values reflect potential price risks based upon both the energy and capacity value of each measure. The final row tabulates the implied risk adders for the Low and High scenarios by summarizing all additions or subtractions relative to the Base Case values. Risk adders are provided in both energy and demand savings values. The first set of values is the maximum (or minimum in the case of negative values). The second set of risk adder values are the average values in energy terms. Further discussion of these values is provided in Appendix IV.

Table 10
Avoided Cost Assumptions by Scenario

<table>
<thead>
<tr>
<th></th>
<th>Base</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Market Forecast</td>
<td>-20%</td>
<td>+20%</td>
</tr>
<tr>
<td>Social Cost of Carbon</td>
<td>Federal 2.5% Discount Rate Values</td>
<td>$0</td>
<td>Federal 2.5% Discount Rate Values</td>
</tr>
<tr>
<td>Value of REC Compliance</td>
<td>Current RPS + WA CETA</td>
<td>Current RPS</td>
<td>Current RPS + WA CETA</td>
</tr>
<tr>
<td>Distribution System Credit, $/kW-year</td>
<td>$6.85</td>
<td>$6.85</td>
<td>$6.85</td>
</tr>
<tr>
<td>Transmission System Credit, $/kW-year</td>
<td>$3.08</td>
<td>$3.08</td>
<td>$3.08</td>
</tr>
<tr>
<td>Deferred Generation Capacity Credit, $/kW-year</td>
<td>3% Premium</td>
<td>$0</td>
<td>$115</td>
</tr>
<tr>
<td>Implied Risk Adder</td>
<td>N/A</td>
<td>Up to:</td>
<td>Up to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-$52/MWh</td>
<td>$10/MWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0/kW-year</td>
<td>$115/kW-year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average of:</td>
<td>Average of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-$39/MWh</td>
<td>$6/MWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0/kW-year</td>
<td>$115/kW-year</td>
</tr>
</tbody>
</table>

Table 11 summarizes results across each avoided cost scenario, using Base Case load forecasts and measure acquisition rates.
Table 11 shows that the amount of cost-effective potential varies significantly with the changes in avoided cost. The changes in potential are approximately 50% higher and lower with the high and low avoided costs, respectively.

These results should be considered along with the relative likelihood of each scenario. For example, with the current low market prices and predictions of regional capacity constraints on the horizon, lower market prices may be unlikely. Beyond the uncertainties in avoided costs, energy efficiency remains a low-risk investment since it is purchased in small increments over time, instead of singular large investments, such as investments in generation resources.
Summary

This report summarizes the results of the 2019 CPA conducted for Grant County Public Utility District. The assessment provides estimates of potential energy savings for the period 2020 to 2039, with a focus on the first 10 years of the planning period, per EIA requirements. The assessment considered a wide range of conservation resources that are reliable, available, and cost effective within the 20-year planning period.

Methodology and Compliance with State Mandates

The energy efficiency potential reported in this document is calculated using methodology consistent with the Council’s methodology for assessing conservation resources. Appendix III lists each requirement and describes how each item was completed. In addition to using methodology consistent with the Council’s Seventh Power Plan, this assessment utilized many of the measure assumptions that the Council developed for the Seventh Power Plan. Additional measure updates subsequent to the Seventh Plan were also incorporated. Utility-specific data regarding customer characteristics, service-area composition, and historic conservation achievements were used, in conjunction with the measures identified by the Council, to determine available energy efficiency potential. This close connection with the Council methodology enables compliance with the Washington EIA.

Three types of energy-efficiency potential were calculated: technical, achievable, and economic. Most of the results shown in this report are the economic potential, or the potential that is cost effective in Grant PUD’s service territory. The economic potential considers savings that will be captured through utility program efforts, market transformation and implementation of codes and standards. Often, realization of the full savings potential from a measure will require efforts across all three areas. Historic efforts to measure the savings from codes and standards have been limited, but regional efforts to identify and track savings are increasing as they become an important component of the efforts to meet aggressive regional conservation targets.

Conservation Targets

The EIA states utilities must establish a biennial target that is “no lower than the qualifying utility’s pro rata share for that two-year period of its cost-effective conservation potential for the subsequent ten-year period.” However, the State Auditor’s Office has stated that:

The term pro-rata can be defined as equal portions but it can also be defined as a proportion of an “exactly calculable factor.” For the purposes of the Energy Independence Act, a pro-rata share could be

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5 RCW 19.285.040 Energy conservation and renewable energy targets.
interpreted as an even 20 percent of a utility’s 10-year assessment but state law does not require an even 20 percent.⁶

The State Auditor’s Office expects that qualifying utilities have analysis to support targets that are more or less than the 20 percent of the ten-year assessments. This document serves as support for the target selected by Grant PUD and approved by its Commission.

Summary

This study shows a range of conservation target scenarios. These scenarios are estimates based on the set of assumptions detailed in this report and supporting documentation and models. Due to the uncertainties discussed in the Introduction section of this report, actual available and costeffective conservation may vary from the estimates provided in this report.

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References


Appendix I – Acronyms

ALH – Average Load Hours  aMW – Average Megawatt
BCR – Benefit-Cost Ratio
BPA – Bonneville Power Administration
CFL – Compact Fluorescent Light
CPA – Conservation Potential Assessment
EIA – Energy Independence Act  EUI – Energy Use Intensity
HLH – Heavy load hour energy
HPWH – Heat Pump Water Heater
HVAC – Heating, ventilation and air-conditioning
IRP – Integrated Resource Plan  kW – kilowatt  kWh – kilowatt-hour
LED – Light-emitting diode
LLH – Light load hour energy
MW – Megawatt
MWh – Megawatt-hour
NEEA – Northwest Energy Efficiency Alliance
NPV – Net Present Value
O&M – Operation and Maintenance
SEM – Strategic Energy Management  RPS – Renewable Portfolio Standard
RTF – Regional Technical Forum
TRC – Total Resource Cost
UC – Utility Cost

Appendix II – Glossary

**Average Megawatt (aMW):** Average hourly usage of electricity, as measured in megawatts, across all hours of a given day, month or year.

**Avoided Cost:** Refers to the cost of the next best alternative. For conservation, avoided costs are usually market prices.

**Achievable Potential:** Conservation potential that takes into account how many measures will actually be implemented after considering market barriers. For lost-opportunity measures, there is only a certain number of expired units or new construction available in a specified time frame. The Council assumes 85% of all measures are achievable. Sometimes achievable potential is a share of economic potential, and sometimes achievable potential is defined as a share of technical potential.

**Cost Effective:** A conservation measure is cost effective if the present value of its benefits is greater than the present value of its costs. The primary test is the Total Resource Cost test (TRC), in other words, the present value of all benefits is equal to or greater than the present value of all costs. All benefits and costs for the utility and its customers are included, regardless of who pays the costs or receives the benefits.

**Economic Potential:** Conservation potential that considers the cost and benefits and passes a cost-effectiveness test.

**Levelized Cost:** Resource costs are compared on a levelized-cost basis. Levelized cost is a measure of resource costs over the lifetime of the resource. Evaluating costs with consideration of the resource life standardizes costs and allows for a straightforward comparison.

**Lost Opportunity:** Lost-opportunity measures are those that are only available at a specific time, such as new construction or equipment at the end of its life. Examples include heat-pump upgrades, appliances, or premium HVAC in commercial buildings.

**MW (megawatt):** 1,000 kilowatts of electricity. The generating capacity of utility plants is expressed in megawatts.

**Non-Lost Opportunity:** Measures that can be acquired at any time, such installing low-flow shower heads.

**Northwest Energy Efficiency Alliance (NEEA):** The alliance is a unique partnership among the Northwest region's utilities, with the mission to drive the development and adoption of energy-efficient products and services.

**Northwest Power and Conservation Council “The Council”:** The Council develops and maintains a regional power plan and a fish and wildlife program to balance the Northwest's environment and energy needs. Their three tasks are to: develop a 20-year electric power plan that will guarantee adequate and reliable energy at the lowest economic and environmental cost to the Northwest; develop a program to protect and rebuild fish and wildlife populations affected by hydropower development in the Columbia River Basin; and educate and involve the public in the Council's decision-making processes.

**Regional Technical Forum (RTF):** The Regional Technical Forum (RTF) is an advisory committee established in 1999 to develop standards to verify and evaluate conservation savings. Members are appointed by the Council and include individuals experienced in conservation program planning, implementation and evaluation.
**Renewable Portfolio Standards**: Washington state utilities with more than 25,000 customers are required to meet defined percentages of their load with eligible renewable resources by 2012, 2016, and 2020.

**Retrofit (discretionary)**: Retrofit measures are those that can be replaced at any time during the unit’s life. Examples include lighting, shower heads, pre-rinse spray heads, or refrigerator decommissioning.

**Technical Potential**: Technical potential includes all conservation potential, regardless of cost or achievability. Technical potential is conservation that is technically feasible.

**Total Resource Cost Test (TRC)**: This test is used by the Council and nationally to determine whether or not conservation measures are cost effective. A measure passes the TRC if the ratio of the present value of all benefits (no matter who receives them) to the present value of all costs (no matter who incurs them) is equal to or greater than one.
Appendix III – Documenting Conservation Targets

References:

2) Model – “EES CPA Model-v3.3” and supporting files
   a. MC_and_Loadshape-Grant-Base-.xlsm – referred to as “MC and Loadshape file” – contains price and load shape data

<table>
<thead>
<tr>
<th>NW PCC Methodology</th>
<th>EES Consulting Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Potential:</strong> Determine the amount of conservation that is technically feasible, considering measures and the number of these measures that could be physically installed or implemented, without regard to achievability or cost.</td>
<td>The model includes estimates for the technical potential, described as part of the feet of commercial floor area, achievable potential, described in industrial load, and the number of below each measure that can be implemented per unit of stock. The technical potential is further constrained by the amount of stock that has already completed the measure.</td>
</tr>
<tr>
<td><strong>Achievable Potential:</strong> Determine the amount of the conservation technical potential that is available within the planning period, considering barriers to market penetration and the rate at which savings could be acquired.</td>
<td>The assessment conducted for Grant Model used ramp rate curves to identify the amount of achievable potential for each measure. Those Measures’ additionally, the assumptions are for 20-year complete set of ramp rates used planning period. An additional factor of 85% was included to account for market barriers in the calculation of achievable potential.</td>
</tr>
<tr>
<td><strong>Economic Achievable Potential:</strong> Establish the economic achievable potential, which is the conservation potential that is cost-effective, reliable, and feasible, by comparing the total resource cost of conservation measures to the cost of other resources available to meet expected demand for electricity and capacity.</td>
<td>Benefits and costs were evaluated using Model – BC Ratios are calculated using multiple inputs; benefit was at the individual level by ProCost then divided by cost. Measures achieving a benefit-cost ratio greater than one were tallied. Those measures are considered achievable and cost-effective (or “economic”).</td>
</tr>
<tr>
<td><strong>Total Resource Cost:</strong> In determining economic achievable potential, perform a life-cycle cost analysis of measures or programs</td>
<td>The life-cycle cost analysis was performed using the Council’s ProCost model. Incremental costs, savings, and lifetimes for each measure were the basis for this analysis. The Council and RTF assumptions were utilized.</td>
</tr>
<tr>
<td>NWPC Methodology</td>
<td>EES Consulting Procedure</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>e) Conduct a total resource cost analysis that assesses all costs and all benefits of conservation measures regardless of who pays the costs or receives the benefits.</td>
<td>Cost analysis was conducted per the Council’s methodology. Capital cost, administrative cost, annual O&amp;M cost and periodic replacement costs were all considered on the cost side. Energy, non-energy, O&amp;M and all other quantifiable benefits were included on the benefits side. The Total Resource Cost (TRC) benefit cost ratio was used to screen measures for cost-effectiveness (i.e., those greater than one are cost effective).</td>
</tr>
<tr>
<td>NWPPCC Methodology</td>
<td>EES Consulting Procedure</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>f) Include the incremental savings and incremental costs of measures and replacement measures where resources or measures have different measure lifetimes</td>
<td>Savings, cost, and lifetime assumptions from the Council’s 7th Plan and RTF were used.</td>
</tr>
<tr>
<td>g) Calculate the value of energy saved based on when it is saved. In performing this calculation, use time differentiated avoided costs to conduct the analysis that determines the financial value of energy saved through conservation</td>
<td>The Council’s Seventh Plan measure load shapes were used to calculate time of day of savings and measure values were weighted based upon peak and off-peak pricing. This was handled using the Council’s ProCost program so it was handled in the same way as the Seventh Power Plan models.</td>
</tr>
<tr>
<td>NWPPCC Methodology</td>
<td>EES Consulting Procedure</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>h) Include the increase or decrease in annual or periodic operations and maintenance costs due to conservation measures</td>
<td>Operations and maintenance costs for each measure were accounted for in the total resource cost per the Council’s assumptions.</td>
</tr>
<tr>
<td>i) Include avoided energy costs equal to a forecast of regional market prices, which represents the cost of the next increment of available and reliable power supply available to the utility for the life of the energy efficiency measures to which it is compared</td>
<td>A regional market price forecast for the planning period was created and provided by Grant PUD. A discussion of methodologies used to develop the avoided cost forecast is provided in Appendix IV.</td>
</tr>
<tr>
<td>j) Include deferred transmission capacity expansion benefits</td>
<td>Deferred transmission capacity expansion benefits were given a benefit of $3.08/kW-year in the costeffectiveness analysis. A distribution system credit of $6.85/kW-year was also used.</td>
</tr>
</tbody>
</table>
k) Include deferred generation benefits consistent with the contribution to system peak capacity of the conservation measure.

Deferred generation capacity expansion benefits were based on a 3% market price premium in the cost effectiveness analysis. This is based upon Grant PUD’s marginal cost for generation capacity. In the high scenario, the Council’s value of $115/kW-year was used, while the low scenario included no credit for generation capacity.

Model – this value can be found on the ProData page of the ProCost Batch Runner file. The generation capacity value was not originally included as part of ProCost during the development of the 7th Plan, so the value has been combined with the other capacity benefits.

l) Include the social cost of carbon emissions from avoided non-conservation resources.

The avoided cost data include estimates of future high, medium, and low CO₂ costs.

Multiple scenarios were analyzed, and these scenarios include different levels of estimated costs and risk.
### WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

<table>
<thead>
<tr>
<th>NWPC Methodology</th>
<th>EES Consulting Procedure</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>m)</strong> Include a risk mitigation credit to reflect the additional value of conservation, not otherwise accounted for in other inputs, in reducing risk associated with costs of avoided nonconservation resources</td>
<td>In this analysis, risk was considered by varying avoided cost inputs and analyzing the variation in results. Rather than an individual and nonspecific risk adder, our analysis included a range of possible values for each avoided cost input.</td>
<td>The scenarios section of the report documents the inputs used and the results associated.</td>
</tr>
<tr>
<td><strong>n)</strong> Include all non-energy impacts that a resource or measure may provide that can be quantified and monetized</td>
<td>Quantifiable non-energy benefits were included where appropriate. Assumptions for non-energy benefits are the same as in the Council’s Seventh Power Plan. Non-energy benefits include, for example, water savings from clothes washers.</td>
<td>Model – the ProCost files contain the same assumption s for nonpower benefits as the Council and RTF. The calculations are handled in by ProCost.</td>
</tr>
<tr>
<td><strong>o)</strong> Include an estimate of program administrative costs</td>
<td>Total costs were tabulated and an estimated 20% of total was assigned as the administrative cost. This value is consistent with regional average and BPA programs. The 20% value was used in the Fifth, Sixth, and Seventh Power plans.</td>
<td>Model – this value can be found on the ProData page of the ProCost Batch Runner file.</td>
</tr>
<tr>
<td><strong>p)</strong> Include the cost of financing measures using the capital costs of the entity that is</td>
<td>Costs of financing measures were included utilizing the same assumptions from the Seventh Power Plan.</td>
<td>Model – this value can be found on the ProData page of the ProCost Batch Runner file.</td>
</tr>
<tr>
<td>NWPC Methodology</td>
<td>EES Consulting Procedure</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>expected to pay for the measure</td>
<td>Discount rates were applied to each measure based upon the Council's methodology. A nominal discount rate of 7% was used, based on the Council’s most recent analyses in support of the Seventh Plan</td>
<td>Model – this value can be found on the ProData page of the ProCost Batch Runner file.</td>
</tr>
<tr>
<td>q) Discount future costs and benefits at a discount rate equal to the discount rate used by the utility in evaluating nonconservation resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r) Include a ten percent bonus for the energy and capacity benefits of conservation measures as defined in 16 U.S.C. § 839a of the Pacific Northwest Electric Power Planning and Conservation Act</td>
<td>A 10% bonus was added to all measures in the model parameters per the Conservation Act.</td>
<td>Model – this value can be found on the ProData page of the ProCost Batch Runner file.</td>
</tr>
</tbody>
</table>
Appendix IV – Avoided Cost and Risk Exposure

EES Consulting (EES) has conducted a Conservation Potential Assessment (CPA) for Grant PUD (the District) for the period 2020 through 2039 as required under RCW 19.285 and WAC 194.37. According to WAC 197.37.070, the District must evaluate the cost-effectiveness of conservation by setting avoided energy costs equal to a forecast of regional market prices. In addition, several other components of the avoided cost of energy efficiency savings must be evaluated including generation capacity value, transmission and distribution system capacity costs, risk, and the social cost of carbon. This appendix describes each of the avoided cost assumptions and provides a range of values that was evaluated in the 2019 CPA. The 2019 CPA presents three avoided cost scenarios: Base, Low, and High. Each of these is discussed below.

Avoided Energy Value

For the purposes of the 2019 CPA, EES has used a forecast of market prices for the Mid-Columbia trading hub prepared by District staff. This section summarizes the market price forecast, compares the forecast to the market forecast used for the District’s 2017 CPA, and benchmarks it against other recent forecasts.

Results

Figure IV-1 illustrates the resulting monthly, diurnal market price forecast. The levelized value of market prices over the study period is $44.75/MWh assuming a 7 percent nominal discount rate. The compound average annual growth rate over the 20-year study period is 2.1% percent.
The 2019 market price forecast is higher than the market price forecast used in the District’s 2017 CPA. Figure IV-2 compares the price forecasts after both were converted to 2012 dollars. The difference is approximately $13/MWh for the early years of the study period but then decreases to $7/MWh at the end.

Figure IV-2
Forecast Market Prices in 2017 CPA and 2019 CPA (2012$/MWh)
**Benchmarking**

Figure IV-3 compares the forecast with the forecast included in BPA’s proposed FY20-21 rates. The forecasts are similar, although BPA’s forward prices are lower through the initial years and slightly higher in the later years. The difference is likely due to the timing of the forecasts, as BPA’s forecast was developed in late 2018.

**High and Low Scenarios**

To reflect a range of possible future outcomes, the analysis includes scenarios with high- and lowcase market price forecasts. The high and low forecasts were created by adding or subtracting 20% from the base price forecast, respectively. This approach reflects possible error in the forecast while maintaining the annual shape and relationship between months.

Figures IV-4 and IV-5 compare the base, high, and low price forecasts, for high and low load hours, respectively.
Figure IV-4
High Load Hour Market Price Forecast Comparison (Nominal $/MWh)

Figure IV-5
Low Load Hour Market Price Forecast Comparison (Nominal $/MWh)
Avoided Cost Adders and Risk

From a total resource cost perspective, energy efficiency provides multiple benefits beyond the avoided cost of energy. These include deferred capital expenses on generation, transmission, and distribution capacity; as well as the reduction of required renewable energy credit (REC) purchases, avoided social costs of carbon emissions, and the reduction of utility resource portfolio risk exposure. Since energy efficiency measures provide both peak demand (kW) and energy savings (kWh), these other benefits are monetized as value per unit of either kWh or kW savings.

Energy-Based Avoided Cost Adders:

1. Social Cost of Carbon
2. Renewable Energy Credits
3. Risk Reduction Premium

Peak Demand-Based Adders:

1. Generation Capacity Deferral
2. Transmission Capacity Deferral
3. Distribution Capacity Deferral
The estimated values and associated uncertainties for these avoided cost components are provided below. EES will evaluate the energy efficiency potential under a range of avoided costs, identifying the sensitivity of the results to changes in these values.

**Social Cost of Carbon**

The social cost of carbon is a value that society incurs when fossil fuels are burned to generate electricity. EIA rules require that the social cost of carbon be included in the total resource cost (TRC) test. Further, Washington state’s recently enacted Clean Energy Transformation Act (CETA), will specify what values are used through rulemaking underway at the time this CPA was under development. The currently proposed rules would require utilities to use the social cost of carbon developed by the federal Interagency Workgroup using the 2.5 percent discount rate and inflated using the implicit price deflator for gross domestic product published by the US Department of Commerce.

In the 2017 CPA, the high avoided cost scenario used the 3 percent discount rate version of these values, which were also used in scenarios of the Seventh Power Plan. The 2.5 percent discount values are approximately 50% higher than these values, beginning at $62/ton (2007$) in 2020 and rising to $93/ton over the 20-year study period.

These carbon costs were included in the base and high scenarios. No carbon cost was included in the low scenario.

In addition to these carbon costs, the variation of the marginal generation resource over time also needs to be considered. The District provided their average marginal carbon emissions rate of 0.428 metric tons per MWh, or 0.94 lbs per kWh. This value was used in the 2017 CPA.

Beginning in 2030, the clean energy law requires that all energy be effectively greenhouse gas neutral. As such, the CPA assumes that all energy will be carbon-free from 2030 through the end of the study period.

**Value of Renewable Energy Credits**

Related to the social cost of carbon is the value of renewable energy credits. Washington’s Energy Independence Act established a Renewable Portfolio Standard (RPS) for utilities with 25,000 or more customers. Currently, utilities are required to source 9% of all electricity sold to retail customers from renewable energy resources. In 2020, the requirement increases to 15%. Washington’s clean energy bill requires that 100% of sales be greenhouse gas neutral in 2030, although 20% can be achieved through alternate compliance options such as the purchase of Renewable Energy Credits. Due to these requirements, energy efficiency’s value changes over time.
From 2020 to 2029, energy efficiency can reduce the cost of compliance associated with the 15% RPS requirement by reducing the District’s overall load. Under a 15% RPS requirement, for every 100 units of energy efficiency acquired, the District’s RPS spending requirement is reduced by 15 units. In effect, this adds 15 percent of the costs of RECs to the avoided costs of energy efficiency. EES has used a blend of several forecasts of REC prices and incorporated them into the avoided costs of energy efficiency accordingly.

As stated above, Washington’s clean energy bill requires that, beginning in 2030, all energy sales be greenhouse gas neutral, allowing for 20% of the compliance to be achieved through purchases of RECs or other means. Accordingly, the CPA assumes that the marginal cost of power in 2030 would be the market price of power plus the full cost of a REC. The requirements discussed above were included in the base and high scenarios while the low scenario only considers the 15% RPS requirement.

**Risk Adder**

In general, the risk that any utility faces is that energy efficiency will be undervalued, either in terms of the value per kWh or per kW of savings, leading to an under-investment in energy efficiency and exposure to higher market prices or preventable investments in infrastructure. The converse risk—an over-valuing of energy and subsequent over-investment in energy efficiency— is also possible, albeit less likely. For example, an over-investment would occur if an assumption is made that economies will remain basically the same as they are today and subsequent sector shifts or economic downturns cause large industrial customers to close their operations. Energy efficiency investments in these facilities may not have been in place long enough to provide the anticipated low-cost resource.

In order to address risk, the Council includes a risk adder ($/MWh) in its cost-effectiveness analysis of energy efficiency measures. This adder represents the value of energy efficiency savings not explicitly accounted for in the avoided cost parameters. The risk adder is included to ensure an efficient level of investment in energy efficiency resources under current planning conditions. Specifically, in cases where the market price has been low compared to historic levels, the risk adder accounts for the likely possibility that market prices will increase above current forecasts.

The value of the risk adder has varied depending on the avoided cost input values. The adder is the result of stochastic modeling and represents the lower risk nature of energy efficiency resources. In the Sixth Power Plan the risk adder was significant (up to $50/MWh for some measures). In the Seventh Power Plan the risk adder was determined to be $0/MWh after the addition of the generation capacity credit. While the Council uses stochastic portfolio modeling to value the risk credit, utilities conduct scenario and uncertainty analysis.

For the District’s 2019 CPA, the avoided cost parameters have been estimated explicitly, and a scenario analysis is performed. Therefore, a risk adder of $0/MWh is used for the base case. Variation in other avoided cost inputs covers a range of reasonable outcomes and is sufficient to identify the sensitivity of the cost-
effective energy efficiency potential to a range of outcomes. The scenario results present a range of cost-effective energy efficiency potential, and the identification of the District’s biennial target based on the range modeled is effectively selecting the utility’s preferred risk strategy and associated risk credit.

Deferred Local Distribution and Bulk Transmission System Investment
Energy efficiency measure savings reduce capacity requirements on both the transmission and distribution systems. The Council recently updated its previous estimates for these capacity savings, which were $31/kW-year and $26/kW-year for distribution and transmission systems, respectively ($2012). These values were used in the Seventh Plan. The new values, $3.08/kW-year and $6.85/kW-year for transmission and distribution systems, respectively will be used in the next Power Plan. These assumptions are used in all scenarios in the CPA.

Deferred Investment in Generation Capacity
The District’s 2016 IRP identifies that the current forward market provides a cost-effective option for meeting future demand and load growth, but cautions that the forward market may not always be available for capacity purchases, or available at the low prices present today. To represent the value of capacity in the base case, the District provided a value that represents a 3 percent premium over market prices. This value is based on the opportunity cost of selling excess capacity created by energy savings in the market. In the low case, a value of $0/kW-year was used. This represents a future in which the market will continue to be available for meeting peak demands.
In the Council’s Seventh Power Plan7, a generation capacity value of $115/kW-year was explicitly calculated ($2012). This value will be used in the high scenario.

Summary of Scenario Assumptions
Table 1 summarizes the recommended scenario assumptions. The Base Case represents the most likely future.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Avoided Cost Assumptions by Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
</tr>
<tr>
<td>Energy</td>
<td>Market Forecast</td>
</tr>
<tr>
<td>Social Cost of Carbon</td>
<td>Federal 2.5% Discount Rate Values</td>
</tr>
<tr>
<td>Value of REC Compliance</td>
<td>Current RPS + WA CETA</td>
</tr>
<tr>
<td>Distribution System Credit, $/kW-year</td>
<td>$6.85</td>
</tr>
</tbody>
</table>

7 https://www.nwcouncil.org/energy/powerplan/7/home/
Appendix V – Measure List

This appendix provides a high-level measure list of the energy efficiency measures evaluated in the 2019 CPA. The CPA evaluated thousands of measures; the measure list does not include each individual measure; rather it summarizes the measures at the category level, some of which are repeated across different units of stock, such as single family, multifamily, and manufactured homes. Specifically, utility conservation potential is modeled based on incremental costs and savings of individual measures. Individual measures are then combined into measure categories to more realistically reflect utility-conservation program organization and offerings. For example, single-family attic insulation measures are modeled for a variety of upgrade increments: R-0 to R-38, R-0 to R-49, or R-19 to R-38. The increments make it possible to model measure savings and costs at a more precise level. Each of these individual measures are then bundled across all housing types to result in one measure group: attic insulation.

The measure list used in this CPA was developed based on information from the Regional Technical Forum (RTF) and the Northwest Power and Conservation Council (Council). The RTF and the Council continually maintain and update a list of regional conservation measures based on new data, changing market conditions, regulatory changes, and technological developments. The measure list provided in this appendix includes the most up-to-date information available at the time this CPA was developed.

The following tables list the conservation measures (at the category level) that were used to model conservation potential presented in this report. Measure data was sourced from the Council’s Seventh Plan workbooks and the RTF’s Unit Energy Savings (UES) workbooks. Please note that some measures may not be applicable to an individual utility’s service territory based on characteristics of the utility’s customer sectors.
### Table VI-1
**Residential End Uses and Measures**

<table>
<thead>
<tr>
<th>End Use</th>
<th>Measures/Categories</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer</td>
<td>Heat Pump Clothes Dryer</td>
<td>7th Plan</td>
</tr>
<tr>
<td><strong>Electronics</strong></td>
<td>Advanced Power Strips</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Energy Star Computers</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Energy Star Monitors</td>
<td>7th Plan</td>
</tr>
<tr>
<td><strong>Food Preparation</strong></td>
<td>Electric Oven</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Microwave</td>
<td>7th Plan</td>
</tr>
<tr>
<td><strong>HVAC</strong></td>
<td>Air Source Heat Pump</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Controls, Commissioning, and Sizing</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Ductless Heat Pump</td>
<td>7th Plan, RTF 7th Plan</td>
</tr>
<tr>
<td></td>
<td>Ducted Ductless Heat Pump</td>
<td>Plan</td>
</tr>
<tr>
<td></td>
<td>Duct Sealing</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Ground Source Heat Pump</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Heat Recovery Ventilation</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Attic Insulation</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Floor Insulation</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Wall Insulation</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Windows</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Wi-Fi Enabled Thermostats</td>
<td>7th Plan</td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td>Linear Fluorescent Lighting</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>LED General Purpose and Dimmable</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>LED Decorative and Mini-Base</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>LED Globe</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>LED Reflectors and Outdoor</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>LED Three-Way</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td><strong>Refrigeration</strong></td>
<td>Freezer</td>
<td>7th Plan</td>
</tr>
</tbody>
</table>
### WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

#### NWPC Methodology

<table>
<thead>
<tr>
<th>End Use</th>
<th>Measures/Categories</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>Water Heating</td>
<td>Refrigerator</td>
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</tr>
<tr>
<td></td>
<td>Aerator</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Behavior Savings</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Clothes Washer</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Dishwasher</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Heat Pump Water Heater</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Showerheads</td>
<td>7th Plan, RTF</td>
</tr>
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<td></td>
<td>Solar Water Heater</td>
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<td></td>
<td>Thermostatic Valve</td>
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<td>Wastewater Heat Recovery</td>
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#### Whole Building

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### Table VI-2 Commercial End Uses and Measures

#### End Use

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<td>7th Plan</td>
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<td>Controls, Equipment, &amp; Demand Reduction</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Energy Star Computers</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Energy Star Monitors</td>
<td>7th Plan</td>
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<tr>
<td>Smart Plug Power Strips</td>
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<td>Data Center Measures</td>
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#### Food Preparation

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<td>Convection Ovens</td>
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</tr>
<tr>
<td>Fryers</td>
<td>7th Plan, RTF</td>
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<td>Hot Food Holding Cabinet</td>
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<tr>
<td>Steamer</td>
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<tr>
<td>Pre-Rinse Spray Valve</td>
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#### HVAC

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<td>Commercial Energy Management</td>
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<td>Demand Control Ventilation</td>
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### WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

<table>
<thead>
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<td>Water Cooler Controls</td>
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<td><strong>Water Heating</strong></td>
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<td>Showerheads</td>
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<td>Tank Water Heaters</td>
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### Table VI-3
Industrial End Uses and Measures

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<td>Reduction</td>
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<td>NWPCC Methodology</td>
<td>EES Consulting Procedure</td>
<td>Reference</td>
</tr>
<tr>
<td>----------------------------------------</td>
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<tr>
<td>Energy Management</td>
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<td>Air Compressor Optimization</td>
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<td>Energy Project Management</td>
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<td>Fan Energy Management</td>
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<td>Fan System Optimization</td>
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<td>Cold Storage Tune-up</td>
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<td>Chiller Optimization</td>
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<td>Integrated Plant Energy Management</td>
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<td>Pump Energy Management</td>
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<td>Pump System Optimization</td>
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<td>Fans</td>
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<td>Room HVAC</td>
<td>Plan</td>
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<td></td>
<td>Chip Fab: Eliminate Exhaust</td>
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</tr>
<tr>
<td></td>
<td>Chip Fab: Exhaust Injector</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Chip Fab: Reduce Gas Pressure</td>
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</tr>
<tr>
<td></td>
<td>Chip Fab: Solid State Chiller</td>
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</tr>
<tr>
<td>Lighting</td>
<td>Efficient Lighting High-Bay Lighting</td>
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</tr>
<tr>
<td></td>
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<td>7th Plan</td>
</tr>
<tr>
<td>Low &amp; Medium Temp Refrigeration</td>
<td>Food: Cooling and Storage</td>
<td>7th Plan 7th</td>
</tr>
<tr>
<td></td>
<td>Cold Storage Retrofit</td>
<td>Plan</td>
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<td></td>
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<tr>
<td>Material Handling</td>
<td>Material Handling Equipment</td>
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<tr>
<td></td>
<td>Material Handling VFD</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Metals</td>
<td>New Arc Furnace</td>
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</tr>
<tr>
<td>Misc.</td>
<td>Synchronous Belts Food</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Storage: CO2 Scrubber</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Food Storage: Membrane</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Motors</td>
<td>Motor Rewinds</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Efficient Pulp Screen</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
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<td>7th Plan</td>
</tr>
<tr>
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<td>Premium Control</td>
<td>7th Plan</td>
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### NWPCC Methodology

<table>
<thead>
<tr>
<th>NWPC Methodology</th>
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<tr>
<td>Premium Fan</td>
<td></td>
<td>7th Plan</td>
</tr>
<tr>
<td>Process Loads</td>
<td>Municipal Sewage Treatment</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Pulp</td>
<td>Efficient Agitator</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
<td>Effluent Treatment System Premium</td>
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<td>Plan</td>
</tr>
<tr>
<td></td>
<td>Refiner Plate Improvement</td>
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<tr>
<td></td>
<td>Refiner Replacement</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Pumps</td>
<td>Equipment Upgrade</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Transformers</td>
<td>New/Retrofit Transformer</td>
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<td>Wood</td>
<td>Hydraulic Press Pneumatic</td>
<td>7th Plan</td>
</tr>
<tr>
<td></td>
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<td>7th Plan</td>
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### Table VI-3

<table>
<thead>
<tr>
<th>End Use</th>
<th>Measures/Categories</th>
<th>Data Source</th>
</tr>
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<tbody>
<tr>
<td>Dairy Efficiency</td>
<td>Efficient Lighting Milk Pre-Cooler</td>
<td>7th Plan</td>
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<tr>
<td></td>
<td>Vacuum Pump</td>
<td>7th Plan</td>
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<td>Irrigation</td>
<td>Low Energy Sprinkler Application Irrigation</td>
<td>7th Plan, RTF</td>
</tr>
<tr>
<td></td>
<td>Hardware</td>
<td>7th Plan, BPA</td>
</tr>
<tr>
<td></td>
<td>Scientific Irrigation Scheduling</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>Agricultural Lighting</td>
<td>7th Plan</td>
</tr>
<tr>
<td>Motors/Drives</td>
<td>Motor Rewinds</td>
<td>7th Plan</td>
</tr>
</tbody>
</table>
Appendix VI – Energy Efficiency Potential by End-Use

### Table VI-1
Residential Economic Potential (aMW)

<table>
<thead>
<tr>
<th></th>
<th>2 Year</th>
<th>6 Year</th>
<th>10 Year</th>
<th>20 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electronics</td>
<td>0.01</td>
<td>0.08</td>
<td>0.22</td>
<td>0.27</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HVAC</td>
<td>0.37</td>
<td>1.07</td>
<td>1.45</td>
<td>1.64</td>
</tr>
<tr>
<td>Lighting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water Heating</td>
<td>0.28</td>
<td>1.03</td>
<td>1.93</td>
<td>3.80</td>
</tr>
<tr>
<td>Whole Bldg/Meter Level</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.66</strong></td>
<td><strong>2.18</strong></td>
<td><strong>3.59</strong></td>
<td><strong>5.71</strong></td>
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</table>

### Table VI-2
Commercial Economic Potential (aMW)

<table>
<thead>
<tr>
<th></th>
<th>2 Year</th>
<th>6 Year</th>
<th>10 Year</th>
<th>20 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed Air</td>
<td>0.03</td>
<td>0.08</td>
<td>0.13</td>
<td>0.26</td>
</tr>
<tr>
<td>Electronics</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>0.01</td>
<td>0.06</td>
<td>0.13</td>
<td>0.21</td>
</tr>
<tr>
<td>HVAC</td>
<td>0.16</td>
<td>0.65</td>
<td>1.18</td>
<td>1.56</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.52</td>
<td>1.75</td>
<td>2.37</td>
<td>3.33</td>
</tr>
<tr>
<td>Motors/Drives</td>
<td>0.02</td>
<td>0.07</td>
<td>0.12</td>
<td>0.28</td>
</tr>
<tr>
<td>Process Loads</td>
<td>0.02</td>
<td>0.06</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>0.05</td>
<td>0.28</td>
<td>0.61</td>
<td>0.87</td>
</tr>
<tr>
<td>Water Heating</td>
<td>0.01</td>
<td>0.08</td>
<td>0.19</td>
<td>0.34</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>0.82</strong></td>
<td><strong>3.03</strong></td>
<td><strong>4.83</strong></td>
<td><strong>6.94</strong></td>
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</table>

### Table VI-3
Industrial Economic Potential (aMW)

<table>
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<th>2 Year</th>
<th>6 Year</th>
<th>10 Year</th>
<th>20 Year</th>
</tr>
</thead>
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Grant County Public Utility District      |      2020 Integrated Resource Plan      |     Page A63
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<table>
<thead>
<tr>
<th>NWPCC Methodology</th>
<th>EES Consulting Procedure</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed Air</td>
<td>0.05</td>
<td>0.14</td>
</tr>
<tr>
<td>Electronics</td>
<td>0.53</td>
<td>3.90</td>
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<tr>
<td>Energy Management</td>
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<tr>
<td>Fans</td>
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<tr>
<td>Hi-Tech</td>
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<td>0.11</td>
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<td>Lighting</td>
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<td>0.86</td>
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<td>Metals</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Misc</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Motors</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paper</td>
<td>0.00</td>
<td>0.01</td>
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<tr>
<td>Process Loads</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>Pulp</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pumps</td>
<td>0.15</td>
<td>0.44</td>
</tr>
<tr>
<td>Transformers</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wood</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.42</strong></td>
<td><strong>9.58</strong></td>
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</table>

Table VI-4 Agricultural Economic Potential (aMW)

<table>
<thead>
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<th>2 Year</th>
<th>6 Year</th>
<th>10 Year</th>
<th>20 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Efficiency</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Irrigation</td>
<td>0.12</td>
<td>0.44</td>
<td>0.76</td>
<td>0.99</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.03</td>
<td>0.06</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Motors/Drives</td>
<td>0.03</td>
<td>0.10</td>
<td>0.14</td>
<td>0.16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.19</strong></td>
<td><strong>0.63</strong></td>
<td><strong>1.01</strong></td>
<td><strong>1.27</strong></td>
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</tbody>
</table>

Appendix VII – Ramp Rate Documentation

This section is intended to document how ramp rates were reviewed for alignment between the near-term potential and recent achievements of Grant PUD’s programs.
Grant PUD’s program achievements from 2017-2018 were compared with the potential identified in this CPA, using the ramp rates assigned to each measure in the Seventh Power Plan. Savings from NEEA’s market transformation initiatives were allocated to the appropriate sectors to determine total sector savings.

Table VII-1 compares recent program history as reported per the EIA with the potential after ramp rates were adjusted, showing the potential in each sector is reasonable and achievable given program history. Note that this table and Table VII-2 below exclude residential lighting, as these measures were not considered in the CPA.

### Table VII-1
**Comparison of Sector-Level Program Achievement and Potential (aMW)**

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<tr>
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<th>Program History</th>
<th>CPA Potential</th>
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<tr>
<td></td>
<td>2017</td>
<td>2018</td>
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<tr>
<td>Residential</td>
<td>0.31</td>
<td>0.41</td>
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<tr>
<td>Commercial</td>
<td>0.34</td>
<td>0.42</td>
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<tr>
<td>Industrial</td>
<td>0.06</td>
<td>9.60</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.15</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.86</strong></td>
<td><strong>10.45</strong></td>
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</tbody>
</table>

Beyond this sector-level comparison, the residential and commercial sectors were analyzed at the end-use level to ensure alignment.

Table VII-2 below compares recent residential achievement with the potential identified in this assessment.

### Table VII-2
**Comparison of Residential End Use Program Achievement and Potential (aMW)**

<table>
<thead>
<tr>
<th></th>
<th>Program History</th>
<th>CPA Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>Dryer</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electronics</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>0.01</td>
<td>-</td>
</tr>
<tr>
<td>HVAC</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.02</td>
<td>-</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Water Heating</td>
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<td>-</td>
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<tr>
<td>Whole Building</td>
<td>-</td>
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</table>
To achieve this alignment, several measures in the electronics end use were given slower ramp rates. While NEEA has a consumer electronics initiative that targets this end use, savings to date have been slow and Grant PUD does not have its own programs.

While the savings potential in the HVAC and water heating end uses may seem to be higher than recent program achievement, NEEA’s savings contribute to these categories. On the whole, the residential sector potential is aligned with recent program history.

Table VII-3 compares the final alignment between commercial achievement and potential. In this sector, ramp rates for lighting measures slowed somewhat while several measures in the HVAC, energy management, water heating, and refrigeration end uses were given slower ramp rates given the lower level of historic achievement in these categories.

<table>
<thead>
<tr>
<th>Program History</th>
<th>CPA Potential (aMW)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
</tr>
<tr>
<td>Compressed Air</td>
<td></td>
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<tr>
<td>Electronics</td>
<td></td>
</tr>
<tr>
<td>Food Preparation</td>
<td></td>
</tr>
<tr>
<td>HVAC</td>
<td>0.02</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.22</td>
</tr>
<tr>
<td>Motors/Drives</td>
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<tr>
<td>Process Loads</td>
<td>0.03</td>
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<tr>
<td>Refrigeration</td>
<td>0.07</td>
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<tr>
<td>Water Heating</td>
<td></td>
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<tr>
<td>NEEA</td>
<td></td>
</tr>
</tbody>
</table>
Finally, while the industrial sector was not reviewed at the end use level, measures in this sector were given a custom ramp rate. This ramp rate matches Grant PUD’s recent level of industrial achievement and allows for an even level of savings acquisition over time, allowing both Grant PUD and industrial facilities to plan and budget for savings acquisition over time while still acquiring all cost-effective potential.
### WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

<table>
<thead>
<tr>
<th>NWPC Methodology</th>
<th>EES Consulting Procedure</th>
<th>Reference</th>
</tr>
</thead>
</table>

(Placeholder for Internal Approvals)

(PLACEHOLDER FOR COPY OF PUBLIC NOTICE OF IRP HEARING)
TO: Kevin Nordt, General Manager
VIA: Dave Churchman, Chief Customer Officer
Rich Flanigan, Senior Manager Wholesale Marketing Supply
FROM: Phil Law, Term Marketer
SUBJECT: 2020 Integrated Resource Plan

Purpose: To request Commission approval of the Integrated Resource Plan (IRP) for submittal to the Washington State Department of Commerce by September 1, 2020.

Discussion: RCW 19.280 requires “electric utilities in Washington develop comprehensive resource plans that explain the mix of generation and demand-side resources they plan to use to meet their customers’ electricity needs in both the short term and the long term.” The District is required to submit its IRP every two years and the Commission must hold a public hearing prior to approving an IRP for submittal. The draft 2020 IRP will be presented to the Commission in a public hearing on July 28, 2020.

The IRP is a comprehensive decision support tool and road map for meeting the District’s objective of providing reliable and least-cost electric service to all of our customers while addressing the substantial risks and uncertainties inherent in the electric utility business. The Wholesale Marketing Supply Department will use the IRP and its associated modeling tools to continually monitor the load/resource balance of the District and recommend adjustments as necessary.

Staff draws the following conclusions from the IRP analysis:

1. Current Grant PUD strategy of large market purchases made to cover Estimated Unmet District Load (EUDL) needs to be reconsidered due to possible resource adequacy issues in the WECC.
2. Based on the anticipated annual energy projections, Grant PUD has enough existing physical resources and EUDL dollars to meet expected load growth on an annual basis through 2028.
3. As a result of the 15% planning margin, additional resources requirements are forecasted as soon as 2026.
4. Grant PUD is forecasting to be seasonally capacity-deficient during summer of 2026.
5. To meet these seasonal deficiencies, current models indicate the least-cost resources to be power purchase agreements or ownership of solar and natural gas generation with an emphasis on firm delivery. Market purchases will also be necessary to fill in any gaps that are not economical to fill with purchase power agreements.
6. Grant PUD will continue to meet its state-mandated renewable portfolio obligations without acquiring new resources until 2025. At that time Grant PUD will acquire any expected RPS deficits with market purchases of eligible RECs and other qualifying...
resources such as solar.

7. Grant PUD’s long-term load forecast contains significant uncertainty due to the relatively high percentage of industrial load. Industrial loads could be significantly higher or lower than the forecast based on a number of factors, many of which are outside Grant PUD’s control. Grant PUD has reviewed the potential risks associated with this load uncertainty and will continue monitoring these loads and expectations of this customer segment.

8. Grant PUD will need to stay abreast of changes to markets and regulations in the utility industry affecting the District’s planning processes.

Based on these conclusions, Staff recommends the following IRP Action Plan:

1. Assemble a team of internal subject matter experts to determine strategy and execute a plan to research the acquisition of resources to meet forecasted energy and capacity needs. This will most likely include one or more full-time IRP staff resources. Monitor opportunities to procure low-cost, long-term generating resources (particularly resources that qualify for I-937 and CETA compliance), with an eye towards opportunities priced better than new-build costs. Preference will be given to firm resources to address regional Resource Adequacy concerns.

2. Continue to implement and achieve cost-effective conservation and demand response available within the county as indicated in the District’s Conservation Potential Assessment.

3. Continue to enhance the capacity planning process and standards to ensure Grant PUD adequately plans to reliably meet both the energy and peaking needs of Grant PUD’s electric system. Grant’s capacity planning process and standard should conform to the evolution in power planning for the Pacific Northwest. Therefore, Grant PUD should participate in and monitor regional forums related to resource planning.

4. Continue to refine and improve the retail energy load forecasts, with an emphasis on monitoring changes from the large industrial customers, given their ability to affect Grant’s load and resource balance.

5. Evaluate the opportunities presented by the expansion of the Northwest EIM and the possible growth of the California Independent System Operator into the Northwest. Grant PUD should work to identify the best strategy (from a cost, opportunity and risk basis) to interact with this evolving market.

6. Continue to participate in regional utility groups that monitor and influence legislation that could affect Grant PUD’s ratepayers.

Recommendation: Staff recommends the Commission approve the 2020 IRP during its August 25th Commission Meeting for submittal to the state Department of Commerce.

Legal Review:
- Attach e-mail from legal counsel
RESOLUTION NO. XXXX

A RESOLUTION AUTHORIZING THE GENERAL MANAGER OF PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON TO ENTER INTO A NEARLY FIVE-YEAR EXCHANGE OF CAPACITY FOR ENERGY WITH MORGAN STANLEY CAPITAL GROUP

Recitals

1. Grant PUD has sought to increase certainty surrounding its wholesale sales revenues in support of various Strategic Plan goals while maximizing the value of customer hydro generation assets;

2. An Exchange of 33.31 percent Grant PUD generating capacity in the Priest Rapids Project for energy to serve load was found through analysis to best meet these goals of the Strategic Plan;

3. The process of selection of the proposed contract counterparty and transaction structure was a combination of market surveys and quantitative analysis of multiple scenarios. The selected proposal is reasonably anticipated to produce the best financial and risk outcomes for customers, and represent a fair, market based value for the product sold; and

4. The proposed transaction represents a diversification of Grant PUD resources and risk; the value of the anticipated energy volumes exchanged are expected to be roughly equal.

NOW, THEREFORE, BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington, that the Commission authorizes the General Manager to execute an exchange contract containing terms that are materially similar to those reviewed with this Commission.

PASSED AND APPROVED by the Commission of Public Utility District No. 2 of Grant County, Washington, this 25<sup>th</sup> day of August, 2020.

________________________________________
President

ATTEST:

________________________________________
Secretary

________________________________________
Vice President

________________________________________
Commissioner

________________________________________
Commissioner
MEMORANDUM

TO: Kevin Nordt, General Manager

VIA: Dave Churchman, Chief Customer Officer

FROM: Rich Flanigan, Sr. Manager, Wholesale Marketing and Supply

SUBJECT: Proposed Wholesale Service Slice Sale with Morgan Stanley Capital Group

Purpose: To request Commission approval for the General Manager to execute Contract 420-10635 for the proposed Wholesale Service Slice. The Wholesale Service Slice is a pooling agreement with Morgan Stanley Capital Group ("Counterparty") who will supply Grant’s real-time Balancing Area load, a fixed amount of energy each month to help meet Grant’s retail load, and short-term energy scheduling and marketing services in exchange for 33.31% of the Priest Rapids Project Output ("PRPO") for a nearly 5-year term, commencing on September 30, 2020 and ending on September 29, 2025.

Discussion: Grant PUD staff recommends entering into a new pooling agreement that would slice off a 33.31% share of PRPO from Grant’s 63.31% retained share of PRP in exchange for the Counterparty providing wholesale services to help Grant meet its retail load. The Counterparty won an indicative RFP process conducted by staff in 2019. This pooling agreement will replace a similar Wholesale Service Slice agreement with Shell Energy North America ("SENA") that ends in September.

Slice sales such as this proposed transaction have proven to be a successful strategy to reduce risk while maximizing the value of Grant’s hydro system. These sales have several benefits including:

- Elimination of year to year water risk
- Shared operational risk
- Stable and predictable revenue
- Increased value for non-carbon attributes and flexibility.
- Leveraging the Counterparty’s expertise in short-term energy services to help moderate labor cost
- Viewed favorably by the rating agencies.

The Product. In the proposed pooling agreement, each party is selling a product of approximately equal value. The Grant product consist of a 33.31% (53.31% for October – December 2020) share of the output from the PRP. The Counterparty receives energy (without a guarantee of quantity), pondage (storage), capacity, and ancillary services (flexibility). In exchange the Counterparty supplies Grant’s real-time load, provides a fixed amount of energy that varies from month to month to help meet Grant’s retail load, and provides short-term energy and scheduling services to Grant.

The Wholesale Service Slice does not replace core Grant utility functions. Grant continues to be the energy supplier to retail customers, continues to be the Balancing Area operator, continues to have
responsibility for all regulations and requirements, continues to have full control over all Power Production operations (including unit outage and maintenance decisions), and continues to be the operator for all Grant’s Transmission and Distribution assets.

The Process. To ensure the District received a fair market valuation for the pooling agreement, Wholesale Marketing and Supply staff conducted an extensive indicative Request for Proposal (RFP) process. The indicative RFP process was structured to determine the best structure, size, and term of a new pooling agreement that would maximize the value from Grant’s retained share of the PRP. The indicative RFP process was broken into three (3) phases to help in determining each. During the first stage of the process, staff solicited bids for seven (7) different products,

1. 33.31%, 3-year Slice
2. 43.31, 3-year Slice
3. 53.31, 3-year Slice
4. 33.31%, 5-year Wholesale Service Slice (pooling agreement)
5. 43.31%, 5-year Wholesale Service Slice (pooling agreement)
6. 53.31%, 5-year Wholesale Service Slice (pooling agreement)
7. Provide Wholesale Services without a Slice

At the end of Phase I it was determined that the ideal structure to replace the current pooling agreement with SENA was a 33.31%, 5-year Wholesale Service Slice. This structure was then used for a second round (Phase II) of bidding from the original counterparties from Phase I. At the end of Phase II, the top two counterparties were selected, and staff began bilateral negotiations with each. Staff then spent two months discussing specific contact details and language with each counterparty and asked each to submit a final indicative bid (Phase III). Of the two finalists, the Counterparty was the clear winner and staff began negotiating bilaterally with them on a new contract.

During negotiations, the Counterparty identified NatruEner as their agent for support in providing short-term energy services. NatruEner currently manages two (2) Balancing Areas in the Western Electricity Coordinating Council (WECC) and helps manage some of Counterparty’s wind assets. Staff has spent considerable time with NatruEner and feels confident in their ability to support Counterparty in managing the Wholesale Service Slice.

Contract Review. In addition to a lengthy and detailed process in selecting a Wholesale Service Slice partner, an extensive internal and external review process was used to craft the pooling agreement. There was an internal review by subject matter experts from Power Production, Finance, Accounting, Dispatch, Control Systems Engineering, Power Delivery, Large Customer Care, Risk, Environmental Affairs, and External Affairs. In addition to an ongoing internal legal review, external legal assistance in the areas of commercial electricity contracts, bond compliance, tax compliance and Dodd-Frank compliance were used to craft a final contract.
**Justification:** The proposed slice sale ties directly to the Strategic Plan Objectives 1) Maintain a Strong Financial Position and 2) Provide Long Term Low Rates by providing revenue certainty from a volume of MWh sales at average water. This sale insulates Grant from hydro volume and pricing variability and volatility associated with this 33.31% slice, creating certainty in future net wholesale revenues over the term of the contract. In addition, staff believes the premium received for ancillary products and non-carbon attributes is above what Grant could reasonably expect due to its limited ability to participate in various Western markets (primarily lack of transmission to California).

**Recommendation:** Commission approve the General Manger to execute Contract 420-10635 for the proposed the proposed Wholesale Service Slice, commencing on September 30, 2020.

**Legal Review:** See attached e-mail(s).
AGREEMENT FOR POOLING OF PRIEST RAPIDS PROJECT PHYSICAL OUTPUT

This AGREEMENT FOR POOLING OF PRIEST RAPIDS PROJECT PHYSICAL OUTPUT (this “Agreement”) is entered into as of MMDD __, 2020 (the “Execution Date”) by and between Public Utility District No. 2 of Grant County, Washington, a municipal corporation of the State of Washington (“District”), and Morgan Stanley Capital Group Inc., a corporation formed and existing under the laws of the State of Delaware (“Morgan Stanley”). District and Morgan Stanley are referred to individually as a “Party” and collectively as the “Parties.”

RECITALS

WHEREAS, District owns and operates the hydroelectric project located on the Columbia River in the State of Washington that is designated by FERC as Project Number 2114 and known as the Priest Rapids Project, which consists of the Priest Rapids Development and the Wanapum Development (as those terms are defined in the license issued by FERC) (the “Priest Rapids Project”);

WHEREAS, District shares rights to physical electric capacity and associated energy output and other products available from the Priest Rapids Project with numerous other utilities in the Northwest under agreements in place prior to the Execution Date (“Priest Rapids Project Users”);

WHEREAS, District is a public electric utility serving retail customers throughout Grant County, Washington primarily with electric capacity and associated energy output and other products from the Priest Rapids Project, and its customer load includes industrial, large residential, and agricultural components;

WHEREAS, District has an obligation to serve retail load in Grant County, which in the last year fluctuated within a range of approximately 442 MW during Off-Peak Hours and 848 MW during On-Peak Hours;

WHEREAS, Morgan Stanley supplies wholesale power and related products and services in North America, and Morgan Stanley’s Energy supply consists of a portfolio of rights to natural gas-powered generation, renewable resources, hydropower slice contracts, and open market purchases; and

WHEREAS, a principal purpose of this Agreement is (i) to provide for the pooling of a designated percentage of the electrical capacity and associated Energy output available from the Priest Rapids Project with physical power consisting of electrical capacity and Energy to be provided by Morgan Stanley, from various sources, in quantities established so as to be sufficient to meet District’s full requirements for such products, which are expected to be approximately equal in value as determined over a period of three (3) years or less, (ii) to secure a supply source enabling the Parties to satisfy different peak load demands, accommodate temporary outages, diversify supply, and enhance reliability in accordance with prudent reliability standards, all upon the terms and subject to the conditions set forth in this Agreement, and (iii) to mitigate commercial risks arising from the potential change in electric output and capacity of owned assets due to hydrology fluctuations as well as arising from fluctuations in load that District is required to serve.

NOW THEREFORE, the Parties, in consideration of the mutual promises set forth herein and intending to be legally bound, acknowledge and agree as follows:

-1-
AGREEMENT

ARTICLE I. DEFINED TERMS AND INTERPRETATION

1.01 Defined Terms. Except as otherwise specified herein, initially capitalized terms used in this Agreement have the meanings specified in Exhibit A.

1.02 Construction of Certain Terms and Phrases. Unless the context of this Agreement otherwise requires: (a) words of any gender include each other gender; (b) words using the singular or plural number also include the plural or singular number, respectively; (c) the terms “hereof,” “herein,” “hereby” and derivative or similar words refer to this entire Agreement; (d) the terms “Article,” “Section” or “Exhibit” refer to the specified Article, Section or Exhibit of this Agreement; (e) all references to Articles, Sections or Exhibits shall be to all subparts of such Articles, Sections and Exhibits; (f) the term “or” has, except where otherwise indicated, the inclusive meaning represented by the phrase “and/or;” (g) the term “including” or “includes” means “including without limitation” or “includes without limitation;” (h) reference to any Person includes such Person’s successors and assigns but, if applicable, only if such successors and assigns are permitted by this Agreement; (i) reference to any agreement (including this Agreement), document or instrument means such agreement, document or instrument as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (j) reference to any law (including statutes and ordinances) means such law as amended, modified, codified or reenacted, in whole or in part, and in effect from time to time, including rules and regulations promulgated thereunder; and (k) whenever this Agreement refers to a number of days, such number shall refer to calendar days unless Business Days are specified.

ARTICLE II. TERM

2.01 Term. The term of this Agreement (“Term”) shall commence as of the Execution Date and shall continue, unless terminated earlier in accordance with the terms of this Agreement, until the expiration of the Delivery Period.

2.02 Delivery Period. The “Delivery Period” shall be the period from the Start Date through and including the End Date:

Start Date: At HE 0100 PPT on September 30, 2020; and

End Date: HE 2400 PPT on September 29, 2025.

ARTICLE III. CONSIDERATION

3.01 Product. During the Delivery Period, the Parties agree to deliver the respective Products as follows:

(a) District shall make available and deliver to Morgan Stanley, and Morgan Stanley shall accept and take delivery of, the District Product, with Energy and capacity to be delivered and made available to Morgan Stanley at the applicable Delivery Points, all in accordance with and subject to the terms and conditions of this Agreement;
(b) Morgan Stanley shall supply and deliver to the District, and the District shall accept and take delivery of, the Morgan Stanley Product, with Energy and capacity to be supplied and delivered to the District at the applicable Delivery Points, all in accordance with and subject to the terms and conditions of this Agreement;

(c) The delivering Party shall be responsible for any costs or charges imposed on or associated with a Product or its delivery of a Product (including transmission) comprised of Energy and capacity up to the Delivery Point; and

(d) The receiving Party shall be responsible for any costs or charges imposed on or associated with a Product or its receipt of a Product (including transmission) comprised of Energy and capacity at and from the Delivery Point.

3.02 Cash Payments.

3.03 Approximately Equal Value and Quantity; Purpose.

(a) The District hereby identifies the following aspects of this Agreement as part of an agreement that provides for the "pooling of output" (the "Pooling Agreement") for purposes of Treasury Regulation § 1.141-7(f)(2): (i) all physical electric capacity, Energy, Pondage, Regulation, Spinning Reserves, Non-Spinning Reserves and Dynamic Scheduling rights in respect of the Adjusted Priest Rapids Project which are to be delivered by the District to Morgan Stanley; and (ii) Morgan Stanley’s obligation to deliver contract quantities of physical electric capacity, Energy, Regulation, Spinning Reserves and Non-Spinning Reserves and to serve in Real Time the unmet retail Energy requirements of the District’s retail electric customers. Morgan Stanley hereby represents that as of the Execution Date a primary purpose of Morgan Stanley in entering into that portion of this Agreement that is the Pooling Agreement is to enable Morgan Stanley to satisfy different peak demands for wholesale energy, to accommodate temporary outages, to diversify its supply, or to enhance reliability in accordance with prudent reliability standards. Likewise, the District hereby represents that as of the Execution Date a primary purpose of the District in entering into that portion of this Agreement that is the Pooling Agreement is to enable the District to satisfy different peak load demands, to accommodate temporary outages, to diversify its supply, or to enhance reliability in accordance with prudent reliability standards.

(b) The value of the District Product (including Pondage, Ancillary Services and Dynamic Scheduling Rights) associated with the Priest Rapids Project and the value of the Morgan Stanley Product to be delivered under the Pooling Agreement are expected to be approximately equal as determined over periods of three (3) years or less during the Delivery Period, as documented in the Tax Certificate executed and delivered by the District, based upon District’s forecasted (medium scenario) loads for the Delivery Period.

(c) The Parties agree that the foregoing Section 3.03(b) is based on a reasonable approximation agreed to by both Parties. Further, notwithstanding any other term of this Agreement, neither Party shall have liability or obligation to the other Party for any failure of the representations or statements contained in Section 3.03(b) to be true and correct, other than the payments required under Article VI and Article XI.

ARTICLE IV. DISTRICT PRODUCT
4.01 District Product. The “District Product” means, collectively, the percentage specified in Section 4.02 of physical electric capacity, Energy, Ancillary Services (not including frequency response), Pondage, Net Incremental Hydropower RECs, and associated Carbon Attributes available from the Adjusted Priest Rapids Project, subject to Sections 4.08 and 5.03. The District may sell frequency response as determined by the District.

4.02 District Product Quantities and Variations. The “Percentage of District Product” referenced in Section 4.01 is as follows:

For the period starting at HE 0100, September 30, 2020 and ending at HE 2400 on December 31, 2020: 53.31% of the total Adjusted Priest Rapids Project.

For the period starting at HE 0100, January 1, 2021 and ending at HE 2400 on the last day of the Delivery Period: 33.31% of the total Adjusted Priest Rapids Project.

The “Adjusted Priest Rapids Project” is the portion of the output of the Priest Rapids Project remaining after reduction for encroachment, Canadian Entitlement, station service, transmission and transformer losses, and depletions required by the FERC License or other regulatory requirements. Morgan Stanley acknowledges and agrees that although the above referenced percentages shall remain constant throughout the periods specified for each percentage above, the quantities and amounts of District Product that District is able to make available and provide to Morgan Stanley herein (the “District Product Quantities”) are also subject to the Independent Operation Protocols, and other Operating Agreements, which are further described on Exhibit I, will fluctuate from time to time and over time, and are subject to variation and reduction due to many factors, including the following:

(a) The District Product Quantities are subject to variation, fluctuation, correction, and reduction as specified in this Section 4.02, and subject to District’s rights with respect to Incremental Hydropower RECs and Carbon Attributes as specified in Sections 4.08 and 5.03, and will fluctuate due to weather and precipitation levels; regulatory and environmental considerations and requirements; Independent Operation Protocols and Operating Agreements; Uncontrollable Force; pro rata reduction with all other Priest Rapids Project Users for required operating reserves; encroachment; Canadian Entitlement; station service; transmission losses to the Delivery Points; transformer losses; and depletions required by the FERC License or other regulatory requirements; and any other portion of the electric capacity and associated Energy output and other products available from the Priest Rapids Project that may be required
for the reliable and compliant operation of the Priest Rapids Project, including Energy, reactive power and frequency response. All capacity and Energy reductions referenced in this subpart (a) will be dedicated to the BA for fulfillment of the associated obligation.

(b) District, as operator of the Priest Rapids Project, may restrict deliveries of District Product from the Priest Rapids Project if it determines that such action is necessary to avoid exceeding the capability of the Priest Rapids Project or subjecting it or its operation to undue hazard or violating the FERC License, any applicable law, regulation, Independent Operation Protocols, or Operating Agreement; provided that such restrictions in delivery by District shall be made on a non-discriminatory basis with all Priest Rapids Project Users including Morgan Stanley.

(c) District may also restrict deliveries of District Product in case of emergencies, or in order to conduct planned outages and other outages, including unplanned outages, or to install equipment, conduct maintenance, make repairs, make betterments, renewals, replacements, and additions to, investigations and inspections of, or perform other work on the Priest Rapids Project; provided that such restrictions in delivery by District shall be made on a non-discriminatory basis with all Priest Rapids Project Users including Morgan Stanley.

(d) District, as operator of the Priest Rapids Project, shall make all determinations concerning the Priest Rapids Project maximum output and minimum discharge in accordance with Prudent Industry Practice, and District shall have the unilateral right to determine the maximum allowable amount of change in District Product Quantities, during any time period and the maximum number of unit starts and stops allowable during any time period; provided that all rights and restrictions shall be made on a non-discriminatory basis for all Priest Rapids Project Users.

(e) During any hour that spill is occurring at the Priest Rapids Project for any purpose determined necessary or desirable by District, the spill shall be allocated to Morgan Stanley and other Priest Rapids Project Users in a non-discriminatory manner and in accordance with the then prevailing District Spill allocation policy and procedures.

(f) District shall provide Morgan Stanley with a schedule of yearly planned outages not later than fifteen (15) days prior to commencement of the Delivery Period and then every twelve (12) months from such deadline thereafter. All such schedules are non-binding and shall not limit the District’s right to schedule and implement planned outages or District’s right to modify each and every schedule after submission to Morgan Stanley. District shall provide Morgan Stanley timely Notice of any changes to the schedule for yearly planned outages as soon as reasonably practicable after such changes are finalized. District shall use all commercially reasonable efforts to give advance Notice to Morgan Stanley regarding any limit, restriction, interruption, curtailment or reduction of District Product for which District has knowledge in advance of the need for such action, giving the reason therefore and stating the probable duration thereof (which shall be non-binding), and shall provide timely updates concerning the same should conditions change. In any instance where advance Notice is not commercially reasonable, District shall promptly Notify Morgan Stanley after imposing such limit, restriction, interruption, curtailment or reduction of District Product Quantities and give the reason therefore, the probable duration thereof (which shall be non-binding), and shall use all reasonable efforts to provide timely updates concerning the same should conditions change.
4.03 Pondage. As part of the District Product, Morgan Stanley shall be entitled to utilize a share of the Pondage available at the Priest Rapids Project, which shall be determined by multiplying the total available Pondage, measured in KCFSH or MWh, at the Priest Rapids Project and the Percentage of District Product specified in Section 4.02(a). “Pondage” means the ability to store water behind the dams for future use in producing electricity output. In its role as operator of the Priest Rapids Project, the District shall determine the amount of Pondage available at the Priest Rapids Project from time to time on the basis of the volume of water that can be stored between the then current maximum Forebay elevation and the then current minimum Forebay elevation. District will establish and maintain for Morgan Stanley a Pondage account that will reflect the actual use of Pondage by Morgan Stanley and any Scheduling Agent. On or before expiration of the last hour of the Delivery Period, Morgan Stanley shall return the Pondage account balance to at least where it was on the first hour of the Delivery Period.

4.04 District Product Delivery Points. The Energy and related products included in the District Product to be delivered hereunder shall be made available to Morgan Stanley at any one or more of the following delivery points (each a “District Product Delivery Point”). Morgan Stanley shall have the option, exercisable from time to time, to choose any of the District Product Delivery Points in (a) through (c) below, and may utilize the District Product Delivery Point in (d) below upon the Parties’ mutual agreement as specified herein:

(a) The 230 kV bus of the BPA’s Midway Substation;

(b) The 230 kV bus of the switchyard of the Wanapum Development;

(c) The 230 kV bus of the Vantage Substation; or

(d) Any other points on the District BAA mutually agreed to in writing by District and Morgan Stanley, which agreement may be formed via an exchange of electronic messages and shall not be unreasonably delayed, conditioned or denied. Morgan Stanley acknowledges that such points must comply with Applicable Standards and approval from the party to whom the requested point is connected. District agrees that Morgan Stanley may request under this Section 4.04(d) any bus, intertie or other physical or scheduling BAA adjacent point that currently exists or becomes available in the future. District acknowledges that Morgan Stanley is reliant upon the District’s adjacencies as listed in Section 7.05 and the continued scheduling practices at NW Hub, Mid C Remote, and similar scheduling points for the effective receipt and delivery of the District Product and Morgan Stanley Product. Title to and risk of loss related to the District Product shall transfer from District to Morgan Stanley at the District Product Delivery Point. District warrants that it will deliver to Morgan Stanley the District Product Quantities free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the District Product Delivery Point.

4.05 District Services and Responsibilities. During the Delivery Period, District shall provide the following services and fulfill the following responsibilities (all, unless otherwise expressly stated herein, at District’s cost and expense):

(a) Maintain system reliability and compliance with NERC Reliability Standards and other Applicable Standards at all times, except those related to tag creation and interchange as such relate to a PSE, which shall be Morgan Stanley’s responsibility;
(b) Provide to Morgan Stanley relevant information related to the BA and the District’s Load necessary to perform tasks and responsibilities pursuant to this Agreement;

(c) Retain full responsibility for all Independent Operation Protocols activity;

(d) Provide for Day Ahead WIT checkout with adjacent BAs, pond transfers, and after the fact Energy checkouts for all Priest Rapids Project Users;

(e) Provide access to all District BA adjacencies for purposes of sinking and sourcing Energy schedules to and from the District BA;

(f) Host the District Product via the District BA;

(g) To the extent consistent with BA Compliance Standards and any standards related to the operation of a transmission system in an open access manner, allow Morgan Stanley to schedule Energy and capacity in and out of the District BA subject to the limits of the BA in any volume or quantity, quality (e.g., firm, unit contingent or non-firm) spin or non-spin reserves, and in any control interval (e.g., daily, inter and intra hour including dynamic), including transactions referenced in the definitions of Hubbing and Park and Lend;

(h) To the extent consistent with BA Compliance Standards and subject to the Parties creating systems necessary to facilitate dynamic schedules, allow Morgan Stanley or the Scheduling Agent to dynamically schedule capacity and/or Ancillary Services in and out of the District BA subject to the limits of the BA in any volume or quantity, including Regulation, Spinning Reserves or Non-Spinning Reserves;

(i) Provide Morgan Stanley or the Scheduling Agent with access to a District Pseudo-Tie as part of the District Product, if mutually agreed in a separate written agreement between the Parties.

(j) For no additional consideration, Morgan Stanley shall have rights to use the District BA for Park and Lend transactions. With respect to Park and Lend transactions, the Parties acknowledge that the District has granted similar rights to other Priest Rapids Project Users (as further described on Exhibit G). To the extent the action or inaction of one or more other Priest Rapids Project Users (i) adversely impacts Morgan Stanley’s ability to exercise its rights under this Agreement or reduces the operational or economic value of such rights (by, for example, accessing its capacity), District shall compensate Morgan Stanley per the provisions of Exhibit C; and (ii) Morgan Stanley or Agent shall instruct such other Priest Rapids Project User to cut or adjust their Schedules in a timely manner, the District shall, if requested by Morgan Stanley, instruct such other Priest Rapids Project User that it must cut or adjust their Schedules to eliminate the negative impact on Morgan Stanley;

(k) Provide Morgan Stanley access to District’s transmission system within the District’s BAA, as part of the District Product as required to effectuate this transaction where compensation for such service is embedded within the consideration provided by Morgan Stanley in this Agreement. Use of the District’s transmission system is subject to availability and operating limits; provided, however, that notwithstanding any other provision of this Agreement Morgan Stanley shall not be liable to the District to the extent that the unavailability of District’s transmission system, for a reason beyond Morgan Stanley’s control, prevents Morgan Stanley from delivering the Morgan Stanley Product to any Morgan Stanley Product Delivery Point and provided further, however that the Parties have agreed that the
Performance Metrics Calculations in Exhibit C shall compensate Morgan Stanley for such unavailability; and

(l) Both Parties recognize that changes to Mid-Columbia hub practices may occur during the Term. To the extent that a Party determines it has been adversely impacted by such changes, it shall have the right to request consultation with the other Party. The requested Party shall endeavor in good faith to examine the request for consultation. If both Parties agree that an adverse impact has occurred, each shall be obligated only to seek mutually agreeable remedies, which may include an amendment of this Agreement to restore each Party to its relative economic position as of the Execution Date. Neither Party shall be obligated to accept any remedy or amendment which is adverse to its interests. No Party shall have any obligation beyond its requirement to work, in good faith, to find a mutually agreeable solution. Unless the Parties otherwise agree in writing, there shall be no indemnification, by either Party, resulting from changes to Mid-Columbia hub practices that may occur during the Term. Notwithstanding the foregoing, (i) Morgan Stanley shall not be liable to the District to the extent that changes to Mid-Columbia hub practices prevent Morgan Stanley from delivering the Morgan Stanley Product as contemplated by this Agreement, for a reason beyond Morgan Stanley’s control, and Morgan Stanley is unable to mitigate such circumstances after consulting with the District and exercising commercially reasonable efforts to mitigate; and (ii) the District shall not be liable to Morgan Stanley to the extent that changes to Mid-Columbia hub practices (not instigated by the District) prevent the District from delivering the District Product, for a reason beyond the District’s control, as contemplated by this Agreement and the District is unable to mitigate such circumstances after consulting with Morgan Stanley and exercising commercially reasonable efforts to mitigate.

(m) To the extent the Priest Rapids Project is unable to generate due to Unavailability, District shall compensate Morgan Stanley via the Performance Metrics Calculations in Exhibit C.

4.06 Dynamic Scheduling. Dynamic Scheduling is included in the District Product, and Morgan Stanley may use Dynamic Scheduling with respect to one hundred percent (100%) of the available District Product. Morgan Stanley shall have the right but not the obligation to engage in Dynamic Scheduling with respect to the District Product and the Morgan Stanley Product that can be scheduled up to the proportional share of Dynamic Scheduling capability included in the District Product and subject to the following requirements and conditions. Morgan Stanley may utilize the services of a Scheduling Agent to implement Dynamic Scheduling in accordance with Section 5.13 of this Agreement.

(a) Morgan Stanley (or any Scheduling Agent) shall at all times perform Dynamic Scheduling in accordance with Dynamic Scheduling Standards.

(b) Any dynamic signal request (“Dynamic Signal”) shall comply with the following requirements:

(i) The Dynamic Signal shall change no more frequently than once every four (4) seconds.

(ii) The Dynamic Signal shall be limited to the ramp rate established by District or as per the Operating Agreements for its operation of the Priest Rapids Project.

(iii) At all times, the Dynamic Signal shall be subject to the Dynamic Signal Limit.

(c) For any failure by Morgan Stanley or any Scheduling Agent to comply with Dynamic Scheduling Standards, Morgan Stanley shall reimburse District for any and all costs and expenses incurred by District
as a result of such failure, including costs and expenses incurred: (i) to effectuate a remedy; (ii) for communications and hardware or software modifications required to effectuate the dynamic schedule; and (iii) for sanctions or penalties; provided, however, that Morgan Stanley shall not be responsible for any such costs or expenses if the compliance failure occurred as a result of Morgan Stanley’s reliance on data, instructions or other information provided by District, including those provided in this Agreement, or was pursuant to a failure of District equipment.

4.07 Third Party BAs. Morgan Stanley shall have the right to transact with any third-party BA at the Mid-Columbia trading hub or any other third-party BA located outside of the Mid-Columbia trading hub in accordance with Applicable Standards. Morgan Stanley’s rights pursuant to this Agreement are insufficient to be used to create a new BA within the District system. Morgan Stanley shall not use the District Product or any rights and conditions contained herein to initiate or cause to be initiated the formation of a new third party BA that is electrically within the District BA. The District reserves the right to decide, in its sole discretion, whether to establish (or decline to establish) any new adjacencies with other BAs.

4.08. Net Incremental Hydropower RECs. As part of the District Product, the District shall deliver to Morgan Stanley and Morgan Stanley shall take delivery of (a) the renewable energy credits (“RECs”), Carbon Attributes and other environmental attributes associated with the actual total Incremental Hydropower quantity of electric Energy that is produced by the District Product (“Incremental Hydropower RECs”), up to the maximum available amount of Incremental Hydropower produced by the District Product share of the Adjusted Priest Rapids Project for any compliance year during the Delivery Period, net of (b) Incremental Hydropower RECs needed by the District to meet environmental requirements that apply to the District from time-to-time, including I-937 (“Net Incremental Hydropower RECs”). To the extent possible, District agrees to first use available RECs from the eligible wind resources that are under contract to District as of the Execution Date to meet its environmental requirements, including I-937, and agrees that the netting of Incremental Hydropower RECs as specified above shall apply to Incremental Hydropower RECs needed to satisfy District’s remaining environmental compliance obligations after the RECs from such eligible wind resources are applied. District shall cooperate in providing Morgan Stanley with information from the Washington state auditor regarding compliance with I-937. No later than March 1 of each calendar year during the Delivery Period, District shall notify Morgan Stanley of the quantities of Incremental Hydropower RECs necessary to meet its environmental requirements. The District’s Incremental Hydropower RECs, for purposes of this Agreement, shall be designated as generated between January 1 and December 31 of each calendar year (“Incremental REC Period”). For the avoidance of doubt, Morgan Stanley has no reporting requirements with respect to any Incremental Hydropower RECs or with respect to the District or its customers’ compliance with I-937. The Parties agree that:

(a) all Incremental Hydropower RECs generated during calendar year 2020 are owned by and will remain with the District;

(b) the Incremental REC Period falls within the Delivery Period during each and every calendar year after calendar year 2020;

(c) District has an obligation hereunder to deliver to Morgan Stanley and Morgan Stanley has an obligation to take delivery of all Net Incremental Hydropower RECs that are generated during the period January 1,
(d) No later than March 1 of each calendar year during the Delivery Period, District will furnish a Notice to Morgan Stanley detailing the required volumes of Incremental Hydropower that will be reserved from the Priest Rapids Project as Incremental Hydropower RECs;

(e) Notwithstanding the foregoing, Morgan Stanley, in its sole discretion, shall have the right to deliver RECs obtained from third parties to the District as substitutes for the Incremental Hydropower RECs that would have otherwise been retained by the District hereunder; provided, that such substitute RECs must qualify as Incremental Hydropower RECs in order for Morgan Stanley to substitute them and Morgan Stanley shall indemnify, reimburse, defend and hold harmless District from and against any and all costs, losses, expenses and penalties incurred by District resulting or arising from or attributable to any failure of such substitute RECs to qualify as Incremental Hydropower RECs and to satisfy the I-937 requirements to the same extent as the Incremental Hydropower RECs from the Priest Rapids Project;

(f) Morgan Stanley shall have the right to all Incremental Hydropower RECs from the Priest Rapids Project not required by District for purposes of environmental compliance, including the requirements of I-937; and

(g) The District has not claimed, nor hereafter will claim, with respect to the Delivery Period, that the Carbon Attributes, or “renewable energy”, “clean energy”, “green energy” or similar attributes from the Priest Rapids Project and to be delivered to Morgan Stanley hereunder belong to or are attributable to the District, its customers or any person other than Morgan Stanley. As of the Execution Date the District represents that it is not actually aware of any such claims made by third parties, and agrees to inform Morgan Stanley if it has actual knowledge of such claims in the future. To the extent allowed hereunder, in any public communication concerning the Priest Rapids Project or the energy therefrom, the District must at all times be fully compliant with the applicable requirements of Section 260.15 of the Federal Trade Commission’s “Green Guides,” 77 Federal Register 62122, 16 Code of Federal Regulations, Part 260.

4.09 New Market Structures. The Parties acknowledge that the CAISO, the NWPP, and other energy collectives may introduce New Market Structures, such as the energy imbalance market, the extended day-ahead market, the resource adequacy market, and others, over the Term of this Agreement. The District shall have the right, in its sole discretion, to join any market it deems appropriate, provided the quantity or cost of the District Product is not materially affected by such joining in the District’s reasonable estimation. The District in this instance will provide Morgan Stanley 60 days-notice before joining. If the District contemplates joining a market which will materially impact the quantity or cost of the District Product, the District shall first agree with Morgan Stanley in writing, before joining such New Market Structure. In the event the District is compelled to join a New Market Structure and the Parties agree that the cost or quantity of the District Product has been materially affected, then the Parties shall negotiate in good faith commercial terms and conditions that will restore the relative economic positions between the District and Morgan Stanley.

ARTICLE V. MORGAN STANLEY PRODUCT

5.01 Morgan Stanley Product. The “Morgan Stanley Product” shall mean such quantities of physical electric capacity, Energy and Ancillary Services, as required from time to time during the Delivery Period,
including in Real Time, to meet and satisfy one hundred percent (100%) of District’s unmet Load, requirements for Ancillary Services and District BA Requirement, subject to Section 5.11. Morgan Stanley shall be responsible for scheduling to District the Morgan Stanley Product in the quantities required for each month of the Delivery Period, and differences between District Baseline Load and District Actual Load shall be settled using the Performance Metric in Section 6.02(a).

5.02 Sources. Morgan Stanley has the right to provide the Morgan Stanley Product from any resource, including Morgan Stanley’s general portfolio, the open market, resources from [NaturEner USA, LLC or one of its Affiliates] (the “Initial Scheduling Agent”) and the District Product.

5.03 Carbon Attributes. The Parties acknowledge that the State of Washington has recently enacted and is currently promulgating rules to implement the Clean Energy Transformation Act (Chapter 288, WA 2019) (“CETA”) which requires, among other things, Washington State’s electric utilities to phase out greenhouse-gas emitting generation and that electricity sold at retail in Washington must be greenhouse gas neutral by January 1, 2030. In addition the District or the District’s ratepayers may in the future become responsible for paying a fee, tax, payment or other compensation, or otherwise become obligated to meet or avoid a carbon-based requirement or incur costs to meet or avoid a carbon-based requirement, as a result of any additional greenhouse gas or carbon legislation or regulation enacted by the State of Washington or any agency thereof or any federal Governmental Authority (“New Greenhouse Gas Legislation”). To the extent required by CETA or any New Greenhouse Gas Legislation, in addition to the Carbon Attributes that are associated with Incremental Hydropower as specified in Section 4.08, Morgan Stanley shall deliver to the District and the District shall take delivery of an amount of incremental Carbon Attributes associated with the Priest Rapids Project up to the amount, if available, necessary to meet the requirements of CETA and/or the New Greenhouse Gas Legislation related to carbon and Carbon Attributes for any compliance period. The Carbon Attributes delivered by Morgan Stanley for any compliance year shall be the maximum Carbon Attributes produced by the Priest Rapids Project less any Carbon Attributes associated with the Priest Rapids Project already sold to a third party by Morgan Stanley; provided, however, that Morgan Stanley shall not have an obligation to deliver to the District any Carbon Attributes (or any compensation for such Carbon Attributes) associated with the Priest Rapids Project which Morgan Stanley has sold to any third party less than twelve (12) months forward. Morgan Stanley shall have no obligation to deliver Carbon Attributes to make up any shortfall between the amount of Carbon Attributes required in any period to comply with CETA or the New Greenhouse Gas Legislation and the amount of Carbon Attributes required to be delivered by Morgan Stanley to the District in accordance with the preceding sentence. With respect to any Carbon Attributes associated with the Priest Rapids Project that Morgan Stanley has sold to a third party more than twelve (12) months forward, to the extent such Carbon Attributes are required by the District to comply with CETA or any New Greenhouse Gas Legislation, Morgan Stanley shall either return such Carbon Attributes or their equivalent to the District and the District shall compensate Morgan Stanley for such Carbon Attributes delivered hereunder in an amount equal to: (a) for the period through and including December 31, 2021, $4.00/MWh (or equivalent); and (b) for calendar year 2022, $5.50/MWh, and increasing by $___/MWh each calendar year thereafter, which the Parties agree is reasonable compensation to Morgan Stanley for such additional Carbon Attributes. Morgan Stanley does not warrant that additional Carbon Attributes from the Priest Rapids Project will meet the requirements of CETA or any New Greenhouse Gas Legislation. If such additional Carbon Attributes cannot be used by the District or its ratepayers for compliance with CETA or a particular New Greenhouse Gas Legislation, then Morgan Stanley shall not be obligated to provide...
5.04 Delivery. Morgan Stanley shall deliver or cause to be delivered the Morgan Stanley Product according to provisions set forth herein and pursuant to Applicable Standards. Morgan Stanley’s obligations hereunder do not include any delivery of Morgan Stanley Product beyond the Morgan Stanley Product Delivery Points and nothing in this Agreement shall obligate or authorize Morgan Stanley to provide retail service to District’s Load or to the Priest Rapids Project Users. Morgan Stanley is only responsible for the wholesale obligation of providing Morgan Stanley Product to District at the Morgan Stanley Product Delivery Points. District is solely responsible for providing retail service to District’s Load and wholesale load to District’s Priest Rapids Project Users.

5.05 Morgan Stanley Product Delivery Points. The Energy and related products included in the Morgan Stanley Product to be delivered hereunder shall be made available to District at any one or more of the following Delivery Points (each a “Morgan Stanley Product Delivery Point”). The District shall have the option, exercisable from time to time, to choose any of the Morgan Stanley Product Delivery Points in (a) through (c) below, and may utilize the Morgan Stanley Product Delivery Point in (d) below upon the Parties’ mutual agreement as specified therein:

(a) The 230 kV bus of the BPA’s Midway Substation;

(b) The 230 kV bus of the switchyard of the Wanapum Development;

(c) The 230 kV bus of the Vantage Substation; or

(d) Any other points on the District BAA mutually agreed to in writing by District and Morgan Stanley, which agreement may be formed via an exchange of electronic messages and shall not be unreasonably delayed, conditioned or denied. Title to and risk of loss related to the Morgan Stanley Product shall transfer from Morgan Stanley to District at the Morgan Stanley Product Delivery Point. Morgan Stanley warrants that it will deliver to the District the Morgan Stanley Product Quantities free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Morgan Stanley Product Delivery Point.

5.06 Morgan Stanley Services and Responsibilities. During the Delivery Period, Morgan Stanley shall provide, or cause to be provided, the following services and fulfill the following responsibilities, and
except as otherwise provided herein shall not be delegated or contracted to any other person or entity other than the Initial Scheduling Agent without District’s prior written approval:

(a) Perform the PSE functions for District.

(b) Act as the tagging entity for all of District’s BA transactions including as specified in Sections 5.09 and 5.10.

(c) Act as the scheduling entity for all scheduled transactions (except as contemplated and permitted under Section 4.06, subject to the terms thereof), for District, including as specified in Section 5.09.

(d) Deliver the Morgan Stanley Product to District at the Morgan Stanley Product Delivery Points. Morgan Stanley shall not pay any incremental fees or costs when delivering the District Product to serve the BA Load.

(e) Perform the functions of a PSE, including scheduling, tagging, generation monitoring, monitoring of load and scheduled Energy flow in and out of District’s BA as such tasks are required for compliance with NERC Standards; provided, however, that at no time shall Morgan Stanley be deemed to have assumed responsibility for NERC Reliability by performing such specific tasks, except as a PSE, as stated elsewhere herein, and Morgan Stanley will not be responsible for any NERC reporting obligations associated with the District’s BA. If the PSE entity role is inactive in the NERC functional model, the role of Morgan Stanley in performing the functions shall continue.

(f) Based on information provided by District to Morgan Stanley, monitor generation, load, and scheduled Energy flow in and out of District’s BA and act in a prudent manner pursuant to the terms and conditions of this Agreement to support District’s responsibility to keep District’s BA balanced and compliant. Morgan Stanley will respond to District’s requests for information needed for compliance with Applicable Standards and BA Protocols, including NERC CPS1 and CIP.

(g) As applicable, schedule Energy, Ancillary Services, capacity and other products to and from District’s BA using the Delivery Points and BA adjacencies in any volume, firm, unit contingent or non-firm, and in any control interval (day ahead, inter and intra hour including dynamic), subject to contract terms and conditions, system constraints and Applicable Standards to ensure that schedules and deliveries are balanced and compliant with all Applicable Standards.

5.07 **Standard of Performance.** Morgan Stanley shall perform the services and responsibilities set forth in Section 5.06 according to Prudent Industry Practices and Applicable Standards. In the event District believes that Morgan Stanley is not satisfying its obligations set forth in the immediately preceding sentence, the Parties shall meet and discuss in good faith efforts to correct such deficiencies.

5.08 **Limitations.** Morgan Stanley is receiving District Product related to output from or attributable to the Adjusted Priest Rapids Project.
5.09 Scheduling. Each Pre-Schedule Day, Morgan Stanley shall provide District with hourly schedules of power for the following day or days in conformance with then prevailing scheduling procedures and timeframes for scheduling Pacific Northwest resources. Morgan Stanley shall provide Real Time scheduling services. Morgan Stanley shall use its scheduling rights consistent with Applicable Standards to respond to unexpected events that require an action or transaction to adhere to compliance and reliability obligations. Morgan Stanley may also schedule Energy in Real Time. All schedules shall comply with all applicable reliability and reserves criteria as required by the NERC, RC West, WECC, and the NWPP, as such criteria are revised from time to time. In its role managing E-Tags for the District, Morgan Stanley shall work with District purchasers and honor the WECC scheduling deadlines; the WECC scheduling deadline is currently T-20. Morgan Stanley may provide scheduling information via a dynamic electronic signal pursuant to Section 4.06.

5.10 E-Tags. Morgan Stanley shall have E-Tag approval authority for all Energy schedules and transmission schedules pursuant to District’s BA. District reserves the right to notify Morgan Stanley in writing, that District will assume the obligation to monitor and approve certain identified third party E-Tags. Following such Notice, Morgan Stanley shall have no further obligation to provide such E-Tagging services for the identified third party E-Tags unless District notifies Morgan Stanley that Morgan Stanley is to resume providing such E-Tagging services. If District requests in writing that Morgan Stanley resume providing E-Tagging services after providing Notice otherwise, then Morgan Stanley shall provide E-Tagging services for the remainder of the Term. Morgan Stanley shall not be limited in the number of E-Tags in preschedule or Real Time.

5.11 Volumes in Excess of District Baseline Load; District Third-Party Transactions. The Parties acknowledge that the District Baseline Load set forth in Exhibit B is a projection of District’s full Load requirements (after deductions for current forward supplies procured by District outside of this Agreement) and that District’s actual Load may vary from projections. Morgan Stanley is obligated to deliver, or cause to be delivered, and District is obligated take delivery of, the Morgan Stanley Product in Real Time in the amount necessary to meet District’s actual unmet Load in Real Time and Ancillary Services requirements, which are not otherwise met by Third-Party Purchases made by District in accordance with the following requirements:

(a)
reduce the hourly and daily shape of the net expected District Load relative to the District Baseline Load.

The District's right in this subpart (a) to make Third-Party Purchases is without prejudice to District's right to automatically receive and take Delivery Month quantities of the Morgan Stanley Product from Morgan Stanley to satisfy District's actual Load in Real Time. Prior to and during a Prompt Month, if District anticipates that its actual Load may be less than the District Baseline Load for an upcoming Delivery Month, District also shall have the right to sell Energy in blocks, as described above to third-parties with the same net reduction of hourly and daily shapes as described above (“Third-Party Sales”), and thereby increase the Load to be supplied by Morgan Stanley in Real Time, provided that Notice of all such quantities of Third-Party Sales is provided pursuant to Section 5.11(b). Such Third-Party Sales may not include sales of Ancillary Services unless to Morgan Stanley under this Agreement. For avoidance of ambiguity, the terms “Third-Party Purchase” or “Third-Party Sale” as used in this subpart (a) potentially may include, but is not limited to, purchases from or sales to Morgan Stanley to the extent District separately contracts with Morgan Stanley for the purchase or sale of electric capacity, Energy or Ancillary Services at a price and on terms and conditions to be mutually agreed upon between District and Morgan Stanley prior to or during the Delivery Month. District shall Notify Morgan Stanley of any Prompt Month Quantity Third-Party Purchases and Third-Party Sales not later than five (5) days before the commencement of the Delivery Month in which deliveries from such District Third-Party Purchases or Third-Party Sales are to commence.

(b) Delivery Month Third-Party Purchases and Sales. District may transact Third-Party Purchases and Third-Party Sales within the Delivery Month to manage District’s Load exposure subject to the following: Such Third-Party Purchases or Third-Party Sales may not begin sooner than two (2) days after the end of the existing period for which Energy is prescheduled. For example, if Energy has been prescheduled to flow through the end of Tuesday, Third-Party Purchases or Third-Party Sales may not start flowing until Friday of the same week. District shall give Morgan Stanley the opportunity, prior to or at the same time such opportunities are presented to third parties, to bid on Third-Party Purchases and Third-Party Sales (in any hourly shape) under this Section 5.11(b). To the extent not transacted with Morgan Stanley, District will notify Morgan Stanley of such transactions within 12 hours of entering into such transaction. Provided that timely Notice is given by District, Morgan Stanley shall perform, or cause to be performed, the services and responsibilities specified in Sections 5.06, 5.07, 5.09 and 5.10 for such District Third-Party Purchases and Third-Party Sales in the same manner as for the Morgan Stanley Product. Notwithstanding the foregoing, District shall have the right to elect, in its sole discretion, to purchase electric capacity, Energy and Ancillary Services to serve District’s Load as provider of last resort if Morgan Stanley or any Scheduling Agent fails to deliver sufficient Morgan Stanley Product to meet the District’s Load requirements and Ancillary Services requirements.

(c) Delivery Month Obligations. To the extent the District Load in any Delivery Month exceeds the District Baseline Load, Morgan Stanley is obligated to deliver, and the District is obligated to accept delivery of, the Morgan Stanley Product in the amount necessary to serve the District Load and Ancillary Services requirements, less the amount of Third-Party Purchases, if any, made by the District pursuant to Section 5.11(a) and Section 5.11(b). To the extent that the District Baseline Load in any Delivery Month exceeds the District Load in such Delivery Month, Morgan Stanley is obligated to deliver, and the District is obligated to accept delivery of, the Morgan Stanley Product in the amount necessary to serve the District Load and Ancillary Services requirements.
5.12 Resource or Load Additions. The District shall have the right, in its sole discretion, to add generation resources (with sufficient associated transmission rights) and load to the District BA.

Priest Rapids Project
Nine Canyon Wind
Potholes East Canal Hydro
Quincy Chute Hydro
Wapato Hydro Projects

5.13 Scheduling Agent. Morgan Stanley has engaged the Initial Scheduling Agent in accordance with this Section 5.13 to provide intra-hour scheduling, Dynamic Scheduling and related control services required to be provided by Morgan Stanley under this Agreement. The appointment of any Scheduling Agent by Morgan Stanley shall not relieve Morgan Stanley of any of its obligations or liabilities under this Agreement. Morgan Stanley shall be and remain fully responsible and liable for the acts or omissions of any Scheduling Agent it appoints or retains. Any obligation imposed by this Agreement upon Morgan Stanley shall, notwithstanding the appointment or retention of any Scheduling Agent, be binding upon Morgan Stanley.

(a) District Consent. No Scheduling Agent may be retained by Morgan Stanley without the prior written consent of the District, which consent may not be unreasonably withheld. It shall be reasonable for the District to withhold consent if the qualifications of Section 5.13(b) are not satisfied. Notwithstanding the foregoing or the provisions of Section 5.13(b), the District hereby gives its consent to the appointment of the Initial Scheduling Agent.

(b) Qualifications. Any Scheduling Agent must meet the following minimum qualifications as reasonably determined by Morgan Stanley and District: (i) at least five (5) years of verifiable and competent experience in the functions to be performed as a Scheduling Agent; (ii) creditworthiness at least equal to or better than Initial Scheduling Agent(iii) ownership of resources or access to resources adequate to perform the Scheduling Agent functions assigned to it, and (iv) all required licenses and approvals from applicable Governmental Authorities and Operating Standards. District retains the right to waive any of these qualifications, in whole or in part.

(c) Scheduling Agent Agreement. Morgan Stanley shall enter into an agreement with any Scheduling Agent. The agreement to provide Scheduling Agent services shall include the following terms and conditions:
(i) **Third-Party Beneficiary.** The District shall be an express third-party beneficiary to the Scheduling Agent agreement entitled to all rights and benefits thereto, including the right to enforce the agreement as if the District were a party to the agreement.

(ii) **Step-In Rights.** The District shall have the right, but not the obligation, to be substituted for Morgan Stanley as a party to the Scheduling Agent agreement if: (A) an Event of Default has occurred under this Agreement and the District, as the Non-Defaulting Party, has provided Morgan Stanley notice of intent to terminate this Agreement, or; (B) an event of default has occurred and is continuing under the Scheduling Agent agreement and the Scheduling Agent, as the non-defaulting party, has provided Morgan Stanley notice of intent to terminate the Scheduling Agent agreement. The District shall exercise its step-in rights by providing written notice to the parties prior to the termination date established in the applicable notice of default. If such notice is given, then the District, or a third party mutually agreed by the District and Scheduling Agent, shall be substituted for Morgan Stanley under the Scheduling Agent agreement and, in such event, the Scheduling Agent will continue to perform its obligations under the Scheduling Agent agreement in favor of the District or third party, so long as the District or third party assumes and performs all obligations of Morgan Stanley (with the exception of payment of any amounts owing from Morgan Stanley to the Scheduling Agent) under the Scheduling Agent agreement. Notwithstanding the foregoing, nothing in this Agreement shall be construed as an obligation of District to assume the Scheduling Agent agreement if Morgan Stanley defaults under this Agreement or the Scheduling Agent agreement.

(iii) **Notices.** Each party to the Scheduling Agent agreement shall be required to simultaneously notify the District any time it provides the other party with a notice of (a) default under the Scheduling Agent agreement, or (b) intent to exercise any remedies under the Scheduling Agent agreement.

(d) **Revocation.** Morgan Stanley shall be permitted, by written Notice to District in accordance with the requirements of this Agreement, to revoke the authority of any Scheduling Agent to act on Morgan Stanley’s behalf under and in connection with this Agreement. Any such Notice of revocation shall be effective upon the earlier of the next Business Day following receipt by, and consent of, District unless mutually agreed otherwise, or such later date and time as are designated by Morgan Stanley in such Notice. Notwithstanding any such revocation, District shall, until the effectiveness of such revocation as set forth in this section, be entitled to rely on all actions and communications of such Scheduling Agent.

(e) **Replacement.** If Morgan Stanley proposes to retain a replacement Scheduling Agent, Morgan Stanley shall give Notice to District of such proposed retention not less than thirty (30) Business Days in advance of the proposed effectiveness thereof. Such Notice shall describe in reasonable detail the nature and scope of the authority of such proposed Scheduling Agent and demonstrate that the proposed Scheduling Agent and Scheduling Agent agreement satisfy the requirements of this Section 5.13. The District shall have the right to consent to, or reject, the proposed retention as provided in Section 5.13(a). Upon receiving consent from District, such retention shall be effective as and when proposed by Morgan Stanley. If such retention becomes effective in accordance with the terms of such Notice, District shall be entitled to rely on all actions and communications of such Scheduling Agent.
(f) Communications. If Morgan Stanley retains a Scheduling Agent to Dynamically Schedule part of the District Product in accordance with the foregoing, Morgan Stanley must comply with District rules and policies guiding such action. District will use commercially reasonable efforts to establish communication paths with a Scheduling Agent retained by Morgan Stanley in accordance with this Section 5.13. Morgan Stanley will designate the Dynamic Schedules for its Scheduling Agent to aggregate. Morgan Stanley shall ensure that (i) such Scheduling Agent provides a single Dynamic Signal to the District based on the net Dynamic Schedule, (ii) all Dynamic Schedules aggregated by such Scheduling Agent under this Agreement either source or sink in the District BA, and (iii) Pseudo ties are not included in such aggregation, unless pursuant to a separate written agreement between the District and Morgan Stanley.

ARTICLE VI. MONTHLY CALCULATIONS

6.01 Monthly Calculations. For each calendar month during the Delivery Period, the Parties shall perform the calculations specified in this Section 6.01, and shall, within ten (10) days after the end of such calendar month, submit to the other Party a statement invoice describing all such calculations and the results thereof in reasonable detail.

(a) Monthly Payment. First, each Party will specify in the monthly invoice the Monthly Payment applicable for such month and the Party that owes the Monthly Payment. The “Monthly Payment” due for each month of the Delivery Period is specified in Table B of Exhibit B. Monthly Payments shown without parentheses are Monthly Payments owing to District from Morgan Stanley. Monthly Payments shown in parentheses are Monthly Payments owing to Morgan Stanley from District. For example, the Monthly Payment for September 2021 is $________ representing a payment owing to District from Morgan Stanley, and the Monthly Payment for October 2021 is ($________) representing a payment owing to Morgan Stanley from District.

(b) Performance Metrics. Second, each Party shall calculate all five (5) performance metrics specified in Section 6.02(a) through 6.02(e) (the “Performance Metrics”) and specify the calculations in the monthly invoice, showing, for each Performance Metric, the payment that is owing to District from Morgan Stanley, or owing from District to Morgan Stanley, as the case may be.

(c) Reconciliation Payment. Third, each Party shall net and offset the Monthly Payment and the results of the calculations for all five Performance Metrics to result in a single amount owing to District from Morgan Stanley, or owing from District to Morgan Stanley, as the case may be (such single amount is the “Reconciliation Payment”). Each Party shall specify the Reconciliation Payment in the monthly invoice delivered to the other Party, which shall be delivered and paid in accordance with and subject to the requirements of Article XI.

6.02 Five Performance Metrics. The Performance Metrics are as follows:

(a) Load Deviation Adjustment. For each month during the Delivery Period, the total quantity of District Load actually served by Morgan Stanley Product in such month (“District Actual Load”) shall be compared to the baseline load specified for such month in Exhibit B (“District Baseline Load”), and the difference shall be calculated as specified in Section (1) of Exhibit C. If such calculation shows that District Actual Load exceeded District Baseline Load for such month, then District shall owe Morgan Stanley a payment calculated using the formula and shaped monthly index prices shown in Section (1) of Exhibit C.
Exhibit C. Conversely, if such calculation shows that District Baseline Load exceeded District Actual Load for such month, then Morgan Stanley shall owe District a payment calculated in Section (1) of Exhibit C.

(b) Availability Adjustment. For each month during the Delivery Period, the actual hours of outages at the Priest Rapids Project shall be assessed to determine the “District Actual Outage Energy” as shown in Section (2) of Exhibit C. The District Actual Outage Energy shall be compared to the “District Baseline Outage Energy,” which is shown for heavy load hours and for light load hours for such month in Table C1 of Exhibit C, and the difference shall be calculated as specified in Section (2) of Exhibit C. If such calculation shows that District Actual Outage Energy exceeded District Baseline Outage Energy for such month, then District shall owe Morgan Stanley a payment calculated in Section (2) of Exhibit C. Conversely, if such calculation shows that District Baseline Outage Energy exceeded District Actual Outage Energy for such month, then Morgan Stanley shall owe District a payment calculated in Section (2) of Exhibit C.

(c) Spill Adjustment. Recognizing that water must be spilled at the Priest Rapids Project to facilitate fish passage or bypass (“Fish Spill”), for each month during the Delivery Period, Table C1 of Exhibit C shall be compared with actual Fish Spill, (“Actual Fish Spill Energy”) and the difference shall be calculated as specified in Section (3) of Exhibit C. If such calculation shows that Actual Fish Spill Energy exceeded the Upper Threshold for such month, then District shall owe Morgan Stanley a payment calculated in Section (3) of Exhibit C. If such calculation shows that Lower Threshold for such month exceeded Actual Fish Spill Energy, then Morgan Stanley shall owe District a payment calculated in Section (3) of Exhibit C.

(d) Rock Island Encroachment Adjustment. For each month during the Delivery Period, amounts of Rock Island Encroachment at the Priest Rapids Project reflected in Table C1 of Exhibit C shall be compared with actual average monthly encroachment (“Actual Encroachment Energy”) and the difference shall be calculated as specified in Section (4) of Exhibit C. If such calculation shows that Actual Encroachment Energy exceeded the Upper Threshold for such month, then District shall owe Morgan Stanley a payment calculated in Section (4) of Exhibit C. If such calculation shows that the Lower Threshold exceeded Actual Encroachment Energy for such month, then Morgan Stanley shall owe District a payment calculated in Section (4) of Exhibit C.

(e) Canadian Entitlement Adjustment. For each month during the Delivery Period, the expected average monthly amounts of Canadian Entitlement reflected in Table C1 of Exhibit C ("Baseline Canadian Entitlement") shall be compared with actual average monthly amounts of Canadian Entitlement ("Actual Canadian Entitlement") in Section (5) of Exhibit C, and the difference shall be calculated as specified in Section (5) of Exhibit C. If such calculation shows that Expected Canadian Entitlement exceeded Actual Canadian Entitlement for such month, then Morgan Stanley shall owe District a payment calculated using in Section (5) of Exhibit C.
ARTICLE VII. BALANCING AREA SERVICES

7.01 Balancing Area Services. Morgan Stanley, as the balancing, scheduling and tagging entity for District, shall monitor District’s generation, the District’s Load, and scheduled Energy flowing into and out of District’s BA area to support District and any Scheduling Agent in managing the compliance of the District BA. Unless in conflict with Applicable Standards, Morgan Stanley shall follow all directives from District’s senior system operators and shall be held harmless from any losses or claims resulting from following such directives and associated BA actions; provided that the foregoing does not excuse Morgan Stanley from fulfilling its obligations hereunder. Upon the District’s request, Morgan Stanley shall provide documentation, when and if required for the District’s compliance, of actions and inactions. If for any reason District’s BA is not within expected generation limits as of the Real Time scheduling deadline (as defined by the Reliability Standard NERC-INT-006-4 or its successor), Morgan Stanley shall take, or cause to be taken, corrective actions, including:

(a) Adjust E-Tags, or deliver Energy or reserves to adjust District’s BA Mid-C generation request as required to be within such expected generation limits;

(b) Ensure adequate reserves are maintained to meet District’s BA contingency reserve and frequency response reserve obligations;

(c) Promptly notify District’s system operator if Morgan Stanley is unable to deliver Energy, capacity or reserves; and

(d) Take action as directed by District’s system operator, including curtailing schedules into and out of District’s BA.

7.02 Balancing Area Services. Subject to Applicable Standards, Morgan Stanley shall follow all directives from District’s senior system operators.

7.03 District Authority. District’s senior system operators will retain final authority to maintain system reliability at all times, and as necessary, may provide directives to Morgan Stanley that allow for compliance and Morgan Stanley shall comply with such directives. If Morgan Stanley fails to comply with such directives, District has the right to take all necessary actions to maintain system reliability including curtailing schedules and purchasing or selling capacity and/or Energy. District will retain all compliance responsibility in accordance with NERC Reliability Standards.

7.04 Applicable NERC and WECC Reliability Standards. District and Morgan Stanley must comply with all NERC and WECC Reliability Standards, which may change from time to time; provided, however, that the standards set forth in subparts (a) through (g) below, which are subject to change based on mutual agreement of the Parties, and any regulatory or Operating Agreements which are stricter than NERC and WECC Reliability Requirements, shall govern operations:

(a) NERC CPS1: Begin with monthly target values of 160%, stepping down each month to new targets until reaching 120% (which shall apply instead of the WECC standard of 100%).

(b) Operating Reserve: Maintain operating reserves sufficient to meet RBC requirements and NERC CPS1 above and recover ACE to BAAL within 20 minutes (10 minute buffer to cover implementation). If
WECC mandates a transmission limit, maintain operating reserves sufficient to keep ACE within WECC limits.

(c) Contingency Reserves / NWPP RSG: Morgan Stanley shall meet the reserve obligations of the NWPP RSG due to District’s participation in the NWPP RSG and will manage associated E-Tags.

(d) District CRO. District CRO must meet three percent (3%) of instantaneous BA area load plus three percent (3%) of instantaneous actual BA generation at all times.

(e) Reserve Margin: Morgan Stanley shall add a reserve margin for forecast and other unforeseen errors.

(f) Limit: Starting with BAL004-WECC-R2, or its successor WECC Automatic Time Error Correction, and add cushion equivalent to a maximum limit of 1,000 MWh for On-Peak Hours and 1,000 MWh for Off-Peak Hours for primary inadvertent accumulation.

(g) Frequency Response Reserves. Morgan Stanley shall at all times maintain an amount of Spinning Reserves from Priest Rapids Project.

7.06 Reimbursement to District. Morgan Stanley shall reimburse the District for all reasonably demonstrated costs or fees incurred by the District as a result of Morgan Stanley’s failure to comply with applicable reliability or reserve criteria; provided however, that Morgan Stanley is not responsible for any such costs or fees District incurs if Morgan Stanley’s failure to comply with applicable reliability or reserve criteria was the result of Morgan Stanley’s reliance on data, instructions or other information provided by District, including those provided herein, or was pursuant to a failure of District equipment.

ARTICLE VIII. COMMUNICATIONS AND DATA

8.01 Communication Systems. The Parties shall develop a full 24-hour daily operating plan that will allow both Parties to see the same information at the same time. The Parties shall work together to define and agree on primary, and redundant systems to facilitate the sharing of information necessary to implement this Agreement. The Parties shall work together to agree on the most practical system of communication. If the Parties cannot agree on the most practical communication system, Morgan Stanley shall decide what system to use but such systems shall be the same as the District systems used with any other Scheduling Agent. Such communication systems shall meet the requirements of the Parties and be compliant with Applicable Standards. Each Party shall be responsible for all costs pertaining to its direct ownership and operation of communication equipment and software that reside in its physical locations. Morgan Stanley
shall fund one hundred percent (100%) of the costs for hardware and/or software that are incremental to existing systems and reside outside the physical locations.

8.02 District Provided Information. District shall provide Morgan Stanley with all necessary information related to District Product, District Load, BA and schedule details in a timely manner that will enable Morgan Stanley to provide reliable scheduling, tagging, and Real Time services in accordance with the requirements of this Agreement and Applicable Standards. District will provide access to the following information to Morgan Stanley; provided, however, that under no circumstances will District provide Morgan Stanley with any non-public transmission system information:

(a) Certain non-transmission related operational values, namely: area status; CPS scores; primary inadvertent accumulations; operating reserves; and District’s ACE.

(b) Access to District’s Energy accounting systems as they relate to this Agreement.

(c) Access to District’s OATI certificates.

(d) WebSAS for unscheduled flow curtailments.

(e) District Load forecasts as follows.

   i. All information Morgan Stanley needs from District in order to enable Morgan Stanley to schedule, tag and manage the system other than information that is subject to FERC restrictions on non-public information.

   ii. District will incorporate CIP regulations into communications requirements for its systems. Morgan Stanley shall provide information needed by the District to fulfill its reporting requirements.

8.03 Reporting Requirements. District will timely provide such information as CARB, the CPUC or the CEC require of Morgan Stanley in order for Morgan Stanley to provide the relevant products to the California market. All reporting of generation and scheduling data to support Morgan Stanley’s delivery of energy and environmental attributes will be the responsibility of Morgan Stanley with the exception being the District’s on-going registration of the Priest Rapids Projects as specified sources. To the extent that CARB, the CPUC or the CEC changes its regulations and/or its reporting requirements, District shall use commercially reasonable efforts to provide such information as Morgan Stanley may reasonably request to enable Morgan Stanley to satisfy the changed regulations or requirements with respect to District Product. District consents to Morgan Stanley’s disclosure of this information to third parties. Morgan Stanley upon at least thirty (30) days’ advance written Notice to District, shall have the right at its sole cost and expense to examine records related specifically to the District Product and reasonably required to confirm compliance with this Agreement, which examination shall occur during District’s normal business hours. District shall use commercially reasonable efforts to provide to Morgan Stanley estimates and information reasonably necessary for Morgan Stanley to exercise its rights under this Agreement.

8.04 Metering and Transmission Losses. District shall provide and maintain suitable meters in the generator leads of the Priest Rapids Project to indicate and record the District Product Quantities. The actual District Product Quantities shall be determined from totaled readings from the meters. District or an agent of District shall read meters and records thereof shall be made available to Morgan Stanley. No
later than the fifth (5th) day of each calendar month during the Delivery Period, District will provide Morgan Stanley with the hourly meter data including source meter data and generation meter data for the Priest Rapids Project of the previous month from the Priest Rapids Project to verify District Product Quantities.

8.05 Recording. Each Party consents to the creation of a tape or electronic recording (“Recording”) of all telephone conversations between the Parties, and that any such Recordings may be submitted in evidence in any proceeding or action relating to this Agreement (provided that neither Party hereby waives its right to object in good faith to the accuracy or relevancy of such Recording). Each Party waives any further Notice of such monitoring or recording, and agrees to notify its officers and employees of such monitoring or recording and to obtain any necessary consent of such officers and employees.

8.06 Coordination Committee. As soon as reasonably possible after the Execution Date, the Parties shall identify and designate one or more individuals who will coordinate such Party’s obligations and activities under this Agreement (all such individuals representing the Parties, collectively, shall be the “Coordination Committee”). The Parties shall ensure that members of the Coordination Committee engage in regular communications and meet either face to face or via telephone not less than once per month during the Delivery Period to discuss and coordinate the Parties’ performance and implementation of their respective obligations under this Agreement. The Coordination Committee shall be authorized by each Party to coordinate the Parties’ cooperation and mutual compliance with this Agreement, and, if necessary, to attempt to resolve informally any Disputes that may arise. The Parties shall ensure that the Coordination Committee develops written procedures for implementation of the provisions of this Agreement, including: review of hydrological forecasts produced by or for District regarding the Priest Rapids Project; identification of planned maintenance and other anticipated outages of the Priest Rapids Project; procedures for notification of unplanned outages experienced by the Priest Rapids Project; and such other issues and topics as mutually desired by the Parties. The procedures shall be designed to further document implementation and ministerial elements of the Agreement requiring further specificity. In the event of any conflict between the procedures established by the Coordinating Committee and this Agreement, this Agreement shall control.

ARTICLE IX. TITLE AND RISK OF LOSS

9.01 Title and Risk of Loss. Title to and risk of loss of Energy shall pass from District to Morgan Stanley and from Morgan Stanley to District at the District Product Delivery Point and the Morgan Stanley Product Delivery Point, respectively.

9.02 Warranties. Each Party warrants that it will transfer to the other Party good title to products scheduled and delivered under the Agreement as part of the District Product and the Morgan Stanley Product, free and clear of all liens, claims, and encumbrances arising or attaching prior to the applicable Delivery Point, and that such delivery provided for hereunder is in compliance with all applicable laws and regulations.
9.03 Metering and Transmission Losses. District shall provide Morgan Stanley, within a reasonable time after request, source meter data and generation meter data for the Priest Rapids Project.

ARTICLE X. EVENTS OF DEFAULT; REMEDIES; TERMINATION

10.01 Events of Default. An “Event of Default” shall mean with respect to a Party (a “Defaulting Party”), the occurrence of any of the following:

(a) the failure by the Defaulting Party to make, when due, any payment required pursuant to this Agreement if such failure is not remedied Business Days after Notice of such failure is given to the Defaulting Party by the other Party (the “Non-Defaulting Party”);

(b) any representation or warranty made by the Defaulting Party herein is false or misleading in any material respect when made or when deemed made or repeated;

(c) the failure of the Defaulting Party to perform any material covenant or obligation set forth in this Agreement if such failure is not remedied Business Days after Notice of such failure is given to the Defaulting Party by the Non-Defaulting Party;

(d) the Defaulting Party becomes Bankrupt;

(e) the failure by the Defaulting Party to make, when due, any transfer of Eligible Collateral required to be made by it under Article XII, and that failure continues for Business Days after Notice of such failure is given to the Defaulting Party by the Non-Defaulting Party;

(f) such Defaulting Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Defaulting Party under this Agreement to which it or its predecessor was a party by operation of law or pursuant to an agreement reasonably satisfactory to the Non-Defaulting Party;

(g) Morgan Stanley shall be the Defaulting Party and it shall be an Event of Default if Morgan Stanley fails to implement or adhere to in any material respect any provision set forth in a Morgan Stanley Improvement Plan that is not in conflict with this Agreement and that failure continues for four (4) Business Days after Notice of such failure is given to Morgan Stanley by District.

10.02 Remedies. If an Event of Default with respect to a Defaulting Party shall have occurred and be continuing, the Non-Defaulting Party shall have the right:

(a) to terminate this Agreement by designating a day in a Notice provided to the Defaulting Party, which day shall be no earlier than the day such Notice is effective and no later than days after the day such Notice is effective, as an early termination date (“Early Termination Date”), to accelerate all amounts owing between the Parties under this Agreement for prior performance, and to liquidate and terminate this Agreement as of the Early Termination Date and calculate the Settlement Amount and Termination Payment in accordance with Sections 10.03 and 10.04 (the “Terminated Agreement”);
(b) to withhold any payments due to the Defaulting Party under this Agreement; provided, however, in no event shall any such withholding continue for longer than [insert number] Business Days unless an Early Termination Date shall have been declared and Notice thereof been given pursuant to this Section;

(c) to suspend performance under this Agreement; provided, however, in no event shall any such suspension continue for longer than [insert number] Business Days unless an Early Termination Date shall have been declared and Notice thereof been given pursuant to this Section;

(d) to exercise rights and remedies as specified in Article XII; and

(e) to exercise any remedy available at law or in equity.

10.03 Termination Payment. If the Non-Defaulting Party elects to exercise the remedy under Section 10.02(a), then the Non-Defaulting Party shall calculate, in a commercially reasonable manner, a Settlement Amount as of the Early Termination Date. The Non-Defaulting Party shall owe a Settlement Amount to the Defaulting Party if the Non-Defaulting Party’s calculation of the Settlement Amount results in a negative number. The Non-Defaulting Party shall calculate a single payment due by netting out any Settlement Amount owed by the Defaulting Party against, at the option of the Non-Defaulting Party, any cash or other form of security then available to the Non-Defaulting Party pursuant to Article XII, and any amounts due to the Defaulting Party under this Agreement for performance prior to the Early Termination Date, so that all such amounts shall be netted out to a single liquidated amount (the “Termination Payment”) payable by one Party to the other. The quantity of Product used to calculate the Settlement Amount upon early termination of this Agreement shall be based on quantities of Product that would have been delivered by each Party over the remaining Delivery Period on an hourly basis based on the Parties’ expectations as of the Execution Date, including as reflected in the table in Exhibit B.

10.04 Notice of Payment of Termination Payment. As soon as practicable after the declaration of an Early Termination Date, Notice shall be given by the Non-Defaulting Party to the Defaulting Party of the amount of any Settlement Amount and Termination Payment. The Notice shall include a written statement explaining in reasonable detail the calculation of such amounts. The Termination Payment shall be made by the Party that owes it within ten (10) Business Days after the day such Notice is effective.

10.05 Disputes With Respect to Termination Payment. If the Defaulting Party disputes the Non-Defaulting Party’s calculation of the Settlement Amount or Termination Payment, in whole or in part, the Defaulting Party shall, within [insert number] Business Days of receipt of the Non Defaulting Party’s calculation of the Settlement Amount and Termination Payment, provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute; provided, however, that if the Termination Payment is due from the Defaulting Party, the Defaulting Party shall first transfer Eligible Collateral to the Non-Defaulting Party in an amount equal to the Termination Payment.

10.06 Duty to Mitigate. Each Party shall use commercially reasonable efforts to mitigate the costs, expenses and other measures of damages that may be due under this Agreement.

10.07 Set-off. (a) In addition to any rights of set-off a party may have as a matter of law or otherwise, upon the occurrence of an Event of Default with respect to a party ("X") hereof (or a provision analogous thereto), the other party ("Y") shall have the right (but shall not be obliged) without prior notice to X or any other person to set off any obligation of X owing to Y or any Affiliate of Y (whether or not arising
under this Agreement, whether or not matured, whether or not contingent and regardless of the currency, place of payment or booking office of the obligation) against any obligations of Y or any Affiliate of Y owing to X (whether or not arising under this Agreement, whether or not matured, whether or not contingent and regardless of the currency, place of payment or booking office of the obligation).

(b) If an obligation is unascertained, X may in good faith estimate that obligation and set off in respect of the estimate, subject to the relevant party accounting to the other when the obligation is ascertained.

(c) Nothing in this subsection will have the effect of creating a charge or other security interest. This subsection shall be without prejudice and in addition to any right of setoff, combination of accounts, lien or other right to which any party is at any time otherwise entitled (whether by operation of law, contract or otherwise).

ARTICLE XI. PAYMENTS

11.01 Monthly Billing. The accounting and billing period for this Agreement shall be one (1) calendar month. Bills sent to any Party shall be sent to the appropriate billing address as set forth on Exhibit D.

11.02 Invoicing and Payment. In addition to the invoices required to be provided under Section 6.01, not later than ten (10) days after the end of each calendar month, the Party owed any payment will render to the Party from whom payment is owed an invoice for the payment obligations, if any, incurred hereunder during the preceding calendar month. Payments for amounts invoiced under this Agreement shall be made by the Party from whom payment is owed on the twentieth (20th) day of the month in which the invoice was received or [insert number] days after receipt of the invoice, whichever is later. Payment shall be made in the manner specified in Exhibit D. Payment shall be considered received when payment is received by the Party to which payment is due in the manner specified in Exhibit D. If the due date falls on a day that is not a Business Day, then the payment shall be due on the next following Business Day.

11.03 Interest on Unpaid Amounts.

11.04 Disputed Bills. A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice, rendered under this Agreement or adjust any invoice for any arithmetic or computational error within [insert number] after the date the invoice, or adjustment to an invoice, was rendered. In the event an invoice or portion thereof, or any other claim or adjustment arising hereunder, is disputed, payment for the entire bill shall be paid when due, with Notice of the objection given to the other Party. Any invoice dispute or invoice adjustment shall be in writing and shall state the basis for the dispute or adjustment. Upon resolution of the dispute, any excess amount of payment which may have been overpaid shall be returned by the owing Party upon determination of the correct amount within [insert number] of such resolution along with interest accrued at the Interest Rate from and including the due date to but excluding the date paid. Inadvertent overpayments shall be returned upon request or deducted by the Party receiving such overpayment from subsequent payments, with interest accrued at the Interest Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment. Any dispute with respect to an invoice is waived unless the other Party is notified in accordance with this Section 11.04 within [insert number] after the invoice is rendered or any
specific adjustment to the invoice is made. If an invoice is not rendered within [redacted] after the close of the month during which performance occurred, the right to payment for such performance is waived.

11.05 Netting of Payments. The Parties hereby agree that they shall discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts owed by each Party to the other Party for the purchase and sale of Products during the monthly billing period under this Agreement, including any related damages, interest, and payments or credits, shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it.

11.06 Payment Obligation Absent Netting. If no mutual payment obligations exist and only one Party owes a payment obligation to the other during the monthly billing period, including any amounts owed pursuant to Article VI, Article X, and Article XVII, that Party shall pay such sum in full when due.

11.07 Security. Unless the Party benefiting from Eligible Collateral or Posted Collateral notifies the other Party in writing, and except in connection with a liquidation and termination in accordance with Article X, all amounts netted pursuant to this Article XI shall not take into account or include any Eligible Collateral or Posted Collateral which may be in effect to secure a Party’s performance under this Agreement.

ARTICLE XII. CREDIT, COLLATERAL AND FINANCIAL INFORMATION

12.01 Credit Exposure. Both Parties agree that a reasonable calculation for “Credit Exposure” is the net of (a) through (d) as follows:

(a) Accounts Receivable. Current month and any prior months accounts receivable under this Agreement including actual “true-up” adjustments under Article VI.

(b) District Product. [redacted].

(c) Morgan Stanley Product. [redacted].

(d) Unit Availability. For any rolling twelve (12) month period beginning with the Prompt Month when unit outages exceeding five (5) units for each Priest Rapids Project dam (e.g., unit outages total six (6) units or more per dam) can be forecasted with reasonable certainty, only Morgan Stanley’s share of the Unit Availability cost pursuant to Section 6.02(b) shall be included in the credit exposure calculation.

(e) Calculation. Morgan Stanley shall make the calculation of Credit Exposure on each Valuation Date. The District has the right to compare such calculations with its own calculations. If significant differences are detected, the Parties agree to share calculation details in a timely manner to resolve the differences to the mutual agreement of both Parties and if such agreement is not obtained by the close of business on the Business Day following the date on which Notice of the calculating Party was effective, then the Parties shall determine the Credit Exposure by: (A) utilizing any calculations of Credit Exposure that the Parties have agreed are not in dispute; and (B) determining the disputed calculations by seeking
four actual quotations at mid-market from Reference Market-makers, and taking the arithmetic average of those obtained; provided that if four quotations are not available for a particular calculation, then fewer than four quotations may be used for that calculation; and if no quotations are available for a particular calculation, then the calculating Party’s original calculations will be used for that calculation. “Reference Market-maker” means a leading dealer in the relevant market who is mutually agreed upon by the Parties that is determining its Credit Exposure in good faith from among dealers of the highest credit standing which satisfy all the criteria that such Party applies generally at the time in deciding whether to offer or to make an extension of credit. For the avoidance of doubt, the Credit Exposure is a measure of a Party’s marked to market exposure to the other Party under this Agreement.

12.02 Unsecured Credit Threshold.

(a) “Unsecured Credit Threshold” means, for either Party, as the case may be, at any time, the lower of the amount set forth below in the table opposite the Credit Rating as defined herein (or, in the event of a split Credit Rating, the lowest such Credit Rating, and in the event that an entity become rated by only one agency, then the single Credit Rating shall govern) for such Party, as the case may be, as determined by S&P or Moody’s; provided, however, that the Threshold for such Party shall be zero upon the occurrence and during the continuance of an Event of Default with respect to such Party.

(b) “Thresholds” are as follows:

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<th>Morgan Stanley Capital Group Inc.’s Credit Rating</th>
<th>Threshold</th>
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<td>S&amp;P</td>
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<td>A- or above</td>
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<tr>
<td>Baa3 to Baa1</td>
<td>BBB- to BBB+</td>
</tr>
<tr>
<td>Below Baa3</td>
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<table>
<thead>
<tr>
<th>District’s Credit Rating</th>
<th>Threshold</th>
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<tbody>
<tr>
<td>Moody’s</td>
<td>S&amp;P</td>
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<tr>
<td>Baa3 or above</td>
<td>BBB- or above</td>
</tr>
<tr>
<td>Below Baa3</td>
<td>Below BBB-</td>
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</table>

12.03 Credit Support.

(a) “Credit Support Amount” means for any Valuation Date (i) the Secured Party’s Credit Exposure for that Valuation Date, minus the Pledgor’s unsecured credit Threshold; provided, however, that the Credit Support Amount will be deemed to be zero whenever the calculation of Credit Support Amount yields a number less than zero.

(b) “Eligible Collateral” means Letters of Credit in accordance with the requirements specified herein, or, if consented-to in advance by the receiving Party cash.

(i) “Letter of Credit” means an irrevocable, standby letter of credit, issued by a U.S. office of a commercial bank (that is not an Affiliate of either Party) organized under the laws of the United States, or a U.S. branch of a foreign bank (that is not an Affiliate of either Party), in each case having total assets of
by Moody’s, in a form as may be acceptable to the Party in whose favor the Letter of Credit is issued, with such changes to the terms in that form as the issuing bank may require.

(ii) The “Valuation Percentage” shall be one hundred percent (100%) of the value of the Letter of Credit unless (i) a Letter of Credit Default shall apply with respect to such Letter of Credit, or (ii) [fifteen (15) or fewer Business Days] remain prior to the expiration of such Letter of Credit, in either of which case the Valuation Percentage shall be zero.

(iii) Each Letter of Credit shall be maintained for the benefit of the Secured Party. The Pledgor shall:

(A) renew or cause the renewal of each outstanding Letter of Credit on a timely basis as provided in the relevant Letter of Credit,

(B) if the bank that issued an outstanding Letter of Credit has indicated its intent not to renew such Letter of Credit, provide a substitute Letter of Credit at least [twenty (20) Business Days] prior to the expiration of the outstanding Letter of Credit; and

(C) if a bank issuing a Letter of Credit shall fail to honor the Secured Party’s properly documented request to draw on an outstanding Letter of Credit, provide for the benefit of the Secured Party, a substitute Letter of Credit that is issued by a bank acceptable to the Secured Party, other than the bank failing to honor the outstanding Letter of Credit [twenty (20) Business Days] after the Pledgor receives Notice of such refusal, provided that, as a result of the Pledgor’s failure to perform in accordance with (A), (B) or (C) above, the Delivery Amount applicable to the Pledgor equals or exceeds the Pledgor’s Minimum Transfer Amount.

(iv) As one method of providing Eligible Collateral, the Pledgor may increase the amount of an outstanding Letter of Credit or establish one or more additional Letters of Credit.

(v) A Letter of Credit shall provide that the Secured Party may draw upon the Letter of Credit in an amount (up to the face amount for which the Letter of Credit has been issued) that is equal to all amounts that are due and owing from the Pledgor but have not been paid to the Secured Party within the time allowed for such payments under this Agreement (including any related Notice or grace period or both). A Letter of Credit shall provide that a drawing be made on the Letter of Credit submission to the bank issuing the Letter of Credit of one or more certificates specifying the amounts due and owing to the Secured Party in accordance with the specific requirements of the Letter of Credit.

(vi) If the Pledgor shall fail to renew, substitute, or sufficiently increase the amount of an outstanding Letter of Credit (as the case may be), or establish one or more additional Letters of Credit, or otherwise provide sufficient Eligible Collateral and if the Delivery Amount applicable to the Pledgor equals or exceeds the Pledgor’s Minimum Transfer Amount as a result of such failure, then the Secured Party may draw on the entire, undrawn portion of any outstanding Letter of Credit upon submission to the bank issuing such Letter of Credit of one or more certificates specifying the amounts due and owing to the Secured Party in accordance with the specific requirements of the Letter of Credit. The Pledgor shall remain liable for any amounts due and owing to the Secured Party and remaining unpaid after the application of the amounts so drawn by the Secured Party.

(vii) Upon the occurrence of a Letter of Credit Default, the Pledgor agrees to deliver a substitute Letter of Credit or other Eligible Collateral to the Secured Party in an amount at least equal to that of the Letter
of Credit to be replaced on or before the first Business Day after written demand by the Secured Party (or the third Business Day if only clause (i) under the definition of Letter of Credit Default applies).

(viii) The costs and expenses of establishing, renewing, substituting, canceling, increasing and reducing the amount of (as the case may be) one or more Letters of Credit shall be borne by the Pledgor.

(ix) Cash may only be posted by a Party with the advance consent of the other Party. Any cash posted by the District will be held by a bank trust department that is a qualified public depository for public funds (as defined by applicable Washington law) and will be held uninvested, or invested by such depository at the direction of the District in investments permitted for District funds. Cash posted by the District shall be subject to the lien on Electric System revenues granted to bondowners under the District’s Bond Resolutions and bond resolutions authorizing its Electric System bonds. The Parties agree that such qualified public depository for public funds will have assets of at least ten billion dollars ($10,000,000,000), and have Credit Ratings of at least A3 by Moody's and at least A- by S & P.

12.04 Credit Support Obligations.

(a) Upon a written demand made by the Party entitled to require Eligible Collateral as security for performance owed to such Party under this Agreement (the “Secured Party”) on or promptly following a Valuation Date, if the Delivery Amount for that Valuation Date equals or exceeds the Pledgor’s Minimum Transfer Amount, then the Pledgor will transfer to the Secured Party Eligible Collateral having a value as of the date of transfer at least equal to the applicable Delivery Amount. Eligible Collateral so transferred to a Secured Party is “Posted Collateral.”

(b) The “Delivery Amount” applicable to the Pledgor for any Valuation Date will equal the amount by which:

(i) the Credit Support Amount, exceeds

(ii) the value as of that Valuation Date of all Posted Collateral

(c) “Minimum Transfer Amount” means as to either Party [one dollar ($1.00)]. Upon a demand made by the Pledgor on or promptly following a Valuation Date, if the Return Amount for that Valuation Date equals or exceeds the Secured Party’s Minimum Transfer Amount, then the Pledgor may reduce the Eligible Collateral held by the Secured Party to a value not below the Credit Support Amount.

(d) The Delivery Amount will be rounded up and the Return Amount down in each case to the nearest integral multiple of [two hundred and fifty thousand dollars ($250,000)].

12.05 Financial Information. Upon request, a Party, as applicable, shall deliver to the other Party (i) within one hundred and twenty (120) days following the end of its fiscal year, a copy of the audited consolidated financial statements for such fiscal year certified by independent certified public accountants and (ii) within ninety (90) days after the end of each of the first three fiscal quarters of its fiscal year, a copy of the quarterly unaudited consolidated financial statements for such fiscal quarter. In all cases, the statements shall be for the most recent accounting period and prepared in accordance with generally accepted accounting principles, international financial reporting standards or such other principles then in effect. If the required financial statements can be found online on the internet (including on EDGAR), the Party may provide the appropriate website internet link for retrieval of such information. In the case of
Morgan Stanley, such financial statements may be consolidated with the financial statements of its parent corporation.

12.06 Valuation and Timing.

(a) “Valuation Agent” means the Party making the Credit Exposure calculation. Upon request, the Valuation Agent shall promptly provide the other Party with a written statement setting out in reasonable detail the basis for its calculation, determination or other action. If there is a dispute, the Parties shall promptly endeavor to resolve such dispute. Morgan Stanley is the default Valuation Agent; provided, however, if an Event of Default has occurred and is continuing with respect to Morgan Stanley, then, in such case and for as long as such an Event of Default continues, District shall be the Valuation Agent.

(b) “Valuation Date” means any local Business Day.

(c) “Valuation Time” means the close of business in the city of the Valuation Agent on the Valuation Date.

(d) “Notification Time” means 12:00 p.m. Pacific Prevailing Time, on a Business Day.

12.07 Expenses.

(a) Each Party will pay its own costs and expenses in connection with performing its credit obligations and neither Party will be liable for any costs and expenses incurred by the other Party in connection herewith.

(b) All reasonable costs and expenses incurred by or on behalf of the Secured Party or the Pledgor in connection with the liquidation and/or application of any Posted Collateral will be payable on demand and pursuant to Article X and Article XI by the Defaulting Party or, if there is no Defaulting Party, equally by the Parties.

12.08 Certain Rights and Remedies.

(a) If at any time (1) an Event of Default with respect to the Pledgor has occurred and is continuing or (2) an Early Termination Date has occurred or been designated as the result of an Event of Default with respect to the Pledgor, then, unless the Pledgor has paid in full all of its obligations that are then due, the Secured Party may, in addition to the other rights and remedies specified in Article X, exercise one or more of the following rights and remedies:

(i) all rights and remedies available to a secured party under applicable law with respect to Posted Collateral held by the Secured Party;

(ii) the right to set-off any amounts payable by the Pledgor with respect to any obligations against any Posted Collateral or the cash equivalent of any Posted Collateral held by or on behalf of the Secured Party (or any obligation of the Secured Party to transfer that Posted Collateral) subject to the limitations in Section 12.03(ix) above; and

(iii) the right to liquidate any Posted Collateral held by the Secured Party free from any claim or right of any nature whatsoever of the Pledgor (subject to the limitations in Section 12.03(ix) above), and to
apply the proceeds (or the cash equivalent thereto) from the liquidation of the Posted Collateral to any amounts payable by the Pledgor with respect to any obligations in that order as the Secured Party may elect. As set forth in Section 12.03(ix) the District’s bond holders have liens on District revenues and the District’s Bond Resolutions include flows of funds that show the priority of payment from District revenues in the event there are not sufficient revenues to pay all of the District’s obligations. The liquidation of any cash posted by the District is subject to these liens and priority of payments in the Bond Resolutions.

(b) If at any time an Early Termination Date has occurred or been designated as the result of an Event of Default with respect to the Secured Party, then where the Secured Party has paid in full all of its obligations that are then due under this Agreement:

(i) the Pledgor may exercise all rights and remedies available to a pledgor under applicable law with respect to Posted Collateral held by the Secured Party;

(ii) the Secured Party will be obligated immediately to transfer all Posted Collateral to the Pledgor; and

(iii) to the extent that Posted Collateral is not so transferred pursuant to (b)(ii) above, the Pledgor may:

(a) set-off any amounts payable by the Pledgor with respect to any obligations against any Posted Collateral or the cash equivalent of any Posted Collateral held by the Secured Party (or any obligation of the Secured Party to transfer that Posted Collateral) subject to the limitations in Section 12.03(ix) above; and

(b) to the extent that the Pledgor does not set-off under (iii)(A) above, withhold payment of any remaining amounts payable by the Pledgor with respect to any obligations, up to the value of any remaining Posted Collateral held by the Secured Party, until that Posted Collateral is transferred to the Pledgor.

(c) The Secured Party will transfer to the Pledgor any Posted Collateral remaining after liquidation, set-off and/or netting of all amounts payable by the Pledgor with respect to any obligations; the Pledgor in all events will remain liable for any amounts remaining unpaid after any liquidation, set-off and/or netting.

(d) When no amounts are or thereafter may become payable by the Pledgor with respect to any obligations, or the Pledgor’s rating is above the credit rating under “Thresholds” in Section 12.02(b), the Secured Party will transfer to the Pledgor all Posted Collateral.

12.09 Miscellaneous.

(a) Performance of all obligations under this Article XII including all calculations, valuations and determinations made by either Party, will be made in good faith and in a commercially reasonable manner.

(b) All demands and Notices made by a Party under this Article XII will be made pursuant to “Credit and Collections” contacts in Exhibit D.
ARTICLE XIII. GOVERNMENTAL CHARGES

13.01 Cooperation. Each Party shall use reasonable efforts to implement the provisions of and to administer this Agreement in accordance with the intent of the Parties to minimize all taxes, so long as neither Party is materially adversely affected by such efforts.

13.02 Governmental Charges. The delivering Party shall pay or cause to be paid all taxes imposed by any Governmental Authority ("Governmental Charges") on or with respect to the Product arising prior to the Delivery Point. The receiving Party shall pay or cause to be paid all Governmental Charges on or with respect to the Product at and from the Delivery Point (other than ad valorem, franchise or income taxes which are related to the sale of the Product and are, therefore, the responsibility of the delivering Party). If the delivering Party is required by law or regulation to remit or pay Governmental Charges which are the receiving Party’s responsibility hereunder, the receiving Party shall promptly reimburse delivering Party for such Governmental Charges. If the receiving Party is required by law or regulation to remit or pay Governmental Charges which are the delivering Party’s responsibility hereunder, the delivering Party shall promptly reimburse the receiving Party for such Governmental Charges. Nothing herein shall obligate or cause a Party to pay or be liable to pay any Governmental Charges for which it is exempt under the law. Either Party, upon written request of the other Party, shall provide a certificate of exemption or other reasonably satisfactory evidence of exemption if either Party is exempt from Governmental Charges, and shall use reasonable efforts to obtain and cooperate with the other Party in obtaining any exemption from or reduction of any Governmental Charges.

ARTICLE XIV. CONFIDENTIAL INFORMATION

14.01 Public Document. The Parties acknowledge and agree that this Agreement is a public document, and that either Party may disclose this Agreement or any summary of this Agreement to the public, provided that the disclosing Party shall make best efforts to redact or otherwise keep the terms of Exhibit B and Exhibit C and other proprietary and commercial information (including with respect to the Carbon Attributes) non-public, subject to the terms regarding Confidential Information below.

14.02 Confidential Information. Neither Party shall disclose any non-public, proprietary information provided by the other Party that is marked as confidential or otherwise identified as confidential by the disclosing Party ("Confidential Information") to a third party (other than the Parties’ respective directors, officers, employees, counsel, accountants or advisors who have a need to know such Confidential Information and have agreed to keep such Confidential Information confidential) except in order to comply with the request of any applicable regulatory authority or with any applicable law or regulation or any exchange, control area or independent system operator rule; or in connection with any court or regulatory proceeding; or as necessary to obtain transmission service; provided, however, each Party shall, to the extent practicable, use reasonable efforts to prevent or limit the disclosure of Confidential Information to the extent permissible under and consistent with applicable law or regulation. Morgan Stanley acknowledges that the District is a public body subject to the Washington Public Records Act, RCW 42.56. The Parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with, this confidentiality obligation. The obligations of the Parties under this Section 14.02 shall survive expiration or termination of this Agreement for a period of two (2) years. This Section 14.02 shall not apply to any information that was or is hereafter in the public domain (except as a result of a breach of this Section 14.02).
ARTICLE XV. UNCONTROLLABLE FORCE

15.01 Effect of Uncontrollable Force. To the extent either Party is prevented by Uncontrollable Force from carrying out, in whole or part, its obligations under this Agreement and such Party (the “Claiming Party”) gives Notice and details of the Uncontrollable Force to the other Party as soon as practicable, then, the Claiming Party shall be excused from the performance of its obligations to the extent so prevented. The Claiming Party shall remedy the Uncontrollable Force with all reasonable dispatch. A Claiming Party shall not be considered to be in breach of this Agreement to the extent that a failure to perform its obligations under this Agreement is due to an Uncontrollable Force.

15.02 Definition of Uncontrollable Force. The term “Uncontrollable Force” means an event or circumstance which prevents a Claiming Party from performing its obligations under this Agreement, which event or circumstance is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which by the exercise of due diligence the Claiming Party is unable to avoid, cause to be avoided, or overcome. So long as the requirements of the preceding sentence are met, an “Uncontrollable Force” may include and is not restricted to flood, earthquake, storm, fire, lightning, epidemic, war, riot, act of terrorism, civil disturbance or disobedience, labor dispute, labor or material shortage, sabotage, restraint by court order or public authority, and action or nonaction by, or failure to obtain the necessary authorizations or approvals from, any Governmental Authority.

15.03 Exclusions. The following shall not be considered “Uncontrollable Forces”: (i) a Party’s cost of obtaining its products; (ii) a Party’s inability due to the price of its products to use or resell such products; (iii) a Party’s lack of funds or inability to make payments when due; or (iv) failure to deliver payments when due under the Performance Metrics. Neither Party shall, however, be relieved of liability for failure of performance to the extent that such failure is due to causes arising out of its own negligence or due to removable or remediable causes which it fails to remove or remedy through commercially reasonable efforts within a reasonable time period. Nothing contained herein shall be construed to require a Party to settle any strike or labor dispute in which it may be involved. Uncontrollable Forces shall not apply to unit availability performance metrics.

15.04 Notice. Any Claiming Party rendered unable to fulfill any of its obligations by reason of an Uncontrollable Force shall give prompt Notice of such fact and shall exercise due diligence through commercially reasonable efforts to remove such inability within a reasonable time period. If oral notice is provided, it shall be promptly followed by written Notice.

ARTICLE XVI. REPRESENTATIONS AND WARRANTIES

16.01 By Both Parties. As of the Execution Date, each Party represents and warrants to the other Party as follows:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(b) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party, or any law, rule, regulation or order applicable to it;
(c) This Agreement constitutes a legally valid and binding obligation enforceable against it in accordance with its terms, subject to equitable defenses and applicable bankruptcy, insolvency and similar laws affecting creditors’ rights generally;

(d) Each of its representatives executing or agreeing through this Agreement is authorized to act on its behalf;

(e) It possesses the necessary corporate, governmental, regulatory and legal authority, right and power to enter into and agree to this Agreement and to perform each and every duty imposed herein;

(f) It is not Bankrupt, and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result in it being or becoming Bankrupt;

(g) It has entered into this Agreement in connection with the conduct of its business and it has the capacity or ability to make or take delivery of all Products referred to in this Agreement;

(h) It is a producer, processor, commercial user or merchant handling the Product, and it is entering into this Agreement for purposes related to its business as such;

(i) It is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement; and

(j) No Event of Default with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement.

16.02 Dodd Frank Treatment.

(a) The Parties agree that the transaction reflected in this Agreement is a forward contract within the meaning of the Commodity Exchange Act (CEA), as amended, and the Rules of the Commodity Futures Trading Commission (“Forward Contract”), and in reliance upon such agreement, as of the Execution Date:

(i) each Party represents to the other that it is a commercial market participant with respect to the specified commodity;

(ii) each Party represents to the other that it intends to make or take physical delivery of the specified nonfinancial commodity; and

(iii) if this transaction includes any volumetric optionality, the holder of such optionality represents to the other Party (a) that such optionality is primarily intended to address physical factors (such as weather, environmental factors, customer demand, available production, transport, shipping, operational constraints, or other physical factors) or regulatory requirements that reasonably influence demand for, or the supply of, the specified nonfinancial commodity; and (b) that such optionality is not primarily intended to address price risk.

(b) To the extent the transaction is deemed to be a commodity option:
(i) the seller of the option represents to the buyer of the option that in connection with this transaction, the seller of the option is either (a) an eligible contract participant (“ECP”) as defined in section 1a(18) of the Commodity Exchange Act (“Act”) and the regulations of the Commodity Futures Trading Commission (“CFTC”), or (b) a producer, processor, commercial user of or a merchant handling the commodity that is the subject of this transaction, or the products or byproducts thereof, and is offering or entering into this transaction solely for purposes related to its business as such;

(ii) the buyer of the option represents to the seller of the option that in connection with this transaction the buyer of the option is a producer, processor, commercial user of or a merchant handling the commodity that is the subject of this transaction or the products or byproducts thereof and is offering or entering into this transaction solely for purposes related to its business as such; and

(iii) each Party represents to the other that the option, if exercised, would result in the sale of an exempt commodity for immediate or deferred delivery.

(iv) Morgan Stanley represents to the District that it is the reporting counterparty with respect to any transaction under this Agreement that is a commodity option. Morgan Stanley shall comply with the regulatory obligations, if any, imposed upon the reporting counterparty under applicable law.

16.03 Additional District Representations and Warranties. As of the Execution Date, in addition to the representations and warranties in Section 16.01, District represents and warrants to Morgan Stanley as follows:

(a) Ownership. District owns one hundred percent (100%) of the Priest Rapids Project. This representation shall remain true throughout the Delivery Period; and

(b) No Immunity Claim. With respect to District’s contractual obligations hereunder and performance thereof, regardless of whether or not such rights currently are allowed by applicable law, the District waives and agrees that it will not claim sovereign immunity or governmental immunity as a defense in any litigation, lawsuit, or other action or proceeding arising out of this Agreement.

16.04  QFC Compliance. The Parties hereby confirm that, as of the Execution Date, they are adherents to the ISDA 2018 U.S. Resolution Stay Protocol (“ISDA U.S. Stay Protocol”). The terms of the ISDA U.S. Stay Protocol are incorporated into and form a part of this Agreement, and this Agreement shall be deemed a Protocol Covered Agreement for purposes thereof. For purposes of incorporating the ISDA U.S. Stay Protocol, Morgan Stanley shall be deemed to be a Regulated Entity and the District shall be deemed to be an Adhering Party. In the event of any inconsistences between this Agreement and the ISDA U.S. Stay Protocol, the ISDA U.S. Stay Protocol will prevail

ARTICLE XVII. INDEMNIFICATION

17.01 Bilateral Indemnification. In addition to the indemnification requirements specified elsewhere in this Agreement, each Party (the “Indemnifying Party”) shall indemnify, reimburse, defend and hold harmless the other Party (the “Indemnified Party”) and the Indemnified Party’s officers, directors, employees, agents, successors and assigns (“Indemnitees”) from and against any and all costs, losses, liabilities, damages, lawsuits, deficiencies, claims and expenses (including reasonable fees and disbursements of attorneys) (collectively, “Indemnified Losses”), incurred in connection with, arising out of, resulting from or incident to (i) any breach of any covenant, warranty or representation made by the
Indemnifying Party in this Agreement (except any breach by District of its covenant, warranty, representation or obligation to deliver the District Product, or any failure by District to deliver all or part of the District Product in the manner required in this Agreement, the sole and exclusive remedy for which is provided in Article VI and the calculations and payments specified therein); (ii) any Indemnified Losses arising from or out of any event, circumstance, act or incident first occurring or existing during the period when control and title to Product is vested in such Party as provided in Section 9.01; and (iii) any Governmental Charges for which the Indemnifying Party is responsible under Section 13.02. If Morgan Stanley fails to deliver all or part of the Morgan Stanley Product in the manner required in this Agreement, then Morgan Stanley shall pay and reimburse District for Indemnified Losses that include (a) all reasonable and substantiated costs and expenses incurred by District to purchase replacements for the Morgan Stanley Product or portion thereof not so delivered; and (b) any costs, expenses, penalties, or other amounts imposed by any BA, NERC, or Governmental Authority as a result of such failure and required to be paid by District. Nothing in this Article XVII shall lessen a Party’s duty to mitigate damages.

17.02 Unilateral Indemnification.

(a) By District. In addition to indemnification required under Section 17.01, District shall indemnify, reimburse, defend and hold harmless Morgan Stanley and its Indemnitees from and against any and all Indemnified Losses associated with third party claims arising out of, resulting from or incident to:

(i) the District’s violation or alleged violation of Title 26, U.S. Code of Federal Regulations, Section 1.1417(f)(2) due to the negotiation, execution or performance of this Agreement, including third party claims by any holders of tax exempt bonds issued by or on behalf of District; and

(ii) personal injury, loss or damage to persons or property occurring at or due to the operation or maintenance of the Priest Rapids Project.

(b) By Morgan Stanley.

17.03 Procedures. The Indemnified Party shall give the Indemnifying Party Notice within sixty (60) days of incurring any Indemnified Losses or discovery of facts upon which such Indemnified Party intends to base a request for indemnification under Section 17.01, Section 17.02, or any other provision of this Agreement requiring indemnification; provided, however, that the failure to give Notice shall not result in a loss of rights or payment of Indemnified Losses unless and to the extent that the failure to give Notice shall result in higher costs to the Indemnifying Party or shall prejudice the rights of the Indemnifying Party. Each such Notice must contain a description of the claim and the nature and, if reasonably determinable, the amount of such Indemnified Losses. The Indemnified Party shall furnish promptly to
the Indemnifying Party copies of all papers and official documents received in respect of any Indemnified Losses. All indemnification claims in respect of an Indemnified Party or its Indemnitees shall be made solely by the Party to this Agreement.

17.04 Third Party Claims. If an Indemnified Party becomes aware of any matter it believes is indemnifiable hereunder involving any Indemnified Losses claimed against the Indemnified Party by any third party (a “Third Party Claim”), the Indemnified Party shall give the Indemnifying Party prompt Notice of such Third Party Claim. Such Notice shall: (i) provide the basis on which indemnification is being asserted; and (ii) be accompanied by copies of all relevant pleadings, demands and other papers related to the Third Party Claim that are in the possession of the Indemnified Party. The Indemnifying Party shall have a period of fifteen (15) Business Days after delivery of such Notice to respond regarding its intent to elect to defend the Third Party Claim. If the Indemnifying Party elects to defend the Third Party Claim, the Indemnifying Party shall be obligated to diligently defend the Third Party Claim, at its own expense, and by counsel reasonably satisfactory to the Indemnified Party. The Indemnified Party shall cooperate reasonably, at the expense of the Indemnifying Party, with the Indemnifying Party and its counsel in the defense, and the Indemnified Party shall have the right to participate fully, at its own expense, in the defense of such Third Party Claim. Any settlement of a Third Party Claim defended by the Indemnifying Party shall require the prior written consent of the Indemnified Party, such consent not to be unreasonably withheld, conditioned or delayed. If the Indemnifying Party fails to respond or responds within the required fifteen (15) Business Day period and declines or otherwise refuses to defend such Third Party Claim, the Indemnified Party shall be free, without prejudice to any of the Indemnified Party’s rights hereunder, to compromise, settle or defend (and control the defense of) such Third Party Claim. In such case, the Indemnifying Party shall cooperate reasonably, at its own expense, with the Indemnified Party and its counsel in the defense against such Third Party Claim, and the Indemnifying Party shall have the right to participate fully, at its own expense, in the defense of such Third Party Claim.

ARTICLE XVIII. LIMITATION OF LIABILITY, REMEDIES AND DAMAGES

EXCEPT AS SET FORTH HEREIN, THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, THE OBLIGOR’S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN, THE OBLIGOR’S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. EXCEPT AS EXPRESSLY HEREIN PROVIDED, NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE, EXCEPT AS MAY BE OWING FOR THIRD PARTY CLAIMS; PROVIDED, THAT THIS PROVISION SHALL NOT LIMIT THE DISTRICT’S RIGHT TO COLLECT OR MORGAN STANLEY’S OBLIGATION TO PAY FOR COSTS, EXPENSES, PENALTIES, AND OTHER AMOUNTS SPECIFIED IN THE LAST
SENTENCE OF SECTION 17.01, SECTION 17.02(B), SECTION 4.06(C), SECTION 4.08(E), SECTION 5.03 AND SECTION 7.06. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

ARTICLE XIX. DISPUTE RESOLUTION AND VENUE

19.01 Informal Resolution & Binding Arbitration. Prior to initiating any action or litigation relating to any Dispute, the Parties first shall attempt to resolve the Dispute through one or more informal meetings between senior level employees of each Party (the “Informal Resolution Period”) following delivery of a written Notice by one Party to the other Party that a Dispute exists under this Agreement. A written Notice of the existence of a Dispute shall specifically identify the nature and elements of the Dispute and the declaring Party’s proposed resolution thereof. In the event such informal resolution efforts fail to resolve the Dispute by the end of the Informal Resolution Period, the Parties shall resolve the Dispute by binding arbitration in accordance with the terms of Exhibit F.

19.02 Venue; Waiver of Jury Trial. (a) VENUE OF ANY ACTION OR LITIGATION FILED TO RESOLVE ANY DISPUTE SHALL BE EXCLUSIVELY IN (I) THE FEDERAL DISTRICT COURT FOR THE EASTERN DISTRICT OF WASHINGTON HAVING SUBJECT MATTER JURISDICTION ARISING UNDER THIS AGREEMENT; OR (II) IF THE FEDERAL COURTS IN THE EASTERN DISTRICT OF WASHINGTON WILL NOT ACCEPT JURISDICTION OVER DISPUTES ARISING OUT OF THIS AGREEMENT, THEN IN THE SUPERIOR COURT, COUNTY OF GRANT, STATE OF WASHINGTON. (b) EACH PARTY WAIVES ITS RESPECTIVE RIGHT TO ANY JURY TRIAL WITH RESPECT TO ANY LITIGATION ARISING UNDER OR IN CONNECTION WITH THIS AGREEMENT.

19.03 Attorneys’ Fees. In the event of litigation to resolve a Dispute, the prevailing Party shall be entitled to recover its reasonable attorneys’ fees incurred at trial and on appeal in addition to any other relief allowed; provided, however that any attorney’s fees reimbursed shall never exceed one hundred percent (100%) of the damages awarded.

19.04 Provisional Relief. The Parties acknowledge and agree that irreparable damage could occur if certain provisions of this Agreement are not performed in accordance with the terms of this Agreement, that money damages would not be a sufficient remedy for any breach of these provisions of this Agreement, and that the Parties shall be entitled, notwithstanding Section 19.01, without the requirement of posting a bond or other security, to seek a preliminary injunction, temporary restraining order, or other provisional relief as a remedy for a breach of this Agreement, subject to the venue requirements of Section 19.02. Such a request for provisional relief does not waive a Party’s right to seek other remedies for the breach of the provisions specified above in accordance with this Article XIX, notwithstanding any prohibition against claim-splitting or other similar doctrine. The other remedies that may be sought, if permitted by state law, include specific performance and injunctive or other equitable relief, plus any other remedy
specified in this Agreement for the breach of the provision, or if the Agreement does not specify a remedy for the breach, all other remedies available at law or equity to the Parties for the breach.

19.05 **Consolidation of Matters.** The Parties shall make diligent good faith efforts to consolidate any provisional relief or other proceedings arising pursuant to this Article XIX that arise from or relate to the same act, omission or issue. The Parties expressly agree that any arbitration or court action pursuant to this Agreement may be joined or consolidated with any arbitration or court action involving any other person or entity (i) necessary to resolve the Dispute, or (ii) substantially involved in or affected by such Dispute.

**ARTICLE XX. MISCELLANEOUS**

20.01 **Changes to Applicable Standards.** The Parties acknowledge that electricity and power markets, rules, Applicable Standards and policies continue to evolve and change. The Parties also recognize that this Agreement is intended to cover all the roles and responsibilities of each Party associated with this Agreement. However, due to the dynamic nature of the electricity and power markets, rules, standards and policies, terms and conditions in this Agreement may ultimately not meet the intended division of duties of the Parties. If this occurs, the Parties agree to discuss such situations and attempt in good faith and using all commercially reasonable efforts and cooperation, including informal dispute resolution in accordance with Section 19.01, to agree on mutually acceptable amendments to this Agreement in accordance with the Applicable Standards and the spirit and intent of this Agreement. If after using such efforts the Parties are unable to agree on such mutually acceptable amendments, then the terms of this Agreement shall remain in effect without modification.

20.02 **Notices.** All notices, demands or requests required or provided with respect to any matter in this Agreement ("Notices") must be provided in accordance with the requirements of Exhibit D.

20.03 **Assignment.** Neither Party may assign, transfer or convey this Agreement or its rights or obligations under this Agreement without first obtaining the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed; provided, however, either Party may, without the consent of the other Party (and without relieving itself from liability hereunder): (i) collaterally transfer, sell, pledge, encumber or assign this Agreement or the accounts, revenues or proceeds hereof in connection with any financing or other financial arrangements; (ii) transfer or assign this Agreement to an Affiliate of such Party if such Affiliate’s creditworthiness and operational capabilities are equal to or higher than that of such Party; or (iii) transfer or assign this Agreement to any person or entity succeeding to all or substantially all of the Party’s assets if such person or entity’s creditworthiness and operational capabilities are equal to or higher than that of such Party; provided, however, that in each such case in clause (ii) or (iii) above, any such assignee shall agree in writing to be bound by the terms and conditions hereof and the transferring Party shall deliver such tax and enforceability assurance as the non-transferring Party may reasonably request.

20.04 **Severability.** If any of the terms, covenants or conditions of this Agreement, or the application of any such term, covenant or condition, shall be held invalid as to any person or circumstance by any court, regulatory agency, or other regulatory body having jurisdiction, all other terms, covenants or conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect unless a court, regulatory agency, or other regulatory body holds that the provisions are not separable from all other provisions of this Agreement.
20.05 Waivers. Any waiver at any time by any Party of its rights under this Agreement shall not be deemed a waiver with respect to any subsequent event or occurrence of the same or any other matter.

20.06 Relationship of the Parties. Nothing contained in this Agreement shall be construed to create an association, joint venture, trust, or partnership, or agency relationship between or among the Parties, or to impose a trust or partnership covenant, obligation, or liability on or with regard to the Parties. Each Party shall be individually responsible for its own covenants, obligations, and liabilities under this Agreement. All rights and obligations of the Parties under this Agreement are several and are not joint.

20.07 Third Party Beneficiaries. Except as provided in 5.13(c), this Agreement shall not be construed to create rights, in, or to grant remedies to, any third party (including any bond or other security holder) as a beneficiary of this Agreement or of any representation, duty, obligation or undertaking established herein.

20.08 No Dedication. Any undertaking by either Party to the other Party under any provision of this Agreement shall not constitute the dedication of the electric system or the Priest Rapids Project or any portion thereof of the undertaking Party to the public or to the other Party, and it is understood and agreed that any such undertaking under any provision of this Agreement by a Party shall cease upon the termination of such Party’s obligations under this Agreement.

20.09 No Retail Service. Nothing contained in this Agreement shall grant any rights to or obligate either Party to provide any services hereunder directly to or for retail customers of the other Party.

20.10 Effect of Approvals. This Agreement is subject to valid laws, orders, rules and regulations of duly constituted authorities having jurisdiction. Nothing contained in this Agreement shall give FERC jurisdiction over a Party that is not otherwise subject to such jurisdiction or be construed as a grant of jurisdiction over either Party by any state or federal agency not otherwise having jurisdiction by law. Nothing contained in this Agreement shall be construed to establish any precedent for any other agreement or to grant any rights to or impose any obligations on either Party beyond the scope and Term of this Agreement.

20.11 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Washington, without regard to the conflicts of laws rules thereof.

20.12 Forward Contracts, Bankruptcy. The Parties intend that (a) this Agreement constitutes a “forward contract” within the meaning of Title 11 of the United States Code (the “Bankruptcy Code”); (b) all payments made or to be made by one Party to the other Party pursuant to this Agreement constitute “settlement payments” within the meaning of the Bankruptcy Code; (c) all transfers of adequate assurance by one Party to the other Party under this Agreement constitute “margin payments” within the meaning of the Bankruptcy Code; and (d) this Agreement constitutes one indivisible contract for all purposes. Each Party covenants and agrees that it will not claim that it is not a “forward contract merchant” within the meaning of the Bankruptcy Code.

20.13 FERC Standard of Review; Mobile-Sierra Waiver.

(a) Absent the agreement of the Parties to the proposed change, the standard of review for changes to any rate, charge, classification, term or condition of this Agreement, whether proposed by a Party (to the extent that any waiver in subsection (b) below is unenforceable or ineffective as to such Party), a non-party, or FERC acting sua sponte, shall be the ‘public interest’ application of the ‘just and reasonable’ standard of

(b) In addition, and notwithstanding the foregoing subsection (a), to the fullest extent permitted by applicable law, each Party, for itself and its successors and assigns, hereby expressly and irrevocably waives any rights it can or may have, now or in the future, whether under §§ 205 and/or 206 of the Federal Power Act or otherwise, to seek to obtain from FERC by any means (through complaint, investigation or otherwise), and each hereby covenants and agrees not at any time to seek to so obtain, an order from FERC changing any section of this Agreement specifying the rate, charge, classification, or other term or condition agreed to by the Parties, it being the express intent of the Parties that, to the fullest extent permitted by applicable law, neither Party shall unilaterally seek to obtain from FERC any relief changing the rate, charge, classification, or other term or condition of this Agreement, notwithstanding any subsequent changes in applicable law or market conditions that may occur. In the event it were to be determined that applicable law precludes the Parties from waiving their rights to seek changes from FERC to their market-based power sales contracts (including entering into covenants not to do so) then this subsection (b) shall not apply, provided that, consistent with the foregoing subsection (a), neither Party shall seek any such changes except solely under the ‘public interest’ application of the ‘just and reasonable’ standard of review and otherwise as set forth in the foregoing section (a).

(c) Notwithstanding anything in this Section 20.13 to the contrary, the Parties’ covenants and agreements in this Section 20.13 apply only to the terms and conditions agreed upon by the Parties as part of the commercial terms applicable to the Products and this Agreement, and shall not restrict or limit either Party’s rights to initiate or participate in proceedings before FERC addressing policies and procedures of general applicability, including with respect to ownership, operation, management or use of generation or transmission facilities, or participation in transmission or power markets, so long as such Party will not initiate or use such proceedings with the primary intent to alter this Agreement or its commercial terms.

20.14 Preparation. This Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties and shall not be construed against one Party or the other as a result of the preparation, substitution, submission or other event of negotiation, drafting or execution hereof.

20.15 Recordkeeping, Requests for Documentation and Audit.

(a) Each Party, or any third party representative of a Party, shall keep complete and accurate records relating to implementation of this Agreement, and shall maintain such data as may be necessary for the purpose of ascertaining the accuracy of all relevant data, estimates, or statements of charges submitted hereunder for a period of two (2) years from the date an invoice was delivered under this Agreement.

(b) Within a two (2) year period from the date on which an invoice was initially delivered, either Party may request in writing copies of the relevant portions of the records of the other Party to the extent reasonably necessary to verify the accuracy of any statement or charge set forth in such invoice. The Party from which documents or data has been requested shall provide all reasonably requested documents and data within a reasonable time period.
(c) In addition to its right to request records under subpart (b) above, each Party has the right, at its sole expense and during normal working hours, to examine copies of the relevant portions of the records of the other Party to the extent reasonably necessary to verify the accuracy of any statement, charge or computation made pursuant to this Agreement. If requested, a Party shall provide to the other Party statements evidencing the quantities of Product delivered at the Delivery Points. Morgan Stanley also shall have the right to audit District’s meters.

(d) If any examination under subpart (b) or subpart (c) above reveals any inaccuracy in any statement, the necessary adjustments in such statement and the payments thereof will be made promptly and shall bear interest calculated at the Interest Rate from the date the overpayment or underpayment was made until paid; provided, however, that no adjustment for any statement or payment will be made unless objection to the accuracy thereof was made prior to the lapse of two (2) years from the rendition thereof, and thereafter any objection shall be deemed waived.

20.16 Amendments. Except to the extent herein provided for, no amendment or modification to this Agreement shall be enforceable unless reduced to writing and executed by both Parties.

20.17 Tariff. Each Party further agrees that it will not assert, or defend itself, on the basis that any applicable tariff is inconsistent with this Agreement.

20.18 Change in Law. If any Change in Law occurs during the Term that has the effect of modifying the relative economic benefits and burdens to the Parties under this Agreement as compared with the relative economic benefits and burdens reasonably expected as of the Execution Date, then upon Notice from one Party to the other, the Parties shall meet and confer and cooperate in good faith to agree upon such modifications to this Agreement as may be reasonably required in light of the Change in Law to restore the Parties' relative economic benefits and burdens under this Agreement to a balance that is comparable to the balance reasonably expected as of the Execution Date; provided, however, this Agreement shall not be modified if the District's bond counsel or tax counsel determines that such modification would impact the tax exempt or tax advantages status of any District bond. If the Parties are unable to agree upon such modifications within sixty (60) days after the date discussions are initiated, then either Party may initiate the dispute resolution process specified in Section 19.01 and the Parties shall utilize such process to finalize modifications to the Agreement that achieve the objective specified above. Neither Party may seek relief under this section for adverse impacts from a Change in Law until such impacts to the Party exceed five hundred thousand dollars ($500,000) in the aggregate. In addition, a Party may not seek relief for any adverse impacts due to a Change in Law if that Change in Law is proposed or advocated, or imposed unilaterally, by such Party. In the event a change in circumstances occurs that is arguably covered by both this section and Section 20.01, then this Section 20.18 and the impact thresholds specified herein shall apply.

20.19 Regulatory Event. Any provision declared or rendered unlawful by any applicable court of law or regulatory agency or deemed unlawful because of the application of a law in force as of the Execution Date (individually or collectively, such events referred to as “Regulatory Event”) will not otherwise affect the remaining lawful obligations that arise under this Agreement; provided, that if a Regulatory Event occurs, the Parties shall use best efforts to reform this Agreement in order to give effect to the original intention of the Parties.
20.20 Survival. All indemnity obligations shall survive the termination of this Agreement for twelve (12) months. All rights under Section 20.15 above shall survive termination for the period necessary to give effect to the rights in Section 20.15, up until two (2) years after the last statement or invoice is rendered in accordance with this Agreement. Notwithstanding the foregoing, the rights of either Party pursuant to: (a) Section 4.08 (Incremental Hydropower); (b) Article X (Events of Default); (c) Section 18.1 (Limitations); (d) Article XIV (Confidentiality); (e) Article XIX (Dispute Resolution); and (f) all obligations of either Party to make payments hereunder, shall survive the termination of the Agreement. This Agreement shall be binding on each Party’s successors and permitted assigns.

20.21 Complete Agreement. This Agreement (including the Exhibits and any written supplements hereto) shall constitute the full and complete agreement of the Parties with respect to the matters addressed herein.

20.22 District’s Compliance. It is recognized by the Parties that the District, in its operation of the Priest Rapids Project, must comply with the requirements of the FERC License, together with amendments thereof from time to time made, and the District is hereby authorized to take such actions as the District determines are necessary and appropriate to comply with the FERC License.

20.23 Electric System Revenues. The District’s payments under this Agreement shall be payable from Electric System revenues. “Electric System” has the meaning specified in the District’s Bond Resolutions. The District’s Bond Resolutions include a priority of payment of Electric System revenues, which priority is first, operation and maintenance expenses of the Electric System including costs of the Priest Rapids Project, second, all payments required for the District’s Electric System bonds, and third, all other expenses.

IN WITNESS WHEREOF, intending to be legally bound, the Parties have executed this Agreement as of the Execution Date.

PUBLIC UTILITY DISTRICT NO. 2
OF GRANT COUNTY, WASHINGTON

(SEAL)

By: ______________________________
Name: ______________________________
Title: General Manager

MORGAN STANLEY CAPITAL GROUP INC.

By: ______________________________
Name: ______________________________
Title: ______________________________

Attachments:
Exhibit A, Definitions
Exhibit B, District Load
Exhibit C, Performance Metrics Calculations
Exhibit D, Notices
Exhibit E, Federal Reserve Holidays
Exhibit F, Dispute Resolution
Exhibit G, District Commitments to Third Parties
Exhibit H, Applicable NERC Standards and Operating Requirements
Exhibit I, Independent Operation Protocols and other Operating Agreements
EXHIBIT A
DEFINITIONS

“ACE” means Area Control Error as defined in the NERC.

“Actual Canadian Entitlement” has the meaning set forth in Section 6.02(e).

“Actual Encroachment Energy” has the meaning set forth in Section 6.02(d).

“Actual Fish Spill Energy” has the meaning set forth in Section 6.02(c).

“Adjusted Priest Rapids Project” has the meaning set forth in Section 4.02.

“Affiliate” means, with respect to any person, any other person (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such person. For this purpose, “control” means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power. With respect to Morgan Stanley, “Affiliate” means Morgan Stanley and its subsidiaries.

“AGC” means Automatic Generation Control as defined in the NERC Glossary.

“Ancillary Services” means Regulation, Spinning Reserves and Non-Spinning Reserves.

“Applicable Standards” means WECC Reliability Standards, NAESB, NERC Reliability Standards, WECC regional criteria or other directives, the Operating Agreements and Operating Protocols, Northwest Power Pool Agreement and Energy Emergency Plan, Prudent Industry Practice, and standards determined by any other organization(s) that have jurisdiction over Grant.

“BAAL” means Balancing Authority ACE Limit as defined by NERC.

“Balancing Authority” or “BA” has the meaning set forth in the NERC Glossary and as described in NERC’s functional model.

“Balancing Authority Area” or “BAA” has the meaning set forth in the NERC Glossary and as described in NERC’s functional model.

“BA Compliance Standards” means applicable NERC standards and protocols set forth on Exhibit H, as the same may be amended from time to time by NERC.

“Bankrupt” means with respect to any entity, such entity (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due.

“Bankruptcy Code” has the meaning set forth in Section 20.12.

“Baseline Canadian Entitlement” has the meaning set forth in Section 6.02(e).
“Baseline Spill Energy” has the meaning set forth in Section 6.02(c).

“Bond Resolution” means each and all of the resolutions adopted by District authorizing the issuance of outstanding debt for the Priest Rapids Project.

“BPA” means Bonneville Power Administration.

“Business Day” means any weekday, Monday through Friday, excluding Federal Reserve Holidays as designated on Exhibit E; provided, however, that for purposes of Notices, the day after the U.S. Thanksgiving holiday shall not be considered a Business Day. A Business Day shall open at 8:00 a.m. and close at 5:00 p.m. local time for the relevant Party’s principal place of business. The relevant Party, in each instance unless otherwise specified, shall be the Party from whom the Notice, payment or delivery is being sent and by whom the Notice or payment or delivery is to be received.


“Canadian Entitlement” means that certain obligation for District to deliver energy to the BPA as defined in contracts with BPA contract numbers 97PB-10099 and 97BP-10100. Both contracts are titled Canadian Entitlement Allocation Extension Agreement and both are dated April 29, 1997. The obligation includes any applicable amendments.

“CARB” means the California Air Resources Board.

“Carbon Attributes” means all environmentally related characteristics exclusive of Energy, capacity, Ancillary Services, reliability, and other electrical power service attributes, that are associated with the generation of electricity from a non-carbon emitting resource, including the facility’s fuel type, geographic location, vintage, qualifications as an eligible specified source, and avoided emissions of pollutants to the air, soil, or water, and avoided emissions of carbon dioxide and other greenhouse gases, and includes all Green Attributes and Environmental Attributes as those terms are now or hereafter defined (“Carbon Characteristics”) (a) by the CPUC or other agency with jurisdiction pursuant to the California statutes establishing the California renewables portfolio standard; (b) by the United States Environmental Protection Agency or other agency or instrumentality of the federal government with jurisdiction pursuant to New Greenhouse Gas Legislation establishing new requirements with respect to Carbon Characteristics; and/or (c) by any State (including the State of Washington and the State of California), or any agency or instrumentality thereof with jurisdiction pursuant to New Greenhouse Gas Legislation establishing new requirements with respect to Carbon Characteristics.

“CEC” means the California Energy Commission.

“Change in Law” means (i) a material change or the enactment, promulgation or issuance or material amendment of any constitution, charter, act, statute, regulation, ordinance, order (including any order waiving application of a legal requirement as to a Party), ruling, or rule, or (ii) a material change in the specified standards or objective criteria contained in a permit, license, or other approvals, which standard or criteria must be met in order for a resource to generate electric energy, or (iii) other legislative or administrative action of any government agency of competent jurisdiction or a final decree, judgment, or order of a court of competent jurisdiction (including temporary restraining orders) occurring subsequent to the Execution Date including the creation of a new retail access environment for consumers of electric energy in Washington State.
For purposes of this definition, no enactment, adoption, promulgation, amendment or modification of applicable laws shall be considered a Change in Laws if, as of the Execution Date, (1) such applicable law would have directly affected the performance of the obligations hereunder by either Party after the Execution Date in the absence of this Agreement and (2) either such applicable laws were (A) officially proposed by the responsible agency and promulgated in final form in the Federal Register or equivalent federal, state or local publication and thereafter becomes effective without further action or (B) enacted into law or promulgated by the appropriate federal, state or local body before the Execution Date, and (i) the comment period with respect to which expired on or before the Execution Date and (ii) any required hearings concluded on or before the Execution Date, in accordance with applicable administrative procedures and which thereafter becomes effective without further action.

“CHPD” means the Public Utility District No. 1 of Chelan County, Washington.

“CIP” means the NERC Critical Infrastructure Protection reliability standards.

“Claiming Party” has the meaning set forth in Section 15.01.

“Confidential Information” has the meaning set forth in Section 14.02.

“Contingency Reserve” has the meaning set forth in the NERC Glossary.

“Contract Quantity” means the quantity of the Product that the delivering Party agrees to deliver, or cause to be delivered, to the other Party, and that the receiving Party agrees to receive in return, or cause to be received, from the delivering Party as specified in this Agreement.

“Control Performance Standard” or “CPS” has the meaning set forth in the NERC Glossary.

“Coordination Committee” has the meaning set forth in Section 8.06.

“Costs” means, with respect to the Non-Defaulting Party, brokerage fees, commissions and other similar third party transaction costs and expenses reasonably incurred by such Party either in terminating any arrangement pursuant to which it has hedged its obligations or entering into new arrangements which replace this Terminated Agreement; and all reasonable attorneys’ fees and expenses incurred by the Non-Defaulting Party in connection with the termination of this Agreement.

“CPS scores” see “NERC CPS” herein below.

“CPUC” means the California Public Utilities Commission.

“Credit Exposure” has the meaning set forth in Section 12.01.

“Credit Rating” means (i) with respect to a Party, as applicable, the lower of its long-term senior unsecured debt rating (not supported by third party credit enhancement) or its issuer rating by the specified rating agency, and (ii) with respect to a financial institution, the lower of its long-term senior unsecured debt rating (not supported by third party credit enhancement) or its deposit rating by the specified rating agency.

“Credit Support Amount” has the meaning set forth in Section 12.03(a).


“DCPD” means the Public Utility District No. 1 of Douglas County, Washington.
“Defaulting Party” has the meaning set forth in Section 10.01.

“Delivery Amount” has the meaning set forth in Section 12.04(b).

“Delivery Month” means a calendar month in which deliveries are made during the Delivery Period.

“Delivery Period” has the meaning set forth in Section 2.02.

“Delivery Points” means the District Product Delivery Points or the Morgan Stanley Product Delivery Points, or both, as applicable.

“Dispute” means any and all disputes, claims or controversies arising out of, relating to, concerning or pertaining to the terms of this Agreement, or to either Party’s performance or failure of performance under this Agreement, or relating to the enforcement or interpretation of any provision of this Agreement. Dispute includes disputes over the Applicable Standards, the Operating Agreements and the District’s Business Practices.

“District” has the meaning set forth in the first paragraph of this Agreement.

“District Actual Energy Outage” has the meaning set forth in Section 6.02(b).

“District Actual Load” has the meaning set forth in Section 6.02(a).

“District BA” means the District’s Balancing Authority.

“District BA” means the District’s Balancing Authority Area

“District BA Requirement” shall mean the balancing of loads and resources in, and net interchange across, the District BA, in accordance with all applicable FERC, NERC, and WECC standards and any other applicable requirements and standards related to the operation of the Priest Rapids Project.

“District Baseline Energy Outage” has the meaning set forth in Section 6.02(b).

“District Baseline Load” has the meaning set forth in Section 6.02(a).

“District Product” has the meaning set forth in Section 4.01.

“District Product Delivery Point” has the meaning set forth in Section 4.04.

“District Product Quantities” has the meaning set forth in Section 4.02.

“District Third Party Transactions” has the meaning set forth in Section 5.11.

“Dynamic Interchange Schedule” or “Dynamic Schedule” has the meaning set forth in the NERC Glossary.

“Dynamic Scheduling” means the use of Dynamic Schedules or Dynamic Scheduling Agreements, which are defined by NERC as a telemetered reading or value that is updated in real time and used as a schedule in the AGC/ACE equation and the integrated value of which is treated as a schedule for interchange accounting purposes. It is the process whereby one BA arranges a dynamic signal which provides in Real Time corrective response to all or a portion of the ACE of another BA, and thereby assumes the obligation to meet all applicable control criteria specified by NERC.

“Dynamic Scheduling Protocols” means the protocols referenced in the definition of Dynamic Scheduling Standards.
“**Dynamic Scheduling Standards**” means (in each case as amended, modified or supplemented during the Term) (a) the Dynamic Scheduling Protocols, (b) Prudent Industry Practices, (c) any and all rules of Governmental Authorities, requirements, guidelines, standards, criteria, or policies of FERC, NERC, WECC and District’s business practices for the performance of Dynamic Scheduling. District will provide copies of the District business practices to Morgan Stanley together with any changes thereto immediately as such changes are made.

“**Dynamic Signal**” has the meaning set forth in Section 4.06(b). Dynamic Signals are different from Pseudo ties.

“**Dynamic Signal Limit**” means the maximum and minimum values of the incremented and decremented portions of the Dynamic Signal.

(a) The maximum Dynamic Signal Limit shall be the lesser of:

1. the maximum dynamic transmission profile for capacity on the E-Tag associated with the transmission service obtained by Morgan Stanley; and

(b) The minimum Dynamic Signal Limit shall be constrained to:

1. a positive number sufficient to cause the algebraic sum of static and dynamic schedules to meet or exceed Morgan Stanley’s Contract Quantity share of minimum capacity of District Product, or
2. a negative number equal to Morgan Stanley’s static schedules, minus Morgan Stanley’s Contract Quantity share of minimum capacity of District Product.

Morgan Stanley’s Contract Quantity share of the capacity and minimum generation limits of the District Product are as established by the District.

Notwithstanding the previous, the minimum Dynamic Signal Limit shall be sufficient at all times to allow dynamic delivery that would cause the algebraic sum of static and dynamic schedules to meet or exceed Morgan Stanley’s Contract Quantity share of minimum capacity of the District Product, and the maximum Dynamic Signal Limit shall prohibit at all times dynamic delivery that would cause the algebraic sum of static and dynamic schedules to exceed Morgan Stanley’s Contract Quantity share of maximum capacity of District Product.

“**Early Termination Date**” has the meaning set forth in Section 10.02.

“**Electric System**” has the meaning set forth in Section 20.23.

“**Eligible Collateral**” has the meaning set forth in Section 12.03(b).

“**Energy**” means three-phase, 60-cycle alternating current electric energy, expressed in megawatt hours.

“**E-Tag**” and “**E-Tagging**” means a NERC e-Tag.

“**Event of Default**” has the meaning set forth in Section 10.01.

“**Execution Date**” has the meaning set forth in the first paragraph of this Agreement.

“**FERC**” means the Federal Energy Regulatory Commission or its successor.
“FERC License” means the license for the Priest Rapids Project, Project Number 2114 issued by FERC on April 17, 2008, effective April 1, 2008, as may be amended and modified from time to time.

“Fish Spill” has the meaning set forth in 6.02(c).

“Forebay” means the upstream pool before the intake.

“Gains” means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Costs), resulting from the termination of this Agreement, determined in a commercially reasonable manner.

“Governmental Authority” means a municipality, county, governmental board, public power authority, public utility district, joint action agency, or other political subdivision or public entity of the United States, one or more States or territories, or any combination thereof.

“Governmental Charges” has the meaning set forth in Section 13.02.

“HE” means hour ending.

“Hubbing” means the ability to schedule firm Energy to District BA to avoid a net export schedule that exceeds generation capability or for accumulation into a pond account. Included is the ability to ramp down its generation by scheduling to the pond account without having to curtail any tags.


“Incremental Hydropower” means hydroelectric generation that qualifies as an “Eligible renewable resource” as defined in RCW 19.285.030 and approved by the Washington State Auditor’s office, including incremental electricity produced as a result of efficiency improvements completed after March 31, 1999, to a hydroelectric generation project owned by one or more qualifying utilities (as defined in RCW 19.285) and located in the Pacific Northwest or to hydroelectric generation in irrigation pipes and canals located in the Pacific Northwest, where the additional electricity generated in either case is not a result of new water diversions or impoundments.

“Incremental Hydropower RECs” has the meaning set forth in Section 4.08.

“Incremental REC Period” has the meaning set forth in Section 4.08.

“Indemnified Losses” has the meaning set forth in Section 17.01.

“Indemnified Party” has the meaning set forth in Section 17.01.

“Indemnifying Party” has the meaning set forth in Section 17.01.

“Indemnitees” has the meaning set forth in Section 17.01.

“Independent Operation Protocols” means any logic, policy, algorithm, strategy and/or implementing systems, programs and protocols used by the District for the operation of the Priest Rapids Project, including coordinated operation of the Priest Rapids and Wanapum Developments. The Independent Operation Protocols as of the Effective Date are further described on Exhibit I.

“Informal Resolution Period” has the meaning set forth in Section 19.01.

“Interchange” has the meaning set forth in the NERC Glossary.
“Interest Rate” means, for any date, the lesser of (a) the per annum rate of interest equal to the prime lending rate as may from time to time be published in *The Wall Street Journal* under “Money Rates” on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law.

“KCFSH” stands for Kilo Cubic Feet Per Second (rate of river water flow) times hours.

“Letter of Credit” has the meaning set forth in Section 12.03(b).

“Letter of Credit Default” means with respect to a Letter of Credit, the occurrence of any of the following events: (a) the issuer of such Letter of Credit shall fail to maintain a Credit Rating of at least (i) "A-" by S&P or "A3" by Moody’s, if such issuer is rated by both S&P and Moody’s, (ii) “A-“ by S&P, if such issuer is rated only by S&P, or (iii) "A3" by Moody’s, if such issuer is rated only by Moody’s; (b) the issuer of the Letter of Credit shall fail to comply with or perform its obligations under such Letter of Credit; (c) the issuer of such Letter of Credit shall disaffirm, disclaim, repudiate or reject, in whole or in part, or challenge the validity of, such Letter of Credit; (d) such Letter of Credit shall expire or terminate, or shall fail or cease to be in full force and effect at any time during the term of the Agreement, in any such case without replacement; or (e) the issuer of such Letter of Credit shall become Bankrupt; provided, however, that no Letter of Credit Default shall occur or be continuing in any event with respect to a Letter of Credit after the time such Letter of Credit is required to be canceled or returned to a Party in accordance with the terms of this Agreement.

“Load” means the quantity of Energy, expressed in megawatts per hour, that is required to serve the retail Energy requirements of District’s retail Customers, as represented by the Real Time hourly load of the District retail customers, and Ancillary Services requirements, plus the quantity of Energy, expressed in megawatts per hour, that is required to serve the District’s wholesale customers when the District makes Third-Party Sales pursuant to Section 5.11.

“Losses” means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Costs), resulting from termination of this Agreement, determined in a commercially reasonable manner.

“Minimum Transfer Amount” has the meaning set forth in Article 12.04(c).

“Monthly Payment” has the meaning set forth in Section 6.01(a).

“Moody’s” means Moody’s Investors Service, Inc., or its successor.

“Morgan Stanley” has the meaning set forth in the first paragraph of this Agreement.

“Morgan Stanley Improvement Plan” has the meaning set forth in Section 5.07.

“Morgan Stanley Product” has the meaning set forth in Section 5.01.

“Morgan Stanley Product Delivery Point” has the meaning set forth in Section 5.05.

“NERC” means North American Electric Reliability Corporation.

“NERC Business Day” means any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103 of title 5, U.S. Code.

“NERC CPS” means NERC Control Performance Standards.

“NERC CPS1” means the annual measure of the relationship between ACE and interconnection frequency on a 1-minute average basis. BAs need a minimum passing rate of one hundred percent
(100%) in order to maintain compliance with CPS1.

“NERC CPS2” means the monthly measure that sets the average maximum ACE for every 10 minute period, $L_{10}$. BAs need a minimum passing rate of 90% in order to maintain compliance with CPS2.

“NERC Glossary” means the Glossary of Terms Used in NERC Reliability Standards as adopted by the NERC Board of Trustees and in effect at the time of application.

“NERC Reliability Standard” means a requirement, approved by FERC under Section 215 of the Federal Power Act, or approved or recognized by an applicable governmental authority in other jurisdictions, to provide for reliable operation of the bulk-power system, as defined in the NERC Glossary, and in effect at the time of application. NERC Reliability Standards include any variation adopted by WECC.

“Net Actual Interchange” or “NIA” has the meaning set forth in the NERC Glossary.

“Net Incremental Hydropower RECs” has the meaning set forth in Section 4.08.

“Net Interchange Schedule” or “NIS” has the meaning set forth in the NERC Glossary.

“New Greenhouse Gas Legislation” has the meaning set forth in Section 5.03.

“Nine Canyon Wind” means that wind generation facility located in Benton County, Washington at approximate coordinates 46.2861 latitude and -119.4256 longitude.

“Non-Defaulting Party” has the meaning set forth in Section 10.01(a).

“Non-Spinning Reserves” means that generating reserve not connected to the system but capable of serving demand within a specified time, as defined by the NERC Glossary.

“Notices” has the meaning set forth in Section 20.02.

“Notification Time” has the meaning set forth in Section 12.06(d).

“NWPP” means the Northwest Power Pool.

“NWPP RSG” means the Northwest Power Pool Reserve Sharing Group.

“OATI” means OATI webSAS: OATI webSAS administers the WECC’s Unscheduled Flow (USF) Mitigation Procedure. It provides path operators, reliability coordinators, power marketers, and BAs with an automated USF assessment tool to meet the WECC’s USF-reduction requirements by initiating adjustments to meet the relief obligations. It also provides a way for users to enter any alternative actions they may have taken to remain compliant.

“Operating Agreements” means any agreements to which District is or may become a party, which provide for operation of the Priest Rapids Project, including the Pacific Northwest Coordination Agreement, District’s BA business practices, the WECC Agreement, and the Northwest Power Pool Agreement, as such agreements currently exist or hereafter may be amended. The Operating Agreements as of the Effective Date are further described on Exhibit I.

“Off-Peak Hours” or “Night” means (7x8) = HE 0100 - 0600, and 2300 through 2400 PPT Monday through Saturday, and all hours Sunday (including NERC holidays).

“On-Peak Hours” shall means HE 0700 PPT through HE 2200 PPT; Monday through Saturday, excluding NERC holidays.
“PAC” means PacifiCorp.

“Participating BA” means the balancing authority area opposite of District BA in sending/receiving dynamic signals.

“Party” and “Parties” have the meanings set forth in the first paragraph of this Agreement.

“Percentage of District Product” has the meaning set forth in 4.02.

“Performance Metrics” has the meaning set forth in Section 6.01(b).

“Person” means an individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture or other entity, including an entity that is a Governmental Authority.

“PGE” means Portland General Electric Company.

“Pledgor” means the Party supplying the Posted Collateral.

“Pondage” has the meaning set forth in Section 4.03.

“Pooling Agreement” has the meaning set forth in Section 3.03(a).

“Posted Collateral” has the meaning set forth in Section 12.04(a).

“Potholes East Canal Hydro” means that hydroelectric facility located in Franklin County, Washington and designated by FERC as project number 3843.

“PPT” means Pacific Prevailing Time.

“Pre-Schedule Day” means days identified by District pursuant to the WECC Interchange Scheduling and Accounting Subcommittee daily scheduling calendar.

“Priest Rapids Project” has the meaning set forth in the first recital of this Agreement.

“Priest Rapids Project Users” has the meaning set forth in the second recital of this Agreement.

“Product” means the District Product or Morgan Stanley Product, or both, as applicable.

“Prompt Month” means the calendar month immediately preceding the applicable Delivery Month.

“Prudent Industry Practice” means the practices, methods, techniques and standards that are then commonly used by or applied by a prudent Person in the electric generation, marketing or utility industry in the United States, in the exercise of reasonable judgment in light of the facts known at the time the decision was made and having due regard for, among other things, contractual obligations, the terms of this Agreement, applicable laws and requirements of Governmental Authorities, operating rules or procedures of transmission operators and reliability councils, Applicable Standards, and other existing market conditions, and accomplishing the desired result at a reasonable cost consistent with the good business practices, reliability and safety. Prudent Industry Practice is not intended to be the optimum practice, method or act, to the exclusion of all others, but rather to be a spectrum of commonly used practices, methods or acts.

“PSE” means Purchase and Selling Entity or Purchasing-Selling Entity as described in NERC’s functional model.
“Pseudo-Tie” has the meaning set forth in the NERC Glossary.

“Quincy Chute Hydro” means that hydroelectric facility located in Grant County, Washington and designated by FERC as project number 2937.

“RBC” means Reliability-based Control as defined by NERC.

“RC” means “Reliability Coordinator”, means the entity, as defined by NERC, that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the Wide Area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations.

“Real Time” has the meaning set forth for such term in NERC-INT-006-3 or its successor.

“Recording” has the meaning set forth in Section 8.05.

“RECs” has the meaning set forth in Section 4.08.

“Regulation” means all control instructions sent to generators to correct for deviations and imbalances in the BA during a scheduling period, including: (i) Regulating Reserves (a) for moment to moment deviations between generation and load, (b) for minute to minute deviations between generation and load; (c) for responding to frequency deviations in the Interconnection; and (ii) Following Reserves (a) for change in load over the scheduling period; (b) change in generation over the scheduling period; (c) for deviation from Load forecast; and (d) for deviation of generation from schedule.

“Regulatory Event” has the meaning set forth in Section 20.19.

“Return Amount” means the value as of that Valuation Date of all Posted Collateral held by the Secured Party that exceeds the Credit Support Amount.

“Rock Island Encroachment” means an obligation for District to deliver energy to CHPD per the Agreement Relating to Wanapum Development Encroachment on Rock Island Project with contract number 350-008 and dated May 21, 1974. The obligation includes any applicable amendments. Amendment #1 was executed on September 13, 2004.

“S&P” means Standard & Poor’s Ratings Services (a division of McGraw-Hill, Inc.) or its successor.

“Schedule” or “Scheduling” means the actions of delivering Party, receiving Party and/or their designated representatives, including each Party’s Transmission Providers, if applicable, of notifying, requesting and confirming to each other the Quantity and type of Product to be delivered on any given day or days during the Delivery Period at a specified Delivery Point. The terms “Schedule” and “Scheduling” include a Dynamic Schedule and Dynamic Scheduling, respectively.

“Scheduling Agent” means any entity retained by Morgan Stanley in accordance with Section 5.13 to act on its behalf with regards to Dynamic Scheduling of the District Product.

“SCL” means Seattle City Light.

“SEC” means the United States Securities and Exchange Commission.

“Secured Party” has the meaning set forth in Section 12.04(a).
“Settlement Amount” means, with respect to the Non-Defaulting Party, the net of the Non-Defaulting Party’s Losses and Gains, plus its Costs, expressed in U.S. Dollars, which such Non-Defaulting Party incurs as a result of the liquidation and termination of this Agreement pursuant to Article X.

“Spinning Reserves” means unloaded generation that is synchronized and ready to serve additional demand as defined in the NERC Glossary.

“Tax Certificate” means the Tax Certificate, dated [MMMM DD, YYYY], executed and delivered by the District.

“Term” has the meaning set forth in Section 2.01.

“Terminated Agreement” has the meaning set forth in Section 10.02.

“Termination Payment” has the meaning set forth in Section 10.03.

“Third Party Claim” has the meaning set forth in Section 17.04.

“Third-Party Purchases” has the meaning set forth in Section 5.11(a).

“Third-Party Sales” has the meaning set forth in Section 5.11(a).

“Threshold” has the meaning set forth in Section 12.02(b).

“Tie Line” has the meaning set forth in the NERC Glossary.

“Uncontrollable Force” has the meaning set forth in Section 15.02.

“Unsecured Credit Threshold” has the meaning set forth in Section 12.02(a).

“Valuation Agent” has the meaning set forth in Section 12.06(a).

“Valuation Date” has the meaning set forth in Section 12.06(b).

“Valuation Percentage” has the meaning set forth in Section 12.03(b).

“Valuation Time” has the meaning set forth in Section 12.06(c).

“WebSAS” see OATI.

“WECC” means the Western Electricity Coordinating Council or its successor organizations.

“WIT” means “WECC Interchange Tool”. Western Interchange Tool (WIT). WIT acts as the Western Interconnection’s Interchange Authority (“IA”). In accordance with NERC standards, WIT receives requests for interchange (“RFI”) via e-Tags from PSE’s and distributes these requests to reliability entities (BAs and Transmission Service Providers) and market entities and for reliability and market assessments, respectively. WIT also confirms or denies interchange based on criteria set forth in
EXHIBIT B
DISTRICT LOAD

In accordance with Section 6.01, in the Table B of Exhibit B below, Monthly Payments without minus signs are Payments Morgan Stanley owes District, and Monthly Payments with negative signs are Payments the District owes to Morgan Stanley. For example...

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<th>Months</th>
<th>Capacity (MWh)</th>
<th>Payment District Baseline (MWh)</th>
<th>HL Load (MWh)</th>
<th>HL DBL (MWh)</th>
<th>Months</th>
<th>Capacity (MWh)</th>
<th>Payment District Baseline (MWh)</th>
<th>LL Load (MWh)</th>
<th>LL DBL (MWh)</th>
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EXHIBIT C

PERFORMANCE METRICS CALCULATIONS

The following examples specify how payments for the Performance Metrics are defined and are calculated each month. The adjustments are from Morgan Stanley’s perspective (positive numbers increase the District payment to Morgan Stanley and negative increases Morgan Stanley’s payment to the District).

“HLH” means HE0600 through HE 2200 Monday through Saturday, excluding Holidays (as observed by the North American Electric Reliability Corporation).

“LLH” means all hours that are not HLH.

1. Load Deviation Adjustment:

\[
\text{Load Deviation Adjustment} = (\text{HL DAL} - \text{HL DBL}) \times \text{[Shaped HL price]} + (\text{LL DAL} - \text{LL DBL}) \times \text{[Shaped LL price]}
\]

Where:

- \(\text{HL DAL}\) is that hour's District Actual Metered Load during HLH measured in MW.
- \(\text{LL DAL}\) is that hour's District Actual Metered Load during LLH measured in MW.
- \(\text{HL DBL}\) is the District Baseline Load (Fixed Returned Energy Schedule) during HLH.
- \(\text{LL DBL}\) is the District Baseline Load (Fixed Returned Energy Schedule) during LLH.
Availability Adjustment [To be reviewed with District]

Availability Adjustment = (ActOutHL - BaseOutHL) * [Average Mid C HL price or Agreed upon Index] + (ActOutLL - BaseOutLL) * [Average Mid C LL price or Agreed upon Index]

Where:

ActOutHL is the District Actual Outage Energy during On-Peak Hours measured in MWH calculated as shown below.

ActOutLL is the District Actual Outage Energy during Off-Peak Hours measured in MWH calculated as shown below.

BaseOutHL is the District Baseline Outage Energy measured in MWH during On-Peak Hours agreed at time of contract execution.

BaseOutLL is the District Baseline Outage Energy measured in MWH during Off-Peak Hours agreed at time of contract execution.

[ActOutHL] and [ActOutLL] the outage energy is calculated for each hour of the month at Priest Rapids and Wanapum. The steps to making this calculation are:

Hourly reduction in availability will be calculated for each unit. A unit completely Unavailable for an hour will have a reduction of 1. For units that are Unavailable for a portion of an hour, a fractional reduction is determined;

Reduction (PRD or WAN) unit = \sum \frac{[minutes]}{60}

For example if a unit is 100% available for 20 minutes and Unavailable for the remaining 40 minutes in an hour, the reduction in availability for that unit for the hour is:

Reduction (PRO or WAN) unit = \frac{20(0%) + 40(100%)}{60} = 0.67

The Hourly Unavailability at Priest Rapids (HUPRD) and the Hourly Unavailability at Wanapum (HUWAN) will be calculated as:

HUPRD = \sum \text{Reduction PRD unit}

HUWAN = \sum \text{Reduction PRD unit}

For each hour, use the example Availability Adjustment Table A below to look up the outage energy based on the month and the Outage Hours. Interpolate for fractional values of HUPRD and HUWAN.

For example, for an hour in June:

HUPRD = 1.0 and HUWAN = 3.0

PRDOEN = 16.515 MWH and WANOEN = 3.0(136.933) = 117.3754 MWH

The outage energy is summed by HL and LL hours.
3. Fish Spill Adjustment

If Actual Fish Spill Energy > Upper Threshold, then Treatment A applies.
If Actual Fish Spill Energy < Lower Threshold, then Treatment B applies.
Otherwise, Fish Spill Adjustment is zero.

Treatment A
Fish Spill Adjustment = (Actual Fish Spill Energy – Upper Threshold) * (Mid C Flat price or Agreed upon Index) * (Percentage of District Product)

Treatment B
Fish Spill Adjustment = (Actual Fish Spill Energy - Lower Threshold) * (Mid C Flat price or Agreed upon Index) * (Percentage of District Product)

(Note: this will result in a negative number, indicating an adjustment owing to the District.

4. Encroachment Adjustment

If Actual HL Encroachment Energy > Upper HL Threshold, then Treatment A applies.
If Actual HL Encroachment Energy < Lower HL Threshold, then Treatment B applies.
Otherwise, Encroachment Adjustment for HLH is zero.
If Actual LL Encroachment Energy > Upper LL Threshold, then Treatment C applies.
If Actual LL Encroachment Energy < Lower LL Threshold, then Treatment D applies.
Otherwise, Encroachment Adjustment for LLH is zero.

Treatment A
Encroachment Adjustment = (Actual HL Encroachment Energy – Upper HL Threshold) * (Mid C HL price or Agreed upon Index) * (Percentage of District Product)

Treatment B
Encroachment Adjustment = (Actual HL Encroachment Energy - Lower HL Threshold) * (Mid C HL price or Agreed upon Index) * (Percentage of District Product)

(Note: this will result in a negative number, indicating an adjustment owing to the District.

Treatment C
Encroachment Adjustment = (Actual LL Encroachment Energy – Upper LL Threshold) * (Mid C LL price or Agreed upon Index) * (Percentage of District Product)

Treatment D
Encroachment Adjustment = (Actual LL Encroachment Energy - Lower LL Threshold) * (Mid C LL price or Agreed upon Index) * (Percentage of District Product)

(Note: this will result in a negative number, indicating an adjustment owing to the District.)
The total Encroachment Adjustment is the sum of Encroachment Adjustments from Treatments A, B, C, and D.

[Atkinson insert examples]

5.5) Canadian Entitlement

\[
[\text{Canadian Entitlement Adjustment}] = \left( [\text{Actual HL Entitlement Energy}] - [\text{Contract HL CE}] \right) \times \left( [\text{Mid C HL price or Agreed upon Index}] \times \left[ \text{Percentage of District Product} \right] + \left( [\text{Actual LL Entitlement Energy}] - [\text{Contract LL CE}] \right) \times \left( [\text{Mid C LL price or Agreed upon Index}] \times \left[ \text{Percentage of District Product} \right]ight)
\]
Table C1 – Parameters for Performance Metric Calculations

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<th>Outage</th>
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Table C2 - Priest Rapids Energy Metric (MWh/hour)

Table C2 - Wanapum Energy Metric (MWh/hour)
**EXHIBIT D**

**NOTICES**

Any Notice shall be, unless otherwise specified herein, in writing and may be delivered by hand delivery, United States mail, overnight courier or facsimile. Notice by courier, facsimile or hand delivery shall be effective at the close of business on the day actually received, if received during business hours on a regular Business Day of the recipient, and otherwise shall be effective on the close of business on the next regular Business Day of the recipient. All Notices by United States mail shall be sent certified, return receipt requested and shall be effective on the date of actual receipt by the recipient. In computing any period of time from such Notice, such period shall commence at HE 2400 (midnight) PPT on the date of receipt. The designations of the name and address to which any such Notice is directed may be changed at any time by either Party giving Notice as provided above. Any Notice shall be deemed properly given if a written copy is delivered as set forth below.

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<tr>
<td><strong>Attn:</strong> General Manager</td>
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</tr>
<tr>
<td>Phone: 509-754-5695; Fax: 509-754-5046</td>
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<td>Phone: 509-754-5090; Fax: 509-754-5392</td>
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<td><strong>Credit and Collections:</strong></td>
<td><strong>Credit and Collections:</strong></td>
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<tr>
<td>Attn: Risk Management</td>
<td>Attn:</td>
</tr>
<tr>
<td>Phone: 509-793-8327; Fax: 509-754-6791</td>
<td>Phone:</td>
</tr>
<tr>
<td></td>
<td>F:</td>
</tr>
<tr>
<td><strong>With additional Notices of an Event of Default to:</strong></td>
<td><strong>With additional Notices of an Event of Default to:</strong></td>
</tr>
<tr>
<td>Attn: General Counsel</td>
<td>Attn:</td>
</tr>
<tr>
<td>Phone: 509-793-1565; Fax: 509-754-5046</td>
<td>Phone:</td>
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<td></td>
<td>F:</td>
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<td>Date</td>
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<td>--------------------------------</td>
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<td>January 1</td>
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<td>Third Monday of January</td>
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<td>Presidents’ Day</td>
<td>Third Monday of February</td>
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<td>Independence Day</td>
<td>July 4</td>
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<td>Columbus Day</td>
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<td>Veterans Day</td>
<td>November 11</td>
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<td>Thanksgiving Day</td>
<td>Fourth Thursday of November</td>
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<tr>
<td>Christmas Day</td>
<td>December 25</td>
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Exhibit F

DISPUTE RESOLUTION

Binding Arbitration.

Except where another remedy is expressly provided in the Agreement, any dispute between the Parties arising out of or in connection with the Agreement or its performance, breach, or termination (including the existence, validity and interpretation of the Agreement and the applicability of any statute of limitation period) shall be resolved by binding arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA"), as amended and supplemented from time to time, except to the extent modified by the provisions of this Exhibit. As a condition precedent to initiating arbitration with respect to any dispute, the Parties shall comply with the provisions of Section 1.2 of this Exhibit.

Notice of Dispute.

Prior to initiating arbitration, a Party (the “Disputing Party”) shall provide the other Party (the “Responding Party”) with a written Notice of each issue in dispute, a proposed means for resolving each such issue, and support for such position (the “Notice of Dispute”). Within ten (10) Days after receiving the Notice of Dispute, the Responding Party shall provide the Disputing Party with a written Notice of each additional issue (if any) with respect to the dispute raised by the Notice of Dispute, a proposed means for resolving every issue in dispute, and support for such position (the “Dispute Response”). Thereafter, the Parties shall meet to discuss the matter and attempt in good faith to reach a negotiated resolution of the dispute. If the Parties do not resolve the dispute by unanimous agreement within sixty (60) Days after receipt of the Dispute Response, (the “Negotiation Period”), then either Party may provide written Notice to the other Party declaring an impasse (the “Impasse Notice”) and initiating binding arbitration in accordance with the further provisions of this Exhibit.

Applicability; Selection of Arbitrators.

Arbitration will be deemed to be initiated when an Impasse Notice is given by the delivering Party to the receiving Party. The Party initiating arbitration shall nominate one (1) arbitrator at the same time it initiates arbitration. The other Party shall nominate one (1) arbitrator within ten (10) Days of receiving the Impasse Notice. The two (2) arbitrators (the “Party-Appointed Arbitrators”) shall appoint a third, neutral arbitrator (the “Third Arbitrator”). The arbitrators shall be competent and experienced in matters involving the electric energy business in the United States, with at least ten (10) years of electric industry experience as a practicing attorney, and shall be impartial and independent of either Party and the Party-Appointed Arbitrators and not employed by any of the Parties in any prior matter.

If the Party-Appointed Arbitrators are unable to agree on the Third Arbitrator within forty-five (45) Days from initiation of arbitration, then the Third Arbitrator shall be selected by the AAA with due regard given to the selection criteria above and input from Buyer and Seller and the Party-Appointed Arbitrators. The Parties shall undertake to request the AAA to complete selection of the Third Arbitrator no later than sixty (60) Days from initiation of arbitration. Costs charged by
the AAA for this service shall be borne by the Parties in accordance with Section 1.6 of this Exhibit.

In the event the AAA should fail to select the Third Arbitrator within sixty (60) Days from initiation of arbitration, then any Party may petition a court of competent jurisdiction in Washington to select the Third Arbitrator. Due regard shall be given to the selection criteria above and input from the Parties and the Party-Appointed Arbitrators.

If prior to the conclusion of the arbitration a Party-Appointed Arbitrator or the Third Arbitrator becomes incapacitated or otherwise unable to serve, then a replacement arbitrator shall be appointed in the manner described above.

Discovery, Hearing.

Discovery and other pre-hearing procedures shall be conducted as agreed to by the Parties, or if they cannot agree, as determined by the Third Arbitrator after discussion with the Parties regarding the need for discovery and other pre-hearing procedures. The arbitrators shall endeavor to conduct the arbitration in a manner so that the hearing on the dispute is completed within one hundred and eighty (180) days after the appointment of the Third Arbitrator, but shall have the authority to extend such period in their discretion. No later than thirty (30) Days after all pre-hearing discovery has been completed, a hearing shall be conducted in Seattle, Washington, at which Buyer and Seller shall each present in accordance with the rules of the AAA such evidence and witnesses regarding the issues identified in the Notice of Dispute or other Notices provided under Section 1.2 of this Exhibit as they may choose.

Decision.

The arbitrators shall consider the terms and conditions of the Agreement, including all relevant evidence and testimony, and shall render their decision within fifteen (15) Days following conclusion of the hearing. The decision rendered by a majority of the arbitrators, made in writing and consisting of findings and conclusions, shall be final and binding upon Buyer and Seller, and shall be effective as of the date of the Impasse Notice. Any such decision may be filed in a court of competent jurisdiction and may be enforced by Buyer or Seller as a final judgment in such court. The arbitrators shall have no authority to award special, exemplary, or consequential damages.

Expenses.

Each party to arbitration shall bear the compensation and expenses of its respective Party-Appointed Arbitrator, own counsel, witnesses, consultants and employees. All other expenses of arbitration shall be split equally between Seller and Buyer. Notwithstanding the foregoing provisions of this Section 1.6, any costs incurred by Buyer or Seller in seeking judicial enforcement of any written decision of the Arbitrators shall be chargeable to and borne exclusively by the Party against whom such court order is obtained.

Confidentiality.
Notices of Dispute, Dispute Responses, briefs, depositions, exhibits, transcripts, and similar materials exchanged or created during the arbitration, as well as the written arbitration award itself, shall be treated as Confidential Information, unless such information is otherwise available to the public without breach of the confidentiality obligations contained in the Agreement.
Exhibit G

DISTRICT COMMITMENTS TO THIRD PARTIES
Exhibit H

Applicable NERC Standards and Operating Requirements

1 These standards were in effect on the Execution Date. These standards may be changed by NERC from time to time.
Exhibit I

Independent Operation Protocols and other Operating Agreements

[Note: the Independent Operation Protocols that can currently be identified and described will be described herein, along with descriptions of the current Operating Agreements and where possible redacted copies of the Operating Agreements]
For Power Contracts exceeding the limits in the Energy Management and Reporting Policy

Grant County PUD Contract Approval Sheet

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<th>Task</th>
<th>Completed By</th>
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<td>Kevin Nordt</td>
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<td>Commission Approval</td>
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<td>Attorney</td>
<td>Mitch Delabarre</td>
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Richard Flanigan

From: Louis Szablya
Sent: Tuesday, July 28, 2020 5:00 PM
To: Richard Flanigan
Cc: Casey Sprouse
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Thanks for the responses and they make sense. I approve the contract sections I provided comments for.

On the last item, I could see that in the future someone might be doing an audit or trying to figure out what happened. If neither party had a balance it could be that there is no invoice for that month. You should have one of the parties always send an invoice so that there is an entry for each month.

Cheers,
Louis

Louis Szablya
Phone 509.793.1444

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 2:10 PM
To: Louis Szablya <lszablya@gcpud.org>
Cc: Casey Sprouse <Csprous@gcpud.org>
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Thanks for the comments Louis. I have answered your questions below. If you want, I can schedule a time to review the full contract next month. I do need an approval email from you for the record if you are good with the overall contract.

Thanks,

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org

grantpud.org

From: Louis Szablya <lszablya@gcpud.org>
Sent: Tuesday, July 21, 2020 6:28 PM
To: Richard Flanigan <Rflanig@gcpud.org>
Rich,

Attached is the version of the agreement we were looking at yesterday with my suggested edits and comments.

Based on our conversation about addressing some of the comments, I am good with the contract.

Rod Noteboom
Manager of Transmission Services

MOBILE 509.750.9362
EMAIL rnotebo@gcpud.org

grantpud.org

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Friday, July 17, 2020 9:42 AM
To: Rodney Noteboom <Rnotebo@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Rod - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached).
If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.

Please review the entire Agreement, but to help with your review I have identified a few sections that I would like you to concentrate on below:

Article 4.02
Article 4.04
Article 4.05
Article 4.06
From: Ty Ehrman
Sent: Monday, July 27, 2020 10:20 AM
To: Richard Flanigan
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Rich, sorry for being late on this. I’ve reviewed and have no substantive changes. The only editorial change I had was in 5.08, where “This provision shall not restrict the following:” has points (i), (ii) and then jumps to (iv).

Thanks for the opportunity to review. - Ty

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 9:08 AM
To: Ty Ehrman <Tehrman@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Sorry to bug you, but have you had a chance to review the Final Morgan Draft? Would like to get it into the packet this week if possible. Thanks.

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org

grantpud.org

From: Richard Flanigan
Sent: Friday, July 17, 2020 9:45 AM
To: Ty Ehrman <Tehrman@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Ty - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached). If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.
Reviewed. Thanks Rich. Have a nice weekend.

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Friday, July 17, 2020 9:39 AM
To: Michael Facey <Mfacey@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Mike - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached). If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.

Please review the entire Agreement, but to help with your review I have identified a few sections that I would like you to concentrate on below:

Article 6.01
Article 11
Article 12.05
Article 13
Article 16.02
Article 20.15
Article 20.23

Thanks,

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org
Richard Flanigan

From: Andrew Munro
Sent: Thursday, July 23, 2020 5:03 PM
To: Richard Flanigan
Subject: Re: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Rich,

I approve and support the agreement. Can you add my signature or so you need me to actually sign?

Andrew

On Jul 23, 2020, at 4:32 PM, Cliff Sears <Csears@gcpud.org> wrote:

Looks ok to me too.

Cliff

From: Andrew Munro <Amunro@gcpud.org>
Sent: Tuesday, July 21, 2020 10:30 AM
To: Cliff Sears <Csears@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Cliff,

Can you take a quick review of page 12 re: CETA? Looks okay to me.

Thanks,
Andrew

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Friday, July 17, 2020 9:55 AM
To: Andrew Munro <Amunro@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Andrew - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached).

If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.
Rich,

I have completed the review and am good with the contract as written.

Susan Manville
River Coordinator

OFFICE 509.754.7691
EXT. 2292
EMAIL smanville@gcpud.org

grantpud.org

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Friday, July 17, 2020 9:44 AM
To: Susan Manville <smanville@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Susan - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached). If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.

Please review the entire Agreement, but to help with your review I have identified a few sections that I would like you to concentrate on below:

Article 4.02 (f)
Article 4.03
Article 5.07
Article 5.09
Article 5.10
Article 5.13
Rich,

I only read the ones designated for me, I ran out of time and I am off for the next two days. Only have a couple comments, but I think it looks good.

8.02 (c) Access to District's OATI certificates. Depending on what Morgan decides on using their own certificates or Grants, we should probably have language that references it, maybe either/or, but not both.

Should we put something in about the Daily Reliability plan, and time it is due each day?

Are you sure you don’t want to say something about emergency tags?

Renate Rectenwald
Sr. Data Analyst

Office 509.754.5077
Pre-Schedule Office 509.754.5060
Email rrecten@gcpud.org

grantpud.org

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Friday, July 17, 2020 9:41 AM
To: Renate Rectenwald <Rrecten@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Renate - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review of this final draft. Please review and send an email back to me by EOD next Friday (7/24) letting me know if you are good with the contract. This email will serve as your signature on the Deal Approval Sheet (also attached).

If you have any suggested changes, please get those to me ASAP so we can work them into the contract.

Please email or call me in Teams or 509.750.6552 if you have any questions.

Please review the entire Agreement, but to help with your review I have identified a few sections that I would like you to concentrate on below:

Article 4.04
Richard Flanigan

From: John Mertlich
Sent: Monday, July 27, 2020 9:39 AM
To: Richard Flanigan
Subject: Re: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

Rich - I'm good with all parts that you requested my input on. One clarifying question on parts 8.01-8.04 and 20.15:
(1) Who's the holder/manager of all the data?
(2) Much more of an internal question, who does check-out on MS performance? (i.e., if we see them performing less than best practice, who evals that and raises a dispute with them?)

Best,

-John

John Mertlich
Sr. Manager FP&A

grantpud.org

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 9:10 AM
To: John Mertlich <jmertlich@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

John – know you are swamped with budget stuff right now, but if you hand no issue with the Final draft Morgan Agreement would you send an email back to me letting me know that? Thanks John.

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org

grantpud.org
Rich,
I’m fine with your answers to my questions/comments.
I approve the contract as it was when you sent it back to us.
Thanks,
    -Jeff

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 2:24 PM
To: Kevin Carley <Kcarley@gcpud.org>; Jeffrey Mettler <Jmettler@gcpud.org>
Subject: RE: Morgan Draft

Jeff/Kevin – are you okay with the contract? I need an approval email from Jeff for the record. If not, let me know what I can do to get you there. Thanks.

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE  509.793.1475
CELL    509.750.6552
EMAIL  rflanig@gcpud.org

grantpud.org

From: Kevin Carley <Kcarley@gcpud.org>
Sent: Monday, July 27, 2020 9:58 AM
To: Richard Flanigan <Rflanig@gcpud.org>; Jeffrey Mettler <Jmettler@gcpud.org>
Subject: RE: Morgan Draft

Rich,
    I had a couple comments that didn’t get corrected. I sent it separate from Jeff’s so you may have not have seen it thus I am sending it again.

Thanks,
Kevin

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 9:42 AM
Rich – my only comment is on Pg. 20 shown below. Its really a LeRoy item but it caught my eye.
You have my approval on this document.
Gene
505-280-3525

7.03 District Authority. District’s senior system operators will retain final authority to maintain system reliability at all times, and as necessary, may provide directives to Morgan Stanley that allow for compliance and Morgan Stanley shall comply with such directives. If Morgan Stanley fails to comply with such directives, District has the right to take all necessary actions to maintain system reliability including curtailing schedules and purchasing or selling capacity and/or Energy. District will retain all compliance responsibility in accordance with NERC Reliability Standards.

From: Richard Flanigan <rflanig@gcpud.org>
Sent: Monday, July 27, 2020 9:12 AM
To: Gene Austin <gaustin@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

Gene – sorry know you are swamped with the Audit, but I need an email back from you if you are okay with the Morgan Stanley contract. If you have questions, please give me a Teams call and I would be happy to answer any. Thanks Gene.

Richard Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org

gpud.org

From: Richard Flanigan
Sent: Friday, July 17, 2020 9:48 AM
To: Gene Austin <gaustin@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High
Richard Flanigan

From: LeRoy Patterson
Sent: Tuesday, July 28, 2020 7:59 PM
To: Richard Flanigan
Cc: Mike Stussy
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

I am satisfied with the document. Sorry to hold it up.

Best regards,
LeRoy

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Richard Flanigan <Rflanig@gcpud.org>
Date: 7/27/20 09:08 (GMT-08:00)
To: LeRoy Patterson <Lpatterson@gcpud.org>
Cc: Mike Stussy <Mstussy@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

LeRoy - I know you are out on vacation, but did you have any issues with the Final Morgan Draft Contract? If not, I need an email from you to confirm you are good to go. Thanks.

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org

grantpud.org

From: Richard Flanigan
Sent: Friday, July 17, 2020 9:37 AM
To: LeRoy Patterson <Lpatterson@gcpud.org>
Subject: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

LeRoy - Attached is the final draft of the Pooling Agreement between Grant PUD and Morgan Stanley for your review. This Agreement is the replacement for the current Shell Agreement. I need a quick turn around on your review
Rich,

I have reviewed and the only question I have was on article 7.01 in reference to the “balancing” language. The way it reads, depending on how you choose to interpret, could make it sound as if we were relying on them to be the BA for GCPUD. As we discussed, this may be normal contractual language and I do not really have any great suggestions for rewording but I thought I would point it out either way.

Thanks!

Mike Stussy, NCSO
Operations Technical Advisor

OFFICE 509.754.0500
EXT. 2143
Cell 509.289.9139
EMAIL mstussy@gcpud.org

grantpud.org

---

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 9:09 AM
To: LeRoy Patterson <Lpatterson@gcpud.org>
Cc: Mike Stussy <Mstussy@gcpud.org>
Subject: FW: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)
Importance: High

LeRoy - I know you are out on vacation, but did you have any issues with the Final Morgan Draft Contract? If not, I need an email from you to confirm you are good to go. Thanks.

Rich Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE 509.793.1475
CELL 509.750.6552
EMAIL rflanig@gcpud.org
RESOLUTION NO. XXXX

A RESOLUTION PROVIDING FOR THE FILING OF A PROPOSED BUDGET FOR THE YEAR 2021, SETTING A DATE FOR PUBLIC HEARING THEREON AND AUTHORIZING NOTICE OF SUCH MEETING

Recitals

1. Pursuant to RCW 54.16.080, Grant PUD is required to prepare a proposed budget and file it in its records on or before the first Monday in September.

WHEREAS, the preliminary proposed Budget of Revenue and Expenditures for Grant PUD for the year 2021 is attached hereto as Exhibits A and B.

WHEREAS, public comment on the proposed budget will be officially open October 8th during the regular scheduled Commission Meeting and the District is planning to schedule public hearings regarding the proposed 2021 budget in the month of October at which any rate payer may appear and be heard for or against the whole or any part thereof.

NOW, THEREFORE BE IT RESOLVED by the Commission of Public Utility District No. 2 of Grant County, Washington, that the preliminary 2021 budget is hereby made a part of the District’s official records and public comment regarding the proposed 2021 budget shall open October 8th, 2020 during the regular scheduled Commission Meeting and conclude upon adoption of the budget. Notice of scheduled public hearings shall be published at least two consecutive weeks prior to the public hearing in a newspaper printed and of general circulation in Grant County.

PASSED AND APPROVED by the Commission of Public Utility District No. 2 of Grant County, Washington, this 25th day of August, 2020.

________________________________________
President

ATTEST:

________________________________________
Secretary

________________________________________
Vice President

________________________________________
Commissioner

________________________________________
Commissioner
## Summary of Consolidated Forecasted Financial Results

<table>
<thead>
<tr>
<th>Exhibit A - Summary of Budget Items</th>
<th>Actuals 2019</th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric O&amp;M</td>
<td>53,400</td>
<td>58,202</td>
<td>59,653</td>
</tr>
<tr>
<td>PRP O&amp;M</td>
<td>74,162</td>
<td>75,594</td>
<td>77,612</td>
</tr>
<tr>
<td><strong>TOTAL O&amp;M</strong></td>
<td><strong>127,562</strong></td>
<td><strong>133,796</strong></td>
<td><strong>137,265</strong></td>
</tr>
<tr>
<td><strong>TAXES</strong></td>
<td>17,886</td>
<td>17,266</td>
<td>18,530</td>
</tr>
<tr>
<td><strong>ELECTRIC CAPITAL</strong></td>
<td>57,158</td>
<td>68,890</td>
<td>59,561</td>
</tr>
<tr>
<td><strong>PRP CAPITAL</strong></td>
<td>66,512</td>
<td>58,611</td>
<td>79,607</td>
</tr>
<tr>
<td><strong>DEBT SERVICE (net of rebates)</strong></td>
<td>87,756</td>
<td>72,585</td>
<td>75,162</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td>356,874</td>
<td>351,147</td>
<td>370,124</td>
</tr>
</tbody>
</table>

Expenditure offsets for deduction:
- Contributions in Aid of Construction: (8,511) (2,300) (4,501)
- Sales to Power Purchasers at Cost: (29,443) (26,990) (18,889)
- Net Power (+ Expense, - Revenue): (69,381) (84,143) (81,529)
- Conservation Loans: (13) (125) (125)

**TOTAL EXPENDITURE OFFSETS**  (107,348) (113,557) (105,044)

**TOTAL BUDGETED EXPENDITURES**  249,526  237,590  265,080

### Exhibit B

<table>
<thead>
<tr>
<th>CONSOLIDATED OPERATIONAL PERFORMANCE</th>
<th>Actuals 2019</th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales to Power Purchasers at Cost</td>
<td>29,443</td>
<td>26,990</td>
<td>18,889</td>
</tr>
<tr>
<td>Retail Energy Sales</td>
<td>209,896</td>
<td>206,323</td>
<td>225,162</td>
</tr>
<tr>
<td>Net Power (Net Wholesale+Other Power Revenue)</td>
<td>69,381</td>
<td>84,143</td>
<td>81,529</td>
</tr>
<tr>
<td>Fiber Optic Network Sales</td>
<td>9,431</td>
<td>9,762</td>
<td>10,668</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>2,532</td>
<td>1,314</td>
<td>1,725</td>
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<tr>
<td>Operating Expenses</td>
<td>(127,562)</td>
<td>(133,796)</td>
<td>(137,265)</td>
</tr>
<tr>
<td>Taxes</td>
<td>(17,886)</td>
<td>(17,266)</td>
<td>(18,530)</td>
</tr>
<tr>
<td><strong>Net Operating Income(Loss) Before Depreciation</strong></td>
<td>175,235</td>
<td>177,470</td>
<td>182,178</td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>(76,588)</td>
<td>(75,718)</td>
<td>(75,896)</td>
</tr>
<tr>
<td><strong>Net Operating Income (Loss)</strong></td>
<td><strong>98,647</strong></td>
<td><strong>101,752</strong></td>
<td><strong>106,282</strong></td>
</tr>
</tbody>
</table>

**Other Revenues (Expenses)**
- Interest, debt and other income: (23,279) (36,126) (40,530)
- CIAC: 8,511 2,300 4,501
- Change in Net Position: 83,880 67,926 70,253

### NET INCOME LIQUIDITY

Liquidity (measured at year end):
- Elect System Liquidity (Rev + R&C): $105 MM
- Excess Liquidity: 67,562 54,815 55,006
- Days Cash On Hand: > 250 624 456 450

**LEVERAGE**
- Consolidated DSC: >1.8x 2.13 2.20 2.42
- Consolidated Debt/Plant Ratio: ≤ 60% 57.4% 51.8% 50.0%

**PROFITABILITY**
- Cons. Return on Net Assets (chg. in net assets): >4% 3.8% 3.0% 3.0%
- Retail Op Ratio (assumes baseline capital): ≤ 100% 106% 108% 106%
TO: Board of Commissioners  
   Kevin Nordt, General Manager

VIA: Jeff Bishop, CFO  
   John Mertlich, Sr. Manager FP&A

FROM: Jeremy Nolan, Lead Financial Analyst

SUBJECT: 2021 Preliminary Proposed Budget Filing

Purpose: To submit the 2021 preliminary Proposed Budget Filing per RCW and establish a period of public comment for the proposed budget.

Discussion: Per RCW 54.16.080, the District is required annually to submit a proposed filing and schedule a public hearing for the upcoming year’s budget. “The Commission shall prepare a proposed budget of the contemplated financial transactions for the ensuing year and file it in its records, on or before the first Monday in September”. Accordingly, on August 25th the preliminary Proposed Budget Filing and corresponding Resolution will be submitted to the Commission for filing in the District’s records. The RCW states that a period of public comment on the budget will be opened beginning the first Monday of October through the end of the public hearings. **Note: due to the regularly scheduled Commission meetings taking place on the 2nd and 4th Tuesdays of October; the official opening of the budget will take place on October 8th (the second Tuesday) at the regular scheduled meeting.** The public hearings are tentatively scheduled for October 8th and 10th. Public hearings will be advertised two weeks prior to the hearing.

The 2021 preliminary Proposed Budget Filing is a reflection of management’s commitment to:

• Continue to deliver on the 7 key objectives identified in the 2020 Strategic Plan.
• Focus on long-term value for all customers.
• Investing in assets ensures access to long-term, low-cost PRP resource.
• Increased focus on efficiency gains, containing costs, and pursuing new revenue sources to ensure financial health while delivering power reliably.
• Retail electric price increases, needed for financial stability, not planned to exceed 2% annually.

Recommendation: As established by RCW, approve the attached resolution providing for the 2021 preliminary Proposed Budget Filing and establishment of a period for public comment.

Cc: Mitch Delabarre
Thanks Mitch.

Randi – Please accept this as my “Approval” on the preliminary budget memo.

Thanks,

- John

---

You have legal concurrence to proceed with these documents.

Mitch

---

Mitch – Attached is the Preliminary Budget Filing for the 2020 budget. The document includes the (i) the memo, (ii) the resolution, and (iii) Exhibits A and B of the Consolidated Forecasted Financial Results. This is the same format and process used for the preliminary budget filing as previous years. I’m looking for your legal concurrence on this item. The preliminary budget will be before the commission on August 11.

Let me know if you have any questions.

Best,

- John

---

John Mertlich  
Sr. Manager of FP&A  

MOBILE  503.349.2825
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
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**August 2020**

- **9:00am** Randalynn Hovland Financial Advisory Committee (Teams Meeting /)
- **10:00am** Randalynn Hovland Commission Meeting (HQ-Commission) -

**September 2020**

- **8:00am** Energy Northwest Executive Board Meeting & Board of Directors
- **8:00am** Energy Northwest Executive Board Meeting & Board of Directors
- **8:00am** Energy Northwest Executive Board Meeting & Board of Directors
<table>
<thead>
<tr>
<th>SUNDAY</th>
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<th>WEDNESDAY</th>
<th>THURSDAY</th>
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<td>9:00am Shannon Lowry North RV Park HOA Annual Meeting (NRVP Common Area) - Shannon Lowry</td>
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<td>10:00am Randalynn Hovland Commission Meeting (HQ-Commission) - Randalynn Hovland</td>
<td>8:00am NWPPA 80th Annual Meeting—and 1st Virtual Annual Meeting (times and login detail coming soon) - Commission</td>
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<td>8:00am WPUDA Meeting (Zoom Meeting) - Commission Meetings</td>
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<td>10:00am Randalynn Hovland Commission Meeting (HOB-118 Conf Rm; HOB-117 Large Mtg. Commission Rm):</td>
<td>8:00am Energy Northwest Executive Board Meeting &amp; Board of Directors Meeting (If Needed - Workshop) (Tri-Cities,</td>
<td>8:00am Energy Northwest Executive Board Meeting &amp; Board of Directors Meeting (If Needed - Workshop) (Tri-Cities,</td>
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Commission Meetings
## October 2020

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</table>

- **10:00am Randalynn Hovland Commission Meeting (HQ-Commission) - Randalynn Hovland**
- **9:00am WPUDA Budget Committee Meeting (Zoom Meeting) - Commission Meetings**
- **8:00am Energy Northwest Executive Board Meeting & Board of Directors Meeting (Tri-Cities, WA)**
- **8:00am Energy Northwest Executive Board Meeting & Board of Directors Meeting (Tri-Cities, WA)**