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 August 11, 2020

2. Regular Agenda


   8949 – 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.

   8950 – 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.

3. Review Items For Next Business Meeting

   XXXX – Resolution Accepting a Bid and Awarding Contract 170-10397, for Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination.
4. Calendar

5. Reports from Staff (if applicable)

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

August 11, 2020

The Commission of Public Utility District No. 2 of Grant County, Washington, convened at 9:00 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.

The Commission convened to review vouchers and correspondence.

The Commission recessed at 9:34 a.m.

The Commission resumed at 9:50 a.m.

A round table discussion was held regarding the following topics: system reliability update; Elliot Mainzer’s announced departure as BPA Administrator to take position as CEO of the California ISO; Incident Criticality Level (ICL) status; P08 status update; and customer site visit made by Commissioners Wilson and Flint.


John Mertlich, Senior Manager of FP&A, reviewed the 2021 Preliminary Budget Report.

Ron Alexander, Senior Manager of Power Delivery Construction and Maintenance; Jacob Johnson, Electric Shop Supervisor; Will Coe, Engineer V Power Delivery Construction and Maintenance; and Chris Heimbigner, Line Superintendent; provided a Construction and Maintenance Program Report.

An executive session was announced at 11:35 a.m. to last until 12:00 p.m. to discuss potential litigation with legal counsel present pursuant to RCW 42.30.110(1)(i). The executive session concluded at 12:00 p.m. and the regular session resumed.

The executive session was extended from 12:00 p.m. to last until 12:30 p.m. to discuss potential litigation with legal counsel present pursuant to RCW 42.30.110(1)(i). The executive session concluded at 12:30 p.m. and the regular session resumed.

The Commission recessed at 12:30 p.m.

The Commission resumed at 1:00 p.m.

Public comment was received by Washington State Representative Tom Dent, 13th Legislative District; Washington State Senator Judy Warnick, 13th Legislative District; Cory Wright, Kittitas County Commissioner; Bryan Stockdale, Riverstone Resort; Mark Ricky, Kittitas County Sheriff Deputy and Kittitas County Marine Program member; and Russ Jenkins, recreator; in support of continued operations of Riverstone Resort in Vantage, Washington. In addition, each encouraged the Board to speak with Bryan Stockdale about the continued operation of Riverstone Marina.

Roger Sonnichsen, Quincy Columbia Basin Irrigation District, inquired about status of the transmission rate proposal submitted on behalf of the Bureau of Reclamation and Irrigation Districts and requested a meeting of attorneys for the parties to discuss FERC jurisdiction.

Correspondence was noted from Lake Wenatchee Fire & Rescue regarding interest in PUD property located in Leavenworth, Washington; Roger Sonnichsen of Quincy Columbia Basin Irrigation District regarding request for meeting of Counsel to discuss FERC Jurisdiction; and Dan Casler regarding concerns with costs and circumstances associated with a contracted Crescent Bar towing company.
Consent agenda motion was made Mr. Schaapman and seconded by Mr. Cox to approve the following consent agenda items:

<table>
<thead>
<tr>
<th>Payment Number</th>
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<tbody>
<tr>
<td>Payroll Direct Deposit</td>
<td>through</td>
<td>$1,964,085.45</td>
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<tr>
<td>Payroll Tax and Garnishments</td>
<td>through</td>
<td>$816,617.99</td>
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</table>


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

Resolution No. 8945 relative to accepting a bid and awarding a contract was presented to the Commission. Motion was made by Mr. Schaapman and seconded by Mr. Cox to approve Resolution No. 8945. After consideration, the motion passed by unanimous vote of the Commission.

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>
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</thead>
<tbody>
<tr>
<td>Delta Star QC</td>
<td>$25,761,358</td>
<td>$37,352,305</td>
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<tr>
<td>WEG Transformers USA</td>
<td>$28,276,871</td>
<td>$53,569,494</td>
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<tr>
<td>Delta Star CA</td>
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<tr>
<td>SPX</td>
<td>$35,219,080</td>
<td>$46,462,457</td>
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</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.

Resolution No. 8946 relative to accepting a bid and awarding a contract was presented to the Commission. Motion was made by Mr. Schaapman and seconded by Mr. Cox to approve Resolution No. 8946. After consideration, the motion passed by unanimous vote of the Commission.

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 Coatings 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.

Resolution No. 8947 relative to issuing bonds was presented to the Commission. Motion was made by Mrs. Wilson and seconded by Mr. Cox to approve Resolution No. 8947. After consideration, the motion passed by unanimous vote of the Commission.

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

The Commissioners reviewed future agenda items.

The Commission calendar was reviewed.

Derin Bluhm, Chief Technology Officer, provided the IT Report.

Andrew Munro, Senior Manager of External Affairs and Communications, and Cliff Sears, Senior Policy Analyst, provided a Federal & State Legislative Update Report.
Mitch Delabarre, General Counsel, updated the Commission on District Real Estate and the need for condemnation in support of the PRREIP.

Kevin Nordt, General Manager / CEO informed the Board of a staff recommendation to extend terms of the existing Memorandum of Agreement (MOA) between Grant PUD and the Bureau of Reclamation for supply transfer service of federal power to Reclamation loads on the Grant PUD electric system through end of calendar year 2021. A formal proposal will be presented to Board for action at a future meeting. In addition, Mr. Nordt noted that the proposed staff recommendation would be communicated to both the Bureau of Reclamation and Irrigation Districts.

Trade Association / Committee Reports were reviewed.

An executive session was announced at 3:15 p.m. to last until 3:45 p.m. to discuss potential litigation with legal counsel present pursuant to RCW 42.30.110(1)(i). The executive session concluded at 3:45 p.m. and the regular session resumed.

The executive session was extended from 3:45 p.m. to last until 4:15 p.m. to discuss potential litigation with legal counsel present pursuant to RCW 42.30.110(1)(i). The executive session concluded at 4:15 p.m. and the regular session resumed.

There being no further business to discuss, the August 11, 2020 meeting officially adjourned at 4:15 p.m.

______________________________
Tom Flint, President

ATTEST:

______________________________  ________________________________
Judy Wilson, Secretary  Larry Schaapman, Vice President

______________________________  ________________________________
Dale Walker, Commissioner  Nelson Cox, Commissioner
REGULAR AGENDA
RESOLUTION NO. 8948

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. 8948

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

(i) 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
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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) which may include 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-effective 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 1-1

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<td></td>
</tr>
<tr>
<td>Distributed Generation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undecided</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Resources</strong></td>
<td><strong>1,084.83</strong></td>
<td><strong>1,069.58</strong></td>
<td><strong>857.87</strong></td>
</tr>
<tr>
<td><strong>Load Resource Balance</strong></td>
<td><strong>312.42</strong></td>
<td><strong>259.15</strong></td>
<td><strong>259.78</strong></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 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.

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 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 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 AND OBJECTIVES FOR INTEGRATED RESOURCE PLANNING

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 half 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 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>2022</td>
<td>360 MW (1976)</td>
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<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>
</tbody>
</table>

| Regional Utility Total | 1,899 MW |
| Regional Total (incl. IPPs) | 3,772 MW |

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

**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.*
## RESOURCE 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.
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 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), which addressed 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 System 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.
Energy Imbalance Market (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.

Staff is currently looking to engage an industry consultant with EIM experience to help evaluate what is requisite for Grant PUD to enter the EIM in the next five years. This includes possible upgrades to systems and meters as well as resource needs. This work is scheduled to be performed in the second half of 2020.

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.

Graph 4-2 | Annual System Load – Historical and Forecasted
District Load Forecast: April 2020
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 retail 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. 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>
</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>.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 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.

Graph 7-1 | Annual Loads and Resources: Base Case – Physical Resources Only
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 5 aMW 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 Grant’s service territory (See Appendix 1). This least-cost modeling approach is consistent with Grant PUD’s mission to safety, 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 8-1 | Resource options considered in RESOLVE

<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>
</tr>
<tr>
<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>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Grant PUD Load Forecasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Low Load</td>
</tr>
<tr>
<td>Base Load</td>
</tr>
<tr>
<td>Medium High Load</td>
</tr>
<tr>
<td>High Load</td>
</tr>
</tbody>
</table>
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 through 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, PPA’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 4)

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
Graph 9-3 | Annual Loads and Resources – Base Case – Added Resources

Graph 9-4 | Average Summer Capacity – Base Case – Added Resources
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).

Graph 9-9 | Annual Loads and Resources – Medium Low Case – Added Resources

Graph 9-10 | Average Summer Capacity – Medium Low Case – Added Resources
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 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.
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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<th>Functionality</th>
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<td>Natural Gas Generation</td>
<td>• Simple cycle gas turbines • Reciprocating engines • Combined cycle</td>
<td>• Dispatches economically based on heat rate, subject to ramping limitations</td>
</tr>
<tr>
<td></td>
<td>gas turbines • Repowered CCGTs</td>
<td>• Contributes to meeting minimum generation and ramping constraints</td>
</tr>
<tr>
<td>Renewable Generation</td>
<td>• Geothermal • Hydro upgrades • Solar PV • Wind</td>
<td>• Dynamic downward dispatch (with cost penalty) of renewable resources to help</td>
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<td></td>
<td></td>
<td>balance load</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hydro resources have full up and downward flexibility to balance load.</td>
</tr>
<tr>
<td>Energy Storage</td>
<td>• Batteries (&gt;1 hr) • Pumped Storage (&gt;12 hr)</td>
<td>• Stores excess energy for later dispatch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contributes to meeting minimum generation and ramping constraints</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>• HVAC • Lighting • Dryer, refrigeration, etc.</td>
<td>• Reduces load, retail sales, planning reserve margin need</td>
</tr>
<tr>
<td>Demand Response</td>
<td>• Interruptible tariff (ag) • DLC: space &amp; water heating (res)</td>
<td>• Contributes to planning reserve margin needs</td>
</tr>
</tbody>
</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 CCGT, 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; 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.

---

15 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.

16 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 as 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 surpluses).

**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.

<table>
<thead>
<tr>
<th>Category</th>
<th>Study Zone</th>
<th>Constituent Balancing Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Zone</strong></td>
<td>Core Northwest</td>
<td>• Avista Corporation (AVA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bonneville Power Administration (BPA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chelan Public Utilities District (CHPD)</td>
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<tr>
<td></td>
<td></td>
<td>• Douglas Public Utilities District (DOPD)</td>
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<tr>
<td></td>
<td></td>
<td>• Grant County Public Utilities District (GCPD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pacificorp West (PACW)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Portland General Electric (PGE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Puget Sound Energy (PSE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Seattle City Light (SCL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tacoma Power (TPWR)</td>
</tr>
<tr>
<td><strong>Secondary Zones</strong></td>
<td>Other Northwest</td>
<td>• Idaho Power Company (IPC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NorthWestern Energy (NWMT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pacificorp East (PACE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WAPA – Upper Wyoming (WAUW)</td>
</tr>
<tr>
<td></td>
<td>California</td>
<td>• Balancing Authority of Northern California (BANC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• California Independent System Operator (CAISO)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Imperial Irrigation District (IID)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Los Angeles Department of Water and Power (LADWP)</td>
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<tr>
<td></td>
<td></td>
<td>• Turlock Irrigation District (TIDC)</td>
</tr>
<tr>
<td></td>
<td>Nevada</td>
<td>• Nevada Power Company (NEVP)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sierra Pacific Power (SPP)</td>
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<tr>
<td></td>
<td>Rocky Mountains</td>
<td>• Public Service Company of Colorado (PSC)</td>
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<tr>
<td></td>
<td></td>
<td>• WAPA – Colorado-Missouri (WACM)</td>
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<tr>
<td></td>
<td>Southwest</td>
<td>• Arizona Public Service Company (APS)</td>
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<td></td>
<td></td>
<td>• El Paso Electric Co (EPE)</td>
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<td></td>
<td></td>
<td>• Public Service Company of New Mexico (PNM)</td>
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<td></td>
<td></td>
<td>• Salt River Project (SRP)</td>
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<tr>
<td></td>
<td></td>
<td>• Tucson Electric Power (TEP)</td>
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<tr>
<td></td>
<td></td>
<td>• WAPA – Lower Colorado</td>
</tr>
<tr>
<td><strong>Excluded</strong></td>
<td></td>
<td>• Alberta Electric System Operator (AESO)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• British Columbia Transmission Company (BCTC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CFE (CFE)</td>
</tr>
</tbody>
</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 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. 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
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>Table ES-1</th>
<th>Cost-Effective Potential (aMW)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-Year</td>
</tr>
<tr>
<td>Residential</td>
<td>0.66</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.82</td>
</tr>
<tr>
<td>Industrial</td>
<td>2.42</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.19</td>
</tr>
<tr>
<td>Total</td>
<td>4.09</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>Table ES-2</th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
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<tbody>
<tr>
<td>Residential</td>
<td>0.82</td>
<td>4.19</td>
<td>10.26</td>
<td>22.96</td>
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<tr>
<td>Commercial</td>
<td>0.68</td>
<td>3.48</td>
<td>8.14</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.

**Figure ES-2**
Annual Cost-Effective Energy Efficiency Potential

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 % Change</th>
<th>10-Year % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>190%</td>
<td>4%</td>
</tr>
<tr>
<td>Commercial</td>
<td>74%</td>
<td>-8%</td>
</tr>
<tr>
<td>Industrial</td>
<td>0%</td>
<td>45%</td>
</tr>
<tr>
<td>Agricultural</td>
<td>-65%</td>
<td>-65%</td>
</tr>
<tr>
<td>Total</td>
<td>12%</td>
<td>12%</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

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.

**Figure 2**
Types of Energy Efficiency Potential

<table>
<thead>
<tr>
<th>Not Technically Feasible</th>
<th>Technical Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Technically Feasible</td>
<td>Achievable Potential</td>
</tr>
<tr>
<td>Not Technically Feasible</td>
<td>Market &amp; Adoption Barriers</td>
</tr>
<tr>
<td>Not Technically Feasible</td>
<td>Not Cost-Effective</td>
</tr>
<tr>
<td>Economic Potential</td>
<td></td>
</tr>
</tbody>
</table>

**Technical** – 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

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2 Reproduced from U.S. Environmental Protection Agency. *Guide to Resource Planning with Energy Efficiency*. Figure 2-1, November 2007
savings of each measure as if it were installed after other measures that impact the same end use.

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 cost-effective.

**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 non-energy savings benefits. Non-energy costs and benefits can be difficult to enumerate, yet non-energy 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: 20-Year Market Price Forecast](image-url)
**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.
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.
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, multi-family 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>
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<tbody>
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<td>Heating Zone</td>
<td>Cooling Zone</td>
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<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Existing Homes - Heating / Cooling System Saturations</th>
</tr>
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<tbody>
<tr>
<td>Electric Heat/Cooling System Saturations</td>
<td>Single Family</td>
</tr>
<tr>
<td>Electric Forced Air Furnace</td>
<td>25%</td>
</tr>
<tr>
<td>Heat Pump</td>
<td>35%</td>
</tr>
<tr>
<td>Ductless Heat Pump</td>
<td>1%</td>
</tr>
<tr>
<td>Electric Zonal/Baseboard</td>
<td>39%</td>
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<tr>
<td>Central Air Conditioning</td>
<td>48%</td>
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<td>Room Air Conditioners</td>
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<tr>
<th>Table 3</th>
<th>New Homes - Heating / Cooling System Saturations</th>
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<td>Room Air Conditioners</td>
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### Existing Homes - Appliance Saturations

<table>
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<th>Appliance Saturation</th>
<th>Single Family</th>
<th>Multifamily - Low Rise</th>
<th>Manufactured</th>
</tr>
</thead>
<tbody>
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<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>
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<td>Freezer</td>
<td>53%</td>
<td>4%</td>
<td>43%</td>
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<td>Clothes Washer</td>
<td>99%</td>
<td>47%</td>
<td>99%</td>
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<td>Dishwasher</td>
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<td>77%</td>
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<td>Electric Oven</td>
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<td>Desktop</td>
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<tr>
<td>Laptop</td>
<td>68%</td>
<td>26%</td>
<td>42%</td>
</tr>
<tr>
<td>Monitor</td>
<td>102%</td>
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<td>72%</td>
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### New Homes - Appliance Saturations

<table>
<thead>
<tr>
<th>Appliance Saturation</th>
<th>Single Family</th>
<th>Multifamily - Low Rise</th>
<th>Manufactured</th>
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<tr>
<td>Electric Water Heaters</td>
<td>99%</td>
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<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>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>
<tr>
<td>Desktop</td>
<td>96%</td>
<td>44%</td>
<td>72%</td>
</tr>
<tr>
<td>Laptop</td>
<td>68%</td>
<td>26%</td>
<td>52%</td>
</tr>
<tr>
<td>Monitor</td>
<td>102%</td>
<td>45%</td>
<td>72%</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).[^3]

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>
<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>
<tr>
<td>Total</td>
<td>44,256,309</td>
<td>2.2%</td>
<td></td>
</tr>
</tbody>
</table>

*NEEA 2014 Commercial Building Stock Assessment.

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>1,551,271</td>
<td>1.2%</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. 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.
Results – Energy Savings and Costs

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: 20-Year Achievable Potential Supply Curve](image)

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

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**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 7
Cost Effective Achievable Potential (aMW)

<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>

### Sector Summary

Figure 10 shows the cost-effective potential by sector on an annual basis.

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 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.
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.
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**

*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 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](image)

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 8
Utility Program Costs (2019$)

<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>$1,674,000</td>
<td>$5,167,000</td>
<td>$7,615,000</td>
<td>$9,604,000</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>
<tr>
<td><strong>Total</strong></td>
<td><strong>$6,010,000</strong></td>
<td><strong>$21,496,000</strong></td>
<td><strong>$33,922,000</strong></td>
<td><strong>$51,039,000</strong></td>
</tr>
<tr>
<td>$/First Year MWh</td>
<td>$168</td>
<td>$159</td>
<td>$155</td>
<td>$149</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 9
TRC Levelized Cost (2019$/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>
<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</td>
<td>$0</td>
<td>Federal 2.5% Discount Rate</td>
</tr>
<tr>
<td></td>
<td>Values</td>
<td></td>
<td>Values</td>
</tr>
<tr>
<td>Value of REC Compliance</td>
<td>Current RPS + WA CETA</td>
<td>$6.85</td>
<td>$6.85</td>
</tr>
<tr>
<td></td>
<td>Current RPS</td>
<td>$3.08</td>
<td>$3.08</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></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-52/MWh</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0/kW-year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-39/MWh</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0/kW-year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grant County Public Utility District—Conservation Potential Assessment 35
Table 11 summarizes results across each avoided cost scenario, using Base Case load forecasts and measure acquisition rates.

<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>Base Case</td>
<td>4.1</td>
<td>15.4</td>
<td>25.0</td>
<td>39.2</td>
</tr>
<tr>
<td>Low Avoided Costs</td>
<td>1.9</td>
<td>6.7</td>
<td>11.1</td>
<td>18.9</td>
</tr>
<tr>
<td>High Avoided Costs</td>
<td>5.5</td>
<td>20.7</td>
<td>34.8</td>
<td>58.7</td>
</tr>
</tbody>
</table>

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.”\(^5\) 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

\(^5\) RCW 19.285.040 Energy conservation and renewable energy targets.
Independence Act, a pro-rata share could be 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 cost-effective conservation may vary from the estimates provided in this report.

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-.xlsx − referred to as “MC and Loadshape file” − contains price and load shape data

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### 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>a) <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 be installed or implemented, without regard to achievability or cost.</td>
<td>The model includes estimates for stock (e.g. number of homes, square feet of commercial floor area, industrial load) and the number of 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>
<td>Model – the technical potential is calculated as part of the achievable potential, described below.</td>
</tr>
<tr>
<td>b) <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 PUD used ramp rate curves to identify the amount of achievable potential for each measure. Those assumptions are for the 20-year planning period. An additional factor of 85% was included to account for market barriers in the calculation of achievable potential.</td>
<td>Model – the use of these factors can be found on the sector measure tabs, such as ‘Residential Measures’. Additionally, the complete set of ramp rates used can be found on the ‘Ramp Rates’ tab.</td>
</tr>
<tr>
<td>c) <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 multiple inputs; benefit was then divided by cost. Measures achieving a benefit-cost ratio greater than one were tallied. These measures are considered achievable and cost-effective (or “economic”).</td>
<td>Model – BC Ratios are calculated at the individual level by ProCost and passed up to the model.</td>
</tr>
</tbody>
</table>
### WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

<table>
<thead>
<tr>
<th>NWPC Methodology</th>
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</thead>
<tbody>
<tr>
<td><strong>d)</strong> Total Resource Cost: 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>
<td>Model – supporting files include all of the ProCost files used in the Seventh Plan. The life-cycle cost calculations and methods are identical to those used by the Council.</td>
</tr>
<tr>
<td><strong>e)</strong> 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>
<td>Model – the “Measure Info Rollup” files pull in all the results from each avoided cost scenario, including the BC ratios from the ProCost results. These results are then linked to by the Conservation Potential Assessment model. The TRC analysis is done at the lowest level of the model in the ProCost files.</td>
</tr>
<tr>
<td><strong>f)</strong> 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>
<td>Model – supporting files include all of the ProCost files used in the Seventh Plan. The life-cycle cost calculations and methods are identical to those used by the Council.</td>
</tr>
<tr>
<td><strong>g)</strong> 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>
<td>Model – See MC file for load shapes. The ProCost files handle the calculations.</td>
</tr>
<tr>
<td><strong>h)</strong> 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>
<td>Model – the ProCost files contain the same assumptions for periodic O&amp;M as the Council and RTF.</td>
</tr>
<tr>
<td>NWPCC Methodology</td>
<td>EES Consulting Procedure</td>
<td>Reference</td>
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</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>
<td>Report—See Appendix IV. Model – See MC File (“Base Market Price” worksheet).</td>
</tr>
<tr>
<td>j) Include deferred capacity expansion benefits for transmission and distribution systems</td>
<td>Deferred transmission capacity expansion benefits were given a benefit of $3.08/kW-year in the cost-effectiveness analysis. A distribution system credit of $6.85/kW-year was also used.</td>
<td>Model – this value can be found on the ProData page of each ProCost file.</td>
</tr>
<tr>
<td>k) Include deferred generation benefits consistent with the contribution to system peak capacity of the conservation measure</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>l) Include the social cost of carbon emissions from avoided non-conservation resources</td>
<td>The avoided cost data include estimates of future high, medium, and low CO₂ costs.</td>
<td>Multiple scenarios were analyzed, and these scenarios include different levels of estimated costs and risk.</td>
</tr>
<tr>
<td>m) 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 non-conservation 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 non-specific 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>n) 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 assumptions for non-power benefits as the Council and RTF. The calculations are handled in by ProCost.</td>
</tr>
</tbody>
</table>
## WAC 194-37-070 Documenting Development of Conservation Targets; Utility Analysis Option

<table>
<thead>
<tr>
<th>NWPCC Methodology</th>
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<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>o) 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>p) Include the cost of financing measures using the capital costs of the entity that is expected to pay for the measure</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>q) Discount future costs and benefits at a discount rate equal to the discount rate used by the utility in evaluating non-conservation resources</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>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.

![Figure IV-1](image-url)
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](image)

**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 low-case 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 Plan, 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></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>
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<tr>
<td>Value of REC Compliance</td>
<td>Current RPS + WA CETA</td>
<td>Current RPS</td>
<td>Current RPS + WA CETA</td>
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<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>
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<tr>
<td></td>
<td></td>
<td>$0/kW-year</td>
<td>$115/kW-year</td>
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<td></td>
<td></td>
<td>Average of:</td>
<td>Average of:</td>
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<td></td>
<td></td>
<td>$0/kW-year</td>
<td>$115/kW-year</td>
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</tbody>
</table>

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>
<thead>
<tr>
<th>End Use</th>
<th>Measures/Categories</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
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### Appendix VI – Energy Efficiency Potential by End-Use

#### Table VI-1
**Residential Economic Potential (aMW)**

<table>
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<th>End-Use</th>
<th>2 Year</th>
<th>6 Year</th>
<th>10 Year</th>
<th>20 Year</th>
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<tr>
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<td>0.08</td>
<td>0.22</td>
<td>0.27</td>
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<tr>
<td>Food Preparation</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>HVAC</td>
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<td>1.64</td>
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<td>-</td>
<td>-</td>
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#### Table VI-2
**Commercial Economic Potential (aMW)**

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<td>0.06</td>
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<td>0.21</td>
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**Industrial Economic Potential (aMW)**

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<td><strong>15.53</strong></td>
<td><strong>25.23</strong></td>
</tr>
</tbody>
</table>

### Table VI-4
**Agricultural Economic Potential (aMW)**

<table>
<thead>
<tr>
<th>Industry</th>
<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>
</tr>
</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>
<thead>
<tr>
<th>Program History</th>
<th>CPA Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
</tr>
<tr>
<td>Residential</td>
<td>0.32</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.39</td>
</tr>
<tr>
<td>Industrial</td>
<td>1.20</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.10</td>
</tr>
<tr>
<td>Total</td>
<td>2.01</td>
</tr>
</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>Program History</th>
<th>2017</th>
<th>2018</th>
<th>Average</th>
<th>CPA Potential</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>0.01</td>
<td>0.01</td>
<td>0.18</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HVAC</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.18</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.02</td>
<td>0.00</td>
<td>0.01</td>
<td>-</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water Heating</td>
<td>0.13</td>
<td>0.15</td>
<td>0.13</td>
<td>-</td>
</tr>
<tr>
<td>Whole Building</td>
<td>0.31</td>
<td>0.40</td>
<td>0.35</td>
<td>-</td>
</tr>
<tr>
<td>NEEA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.31</strong></td>
<td><strong>0.41</strong></td>
<td><strong>-</strong></td>
<td><strong>0.36</strong></td>
</tr>
</tbody>
</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.
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.
You're invited to Grant PUD's

PUBLIC HEARING

on the 2020 Integrated Resource Plan

JULY 28, 2020
2:00 p.m.

The public can access the meeting remotely via phone by calling 509-703-5291 and using conference ID 678 050 6#.
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.
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. 8949

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 25th 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 December.

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. NaturEner 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 NaturEner 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 Manager 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. The Parties shall make cash payments as provided in Article VI and Article XI.

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 to third parties as determined by the District in its discretion.

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 Hydroelectric Power 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 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. 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 thereeto 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.

User fails to do so

and if such other Priest Rapids Project User fails to do so

(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
(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 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 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, 2025 through December 31, 2025 (subject to the terms hereof), which obligation shall survive the expiration of the Term;

(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. The Parties acknowledge that the CAISO, the WECC, the NWPP, and other energy collectives may introduce, or a Governmental Authority may impose via a Change in Law, new market structures, such as an energy imbalance market, an extended day-ahead market, a resource adequacy market, and others, over the Term of this Agreement (any such new structures are “New Market Structures”). In the event a Party wishes to participate in a New Market Structure then such Party shall give the other Party Notice of such intention. Such Notice shall be given as far in advance as reasonably practicable, but in no event shall Notice be given less than sixty (60) days prior to participating in such New Market Structure (unless the Party is compelled to participate earlier than sixty (60) days either by law or by emergency). Upon receipt of such Notice, the Parties shall confer in good faith to determine whether such participation would reasonably be expected to have a material impact on either Party’s performance under this Agreement (either operationally, economically or legally). If neither Party informs the other within twenty (20) days of the date of such Notice that it has determined that it expects to incur such a material impact as a result of such New Market Structure, then either Party may participate in the New Market Structure without the agreement of the other Party. If, however, either Party informs the other within twenty (20) days of the date of such Notice that it has determined that it expects to incur a material impact as a result of such New Market Structure, or a Party was compelled to participate in such New Market Structure by law, then the Parties shall confer and cooperate in good faith to agree upon such modifications to this Agreement as may be reasonably required in light of the New Market Structure 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 (and, unless required by law, the Party may not join the New Market Structure) if the District’s bond counsel or tax counsel determines that such modification would impact the tax exempt or tax advantages status of any outstanding District bond or potential future bond issuance. 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. In the event a change in circumstances occurs that is arguably covered by both this section and Section 20.01 or Section 20.18, then this Section 4.09 shall apply.
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”). 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. 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 4.00/MWh (or equivalent); and (b) for calendar year 2022, $5.50/MWh, and increasing 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 the additional Carbon Attributes for such compliance purposes and District shall not owe any payment to Morgan Stanley for such additional Carbon Attributes. Morgan Stanley, in its sole discretion, shall have the right but not the obligation to deliver Carbon Attributes obtained from third parties to the District as substitutes for the Carbon Attributes that would have been delivered hereunder; provided, that 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 Carbon Attributes to qualify in the same manner as additional Carbon Attributes associated with the Priest Rapids Project and to satisfy the New Greenhouse Gas Legislation.

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. The District may request under this Section 5.05(d) any bus, intertie or other physical or scheduling BAA adjacent point that currently exists or becomes available in the future. Morgan Stanley acknowledges that the District 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 deliver of the District Product and Morgan Stanley Product. District acknowledges that such points must comply with Applicable Standards and approval from the party to whom the requested point is connected. 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 Reliability Standards; provided, however, that at no time shall Morgan Stanley be deemed to have assumed responsibility for NERC Reliability Standards 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. Nothing in this Agreement shall entitle Morgan Stanley to acquire any interest in or rights to any District facilities, including those comprising the Priest Rapids Project. Nor shall anything in this Agreement limit the District’s rights as owner or operator of the Priest Rapids Project to operate in a manner that complies with all standards, requirements, agreements and business practices. In performing its responsibilities and exercising its rights under this Agreement, Morgan Stanley shall not utilize or attempt to utilize the District BA or the District’s transmission system for any purpose other than delivery and receipt of the Products, and service and meeting of the District Actual Load as specified herein. This provision shall not restrict the following: (i) Morgan Stanley’s right to provide Morgan Stanley Product from external sources as provided in Section 5.02; (ii) Morgan Stanley’s right to schedule Energy into and out of the BA in any volume, quality and control interval as provided in Sections 4.05(g) and 5.06(g); and (iii) Morgan Stanley’s right to use District transmission without any fees or charges as set forth in Sections 4.05(i) and 5.06(d) for purposes of schedules that source or sink in the District BA.

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) **Prompt Month Quantities.** Prior to and during a Prompt Month, if District anticipates that its actual Load may exceed the District Baseline Load for an upcoming Delivery Month, District shall have the right to procure block (Peak, Off-Peak, Super-Peak) purchases of electric capacity, firm Energy or Ancillary Services to serve District’s Load in excess of the District Baseline Load for that upcoming Delivery Month from third-parties (“Third-Party Purchases”) provided that Notice of all such quantities of Third-Party Purchases is provided pursuant to Section 5.11(b), and provided such purchases are generally made to 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 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 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 that 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
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. 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 using the formula and shaped monthly index prices shown 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 using the formulas specified 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 using the formulas specified 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, amounts reflected in Table C1 of Exhibit C shall be compared with actual (“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 using the formula specified in Section (3) of Exhibit C. If such calculation shows that the Lower Threshold exceeded Actual Fish Spill Energy for such month, then Morgan Stanley shall owe District a payment calculated using the formula specified 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 (“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 using the formula specified 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 using the formula specified 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, and the difference shall be calculated as specified in Section (5) of Exhibit C. If such calculation shows Canadian Entitlement exceeded Actual Canadian Entitlement for such month, then Morgan Stanley shall owe District a payment calculated using the formula specified 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 [Reliability Standards](#) 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 [Reliability Standards](#) and WECC Reliability [Requirements](#) Standards, 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. These reserve margins shall recognize such errors as load forecast errors of one to three percent (1 – 3%) and wind forecast errors; and flexibility to zero ACE at RC directive without shedding load.

(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...
7.05 Adjacencies. District is currently adjacent to PAC, PGE, CHPD, DCPD, BPA, Puget Sound Energy, SCL, AVA, AVRN and TPWR, and their respective BAs, and Morgan Stanley shall have access to all such adjacencies. No Scheduling Agent shall be or become an adjacent BA without the prior written consent of the District.

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. [Exhibit B]

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 [5 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;

(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;¹

(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) Default on Specified Indebtedness. There occurs (A) a default, event of default or other similar condition or event (however described) in respect of a Party under one or more agreements or instruments designated as a Specified Indebtedness where the aggregate principal amount of such one or more agreements or instruments, 

(h) Default under Specified Transaction.

(i) 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 [ ] 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 twenty (20) 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 [ ] Business Days unless an Early Termination Date shall have been declared and Notice thereof been given pursuant to this Section;

¹ Plus the one Business Day provided to post under Article XII equals four total Business Days.
(c) to suspend performance under this Agreement; provided, however, in no event shall any such suspension continue for longer than 10 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 10 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 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 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 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 30 days 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 5 Business Days 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 1 year after the invoice is rendered or any specific adjustment to the invoice is made. If an invoice is not rendered within 30 days 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.

(d) Unit Availability.

(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 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>
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<table>
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<tr>
<th>District’s Credit Rating</th>
<th>Threshold</th>
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<td>Moody’s</td>
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<td>S&amp;P</td>
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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-only to in advance by the receiving Party extent it is proceeds of a draw upon a Letter of Credit hereunder, 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 satisfies all regulatory capital requirements applicable to it (including any individual regulatory capital requirements), and having Credit Ratings of at least “A-” by S&P and “A3” 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, 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 prior to the expiration of such 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 within 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 (A) 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); (B) if an Event of Default has occurred with respect to the Pledgor for which there exist any unsatisfied payment obligations, 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 that such Event of Default has occurred; (C) multiple draws (up to the aggregate of the face amount for which the Letter of Credit has been issued) may be made; and (D) the Secured Party may draw on the entire, undrawn portion of any outstanding Letter of Credit if there are fewer than [thirty (30) calendar days] to the expiration of the outstanding Letter of Credit and such Letter of Credit has not been extended or substitute Eligible Collateral has not been provided. 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. Cash proceeds received from drawing upon the Letter of Credit shall be deemed held as security for the Pledgor’s obligations to the Secured Party and the Secured Party shall have the rights and remedies set forth in Section 12.08 with respect to such cash proceeds, including the right to apply such cash proceeds against amounts outstanding hereunder. Notwithstanding the foregoing, if an Event of Default is not continuing with respect to the Pledging Party and the Secured Party has not applied all cash proceeds to amounts outstanding hereunder, then the Secured Party shall promptly return such cash proceeds (or the unapplied portion thereof) to the Pledgor upon the Pledgor’s transfer to the Secured Party of Eligible Collateral in an amount equal to or greater than the Delivery Amount.

(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 as and when required hereunder 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 substituted. (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 The Parties acknowledge that any cash proceeds held by the non-defaulting Party with the advance consent from a draw on Letter of the other Party. Any cash posted credit issued by the District will be held by a bank trust department that is a qualified public depository for public funds (defaulting Party 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 allowed herein are subject to the lien on Electric System revenues granted to bond owners 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. For that reason, no lien or security is granted or required to be given hereunder by either Party to the other with respect to such cash proceeds.

12.04 Credit Support Obligations.

(a) Upon a written demand made by the Party entitled to require Eligible Collateral as security for the prompt and complete payment of all amounts due or that may now or hereafter become due from a Party to the other Party and 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)] hundred thousand dollars ($100,000). 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 ten 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 application 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.**

15.03 **Exclusions.**
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 will be the reporting counterparty with respect to any transaction under this Agreement that is a commodity option. In such event 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 1.141 7(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.
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 arbitration, 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 during [informal meeting period] (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) The Parties intend that any dispute arising between them hereunder shall be resolved by binding arbitration in accordance with the terms of Section 19.01, but in the event any provisional relief (as provided in Section 19.04) is sought by either party in court, the 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. 19.03 [Reserved]

19.04 Provisional Relief. The Parties acknowledge and agree that irreparable damage could occur if certain provisions of this Agreement in Article XIV (Confidentiality) are not performed in accordance with the terms of this Agreement, that money damages would not be a sufficient remedy for any breach of those 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 the confidentiality obligations set forth in Article XIV 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. In the event a change in circumstances occurs that is arguably covered by both this section and Section 4.09, then Section 4.09 shall apply exclusively. In the event a change in circumstances occurs that is arguably covered by both this section and Section 20.18, then Section 20.18 shall apply exclusively.

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 review set forth in United Gas Pipe Line Co. v. Mobile Gas Service Corp., 350 U.S. 332 (1956) and Federal Power Commission v. Sierra Pacific Power Co., 350 U.S. 348 (1956) and clarified by Morgan
(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. The District represents that the payments to be made by the District under this Agreement are operation and maintenance expenses of the Electric System (including costs of the Priest Rapids Project). [NTD: Subject to review by District bond counsel] [THE REMAINDER OF THIS PAGE LEFT INTENTIONALLY BLANK]
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 (BA Compliance Standards)
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, but not Morgan Stanley Derivative Products Inc.\(^2\)

“AGC” means Automatic Generation Control as defined in the NERC Glossary.

“Ancillary Services” means Regulation, Spinning Reserves and Non-Spinning Reserves.

“Applicable Standards” means BA Compliance Standards, WECC Reliability Standards, [NAESB\(^3\)], 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 the District.

“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(e).

“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 (or in the case of the District, its long-term senior secured debt rating) or if such entity does not have a rating for its senior unsecured long-term debt or senior secured long-term debt, then the issuer credit rating then assigned to such entity by S&P, or the issuer rating then assigned to such entity by Moody’s, 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, (including the existence, validity and interpretation of this Agreement and the applicability of any statute of limitation period), 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 BAA” 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.

“District’s Carbon Attribute Requirement” has the meaning set forth in Section 5.03.

“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

(2) Morgan Stanley’s Contract Quantity share of maximum capacity of District Product minus Morgan Stanley’s static schedules.

(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.

“Initial Scheduling Agent” has the meaning set forth in Section 5.02.

“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 mean HE 0700 PPT through HE 2200 PPT; Monday through Saturday, excluding NERC holidays.

“PAC” means PacifiCorp.

“Park and Lend” means for District BA to receive/deliver firm Energy with reserves on a pre-schedule basis, and deliver/receive a like amount of firm Energy with reserves on an hour by hour basis in real-time.

“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.

“Specified Indebtedness” means any indenture or credit agreement with a lender for loans, bond or note issuances or lines of credit with respect to borrowed money.

“Specified Transaction” means any contract or service agreement or any physically- or financially-settled transaction (whether or not documented under or effected pursuant to a master agreement, any instrument or any undertaking) now existing or hereafter entered into between the Parties.

“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.

“WECC Reliability Standards” means the Regional Reliability Standards and WECC Regional Criteria for the Western Interconnection as approved and adopted by the WECC from time to time.

“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>District Baseline Payment (MWh)</th>
<th>District Baseline Load (MWh)</th>
<th>District Baseline DBL (MWh)</th>
<th>HL Load (MWh)</th>
<th>HL DBL (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 NERC).

“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:

   \[
   \text{HL DAL} \quad \text{is that hour's District Actual Metered Load during HLH measured in MW.}
   \]

   \[
   \text{LL DAL} \quad \text{is that hour's District Actual Metered Load during LLH measured in MW.}
   \]

   \[
   \text{HL DBL} \quad \text{is the District Baseline Load (Fixed Returned Energy Schedule) during HLH.}
   \]

   \[
   \text{LL DBL} \quad \text{is the District Baseline Load (Fixed Returned Energy Schedule) during LLH.}
   \]
2. Availability

Availability Adjustment = \[(\text{ActOutHL} - \text{BaseOutHL}) \times (\text{Mid C HL price or Agreed upon Index}) + (\text{ActOutLL} - \text{BaseOutLL}) \times (\text{Mid C LL price or Agreed upon Index})\]

Where:

- \(\text{ActOutHL}\) is the District Actual Outage Energy during On-Peak Hours measured in MWh calculated as shown below.
- \(\text{ActOutLL}\) is the District Actual Outage Energy during Off-Peak Hours measured in MWh calculated as shown below.
- \(\text{BaseOutHL}\) is the District Baseline Outage 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 completelyUnavailable for an hour will have a reduction of 1.
  - For units that are Unavailable for a portion of an hour, the Hourly Unavailability at Priest Rapids (HUPRD) and the Hourly Unavailability at Wanapum (HUWAN) will be calculated as:
    \[\text{HUPRD} = \sum_{i=1}^{10} \text{Reduction PRD unit}\]
    \[\text{HUWAN} = \sum_{i=1}^{10} \text{Reduction PRD unit}\]
  - For each hour, use the outage energy is summed by HL and LL hours.
Availability Adjustment example - May outages

Assume P3 is out for exactly 24 hours starting midnight May 2, 2021
Assume P9 is off for 95 minutes that same day, starting beginning of HE1400
Assume a line outage at Wanapum that runs from midnight May 2, 2021 for 1 day and 3 hours. W1-W4 are off.

Heavy Load Hours
From Table C-2

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<th>Priest Rapids</th>
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<th>Energy Metrics</th>
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Subtotal of ActOutHL: 7563,842
ActOutHL total: 4,598
BaseOutHL: 38,531
ActOutHL - BaseOutHL: (33,933)
Index (assumed for this example): 20.00
Percentage of District Product: 33.31%

Availability Adjustment (Amount Morgan owes District): ($226,059.32)
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Subtotal of ActOutLL: 350

ActOutLL total: 2,991

BaseOutLL: 31,026

ActOutLL - BaseOutLL: (28,035)

Index (assumed for this example): 12.00

Percentage of District Product: 33.31%

Availability Adjustment (Amount Morgan owes District): ($112,061.00)
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
\[
\text{Fish Spill Adjustment} = (\text{Actual Fish Spill Energy} - \text{Upper Threshold}) \times (\text{Mid C Flat price or Agreed upon Index}) \times (\text{Percentage of District Product})
\]

Treatment B
\[
\text{Fish Spill Adjustment} = (\text{Actual Fish Spill Energy} - \text{Lower Threshold}) \times (\text{Mid C Flat price or Agreed upon Index}) \times (\text{Percentage of District Product})
\]

(Note: this will result in a negative number, indicating an adjustment owing to the District.)

Fish Spill example 1 - July 2023
Wanapum
Average spill rate over period 35 KCFS over what time period start 7/1/2023 finish 7/31/2023 Total time 744 hours
"…water actually spilled for fish…"
26,040 KCFSH
Conversion factor 5.5 MWh/KCFSH
Actual Fish Spill Energy 143,220 MWh
Priest Rapids
Average spill rate over period 38 KCFS over what time period start 7/1/2023 finish 7/31/2023 Total time 744 hours
"…water actually spilled for fish…"
28,272 KCFSH
Conversion factor 5.5 MWh/KCFSH
Actual Fish Spill Energy 155,496 MWh
Actual Fish Spill Energy (total) 298,716 MWh
Upper Threshold (July) 246,775 MWh
Lower Threshold (July) 164,517 MWh
Actual Fish Spill Energy is > Upper Threshold, therefore Treatment A applies
Actual Fish Spill Energy - Upper Threshold 51,941 MWh
Index (assumed for this example) 30.00 $/MWh
Percentage of District Product 33.31%
Fish Spill Adjustment (Amount District owes Morgan) $519,046.41
4. Encroachment Adjustment

Actual Fish Spill Energy (total) 43,560 MWh

Actual Fish Spill Energy is < Lower Threshold, therefore Treatment B applies

Actual Fish Spill Energy - Lower Threshold (26,714) MWh

Index (assumed for this example) 25.00 $/MWh

Percentage of District Product 33.31%

Fish Spill Adjustment (Amount Morgan owes District) ($222,460.84)
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.

---

Encroachment example 1 - October 2020

HLH

Actual Encroachment Energy: 36,000 MWh

Upper HL Threshold: 30,725 MWh

Lower HL Threshold: 17,765 MWh

Actual Encroachment Energy is > Upper HL Threshold, therefore Treatment A applies.

Actual HL Encroachment Energy - Upper HL Threshold: 5,275 MWh

Index (assumed for this example) 28.00 $/MWh

Percentage of District Product: 53.31%

Encroachment Adjustment (District owes Morgan): 78,738.87 $

LLH

Actual Encroachment Energy: 20,000 MWh

Upper LL Threshold: 22,190

Lower LL Threshold: 12,830 MWh

Actual Encroachment Energy is < Upper LL Threshold and > Lower LL Threshold, therefore no adjustment.

Total Encroachment Adjustment (District owes Morgan): 78,738.87 $
5. Canadian Entitlement Adjustment
### Table C1 - Parameters for Performance Metrics Calculations

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Table C1 – Parameters for Performance Metric Calculations (cont.)

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**Table C2 – Priest Rapids and Wanapum Energy Metrics**

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**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.

<p>| Name: Public Utility District No. 2 of Grant County | Name: Morgan Stanley Capital Group Inc. |
| All Notices:                                      | All Notices: |
| Street: 30 C St S.W.                             | Street: |
| P.O. Box: P.O. Box 878                           | City: |
| City: Ephrata, Washington 98823                   | Zip: |
| Attn: General Manager                            | Attn: |
| Phone: 509-754-5695; Fax: 509-754-5046            | |</p>
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</tr>
<tr>
<td>Phone: 509-754-5090; Fax: 509-754-5392</td>
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<td>Attn: 24 Hour Operations</td>
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<tr>
<td><a href="mailto:PS_ATF@gcpud.org">PS_ATF@gcpud.org</a></td>
<td>Phone: ; Fax:</td>
</tr>
<tr>
<td>Phone: 509-754-5060; Fax: 509-754-5392</td>
<td>Attn: 24 Hour Operations ()</td>
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<td>Phone: ; Fax:</td>
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<td>Phone: ; Fax:</td>
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<tr>
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<td>Phone: 509-793-8327; Fax: 509-754-6791</td>
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<tr>
<td>Phone: 509-793-1565; Fax: 509-754-5046</td>
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### EXHIBIT E
**FEDERAL RESERVE HOLIDAYS**

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<tr>
<td>Presidents’ Day</td>
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EXHIBIT F

DISPUTE RESOLUTION

1.1 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.

1.2 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.

1.3 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 the District and Seller Morgan Stanley 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.

1.4 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 the District and Seller Morgan Stanley 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.

1.5 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 the District and Seller Morgan Stanley, 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 the District or Seller Morgan Stanley as a final judgment in such court. The arbitrators shall have no authority to award special, exemplary, or consequential damages.

1.6 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 Morgan Stanley and Buyer the District. Notwithstanding the foregoing provisions of this Section 1.6, any costs incurred by Buyer the District or Seller Morgan Stanley 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.

1.7 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

(BA Compliance Standards)\(^3\)

[See attached Compliance Responsibility Matrix, for which purpose “Customer” will be deemed to mean the District and “Service Provider” will be deemed to mean Morgan Stanley or its Scheduling Agent.]

\(^3\) 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]
### Grant County PUD Contract Approval Sheet

#### Pre-Execution Requirement

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Task</th>
<th>Completed By</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Review and Approval</td>
<td>District delegated representative has reviewed and approves the contract for the indicated purpose.</td>
<td>Rich Flanigan</td>
<td>28-Jul</td>
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#### Purpose

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<tr>
<td>Commercial Rationale</td>
<td>Wholesale Marketing Supply</td>
<td>Rich Flanigan</td>
<td>28-Jul</td>
</tr>
<tr>
<td>Financial Forecast</td>
<td>Financial Planning and Analysis</td>
<td>John Mertich</td>
<td>27-Jul</td>
</tr>
<tr>
<td>Valuation, Market and Tail Risks</td>
<td>Risk Management</td>
<td>ROC</td>
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#### District Ability to Perform

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<tr>
<td>Transmission</td>
<td>Wholesale Marketing Supply</td>
<td>Rod Noteboom</td>
<td>24-Jul</td>
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<td>Balance Area</td>
<td>Dispatch</td>
<td>LeRoy Patterson</td>
<td>24-Jul</td>
</tr>
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<td>Tagging and Scheduling</td>
<td>Wholesale Marketing Supply</td>
<td>Renate Rectenwald</td>
<td>22-Jul</td>
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<td>Daily Execution IT Support</td>
<td>Control Systems Engineering</td>
<td>Jeff Mettler</td>
<td>27-Jul</td>
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#### Deal Management Review

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<td>Wholesale Marketing Supply</td>
<td>Renate Rectenwald</td>
<td>See attached email</td>
<td>22-Jul</td>
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<tr>
<td>Public Outreach</td>
<td>External Affairs</td>
<td>Andrew Munro</td>
<td>See attached email</td>
<td>23-Jul</td>
</tr>
<tr>
<td>Large Customer outreach</td>
<td>Large Power Solutions</td>
<td>Louis Szablya</td>
<td>See attached email</td>
<td>28-Jul</td>
</tr>
<tr>
<td>River Management</td>
<td>Wholesale Marketing Supply</td>
<td>Susan Manville</td>
<td>See attached email</td>
<td>24-Jul</td>
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<tr>
<td>Power Production</td>
<td>Power Production</td>
<td>Ty Ehrman</td>
<td>See attached email</td>
<td>27-Jul</td>
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<tr>
<td>Credit</td>
<td>Risk Management</td>
<td>Paul Dietz</td>
<td></td>
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<tr>
<td>Reliability and Compliance</td>
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<td>Gene Austin</td>
<td>See attached email</td>
<td>27-Jul</td>
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#### Contract Review

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<td>Legal Review</td>
<td>Attorney</td>
<td>Mitch Delabarre</td>
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#### Finance and Accounting Review

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<td>Bond Compliance</td>
<td>Finance</td>
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<tr>
<td>CXO Approval</td>
<td>CCO</td>
<td>Dave Churchman</td>
<td></td>
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<tr>
<td>General Manager Approval</td>
<td>General Manager</td>
<td>Kevin Nordt</td>
<td></td>
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</tr>
<tr>
<td>Commission Approval</td>
<td>Attorney</td>
<td>Mitch Delabarre</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

---

From: Richard Flanigan <Rflanig@gcpud.org>
Sent: Monday, July 27, 2020 2:10 PM
To: Louis Szablya <lszablya@gcpud.org>
Cc: Casey Sprouse <Csprouse@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
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
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 <Tehrm@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 <Tehrm@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
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.
Richard Flanigan

From: Susan Manville
Sent: Friday, July 24, 2020 1:14 PM
To: Richard Flanigan
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

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
Richard Flanigan

From: Renate Rectenwald
Sent: Wednesday, July 22, 2020 3:33 PM
To: Richard Flanigan
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

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

gcppud.org

From: Richard Flanigan <Rflanig@gcppud.org>
Sent: Friday, July 17, 2020 9:41 AM
To: Renate Rectenwald <Rrecten@gcppud.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 then 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
Richard Flanigan

From: Jeffrey Mettler
Sent: Monday, July 27, 2020 4:06 PM
To: Richard Flanigan; Kevin Carley
Subject: RE: Morgan Draft

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
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

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

grantpud.org
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.

Richard Flanigan
Sr. Manager
Wholesale Marketing and Supply

OFFICE  509.793.1475
CELL     509.750.6552
EMAIL    rflanig@gcpud.org

grantbud.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

1
Richard Flanigan

From: Mike Stussy
Sent: Monday, July 27, 2020 5:21 PM
To: Richard Flanigan; LeRoy Patterson
Subject: RE: PLEASE REVIEW MORGAN STANLEY AGREEMENT BY EOD FRIDAY (7/24)

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. 8950

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

### Exhibit A - Summary of Budget Items

<table>
<thead>
<tr>
<th></th>
<th>Actual 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></td>
<td>17,886</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><strong>356,874</strong></td>
<td><strong>351,147</strong></td>
<td><strong>370,124</strong></td>
</tr>
<tr>
<td>Expenditure offsets for deduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions in Aid of Construction</td>
<td>(8,511)</td>
<td>(2,300)</td>
<td>(4,501)</td>
</tr>
<tr>
<td>Sales to Power Purchasers at Cost</td>
<td>(29,443)</td>
<td>(26,990)</td>
<td>(18,889)</td>
</tr>
<tr>
<td>Net Power (+ Expense, - Revenue)</td>
<td>(69,381)</td>
<td>(84,143)</td>
<td>(81,529)</td>
</tr>
<tr>
<td>Conservation Loans</td>
<td>(13)</td>
<td>(125)</td>
<td>(125)</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURE OFFSETS</strong></td>
<td><strong>(107,348)</strong></td>
<td><strong>(113,557)</strong></td>
<td><strong>(105,044)</strong></td>
</tr>
</tbody>
</table>

### Exhibit B

#### CONSOLIDATED OPERATIONAL PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>Actual 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>
</tr>
<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)

<table>
<thead>
<tr>
<th></th>
<th>Actual 2019</th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest, debt and other income</td>
<td>(23,279)</td>
<td>(36,126)</td>
<td>(40,530)</td>
</tr>
<tr>
<td>CIAC</td>
<td>8,511</td>
<td>2,500</td>
<td>4,501</td>
</tr>
<tr>
<td><strong>Change in Net Position</strong></td>
<td><strong>83,880</strong></td>
<td><strong>67,926</strong></td>
<td><strong>70,253</strong></td>
</tr>
</tbody>
</table>

### NET INCOME LIQUIDITY (measured at year end)

<table>
<thead>
<tr>
<th></th>
<th>Target 2019</th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elect System Liquidity (Rev + R&amp;C)</td>
<td><strong>$105 MM</strong></td>
<td>134,841</td>
<td>108,575</td>
</tr>
<tr>
<td>Excess Liquidity</td>
<td>67,562</td>
<td>54,815</td>
<td>55,006</td>
</tr>
<tr>
<td>Days Cash On Hand</td>
<td>&gt; 250</td>
<td>624</td>
<td>456</td>
</tr>
</tbody>
</table>

#### LEVERAGE

<table>
<thead>
<tr>
<th></th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidated DSCR</td>
<td>&gt;1.8x</td>
<td>2.13</td>
</tr>
<tr>
<td>Consolidated Debt/Plant Ratio</td>
<td>≤ 60%</td>
<td>57.4%</td>
</tr>
</tbody>
</table>

#### PROFITABILITY

<table>
<thead>
<tr>
<th></th>
<th>Forecast 2020</th>
<th>Forecast 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cons. Return on Net Assets (chg. in net as: &gt;4%</td>
<td>3.8%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Retail Op Ratio (assumes baseline capital)</td>
<td>≤ 100%</td>
<td>106%</td>
</tr>
</tbody>
</table>
MEMORANDUM

July 23, 2020

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

 Mitch

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
EMAIL  jmertlich@gcpud.org

grantpud.org
RESOLUTION NO. XXXX

A RESOLUTION ACCEPTING A BID AND AWARDING CONTRACT 170-10397, FOR SUPPLYING ALLIED TELESIS MULTISERVICE GATEWAY ELECTRONICS FOR FIBER TERMINATION

Recitals

1. Bids were publicly opened on July 14, 2020 for Contract 170-10397, for Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination;

2. Bid proposals were received from the following suppliers/contractors and evaluated by Grant PUD’s staff;

   - Graybar Electric Company, Inc. $2,999,997.00
   - Wesco Distribution, Inc. $3,196,800.00
   - Anixter, Inc. $3,235,650.00
   - World Wide Technology, LLC. $3,257,184.00

3. The low bid, submitted by Graybar Electric Company, Inc. is both commercially and technically compliant with Grant PUD’s contract requirements;

4. The bid is less than the Engineer’s Estimate of $3,100,000.00; and

5. Grant PUD’s Senior Manager of Wholesale Fiber and Chief Technology Officer concur with staff and recommend award to Graybar Electric Company, Inc. 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 170-10397, for Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination with Graybar Electric Company, Inc. of Seattle, Washington in the not to exceed amount of $2,999,997.00 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 8th day of September, 2020.

__________________________________________
President

ATTEST:

__________________________________________
Secretary

__________________________________________
Vice President
MEMORANDUM

July 31, 2020

TO: Kevin Nordt, General Manager

VIA: Rich Wallen, Chief Operation Officer
Derin Bluhm, Chief Technical Officer
Russ Brethower, Senior Manager Wholesale Fiber
David Parkhurst, Manager Telecom Engineering

FROM: Troy Holt, Telecom Engineer

SUBJECT: Award of Contract 170-10397

Purpose: To request Commission approval of Contract 170-10397 with Graybar Electric to supply Allied Telesis multiservice gateway electronics for fiber termination in 2020 through 2022, for a not to exceed contract price of $2,999,997.00.

Discussion: This contract, will provide the warehouse with sufficient stock needed for new installations and replacement of failed equipment for the wholesale fiber system for the next two years. Taking into consideration existing stock (Less than 300 gateways), current build schedule, and rate of failure (~120 gateways/month), the delivery of 400 units per month for the next year is expected to be adequate. Over 2000 gateways have been deployed for longer than 10 years and are generally the ones that are being replaced.

Justification:
- This contract will keep warehouse stock item at an adequate level for wholesale fiber operation and expansion for an additional year.
- Without this contract, there will not be sufficient stock to expand to new fiber subscribers or replace failed equipment.

Financial Considerations:
- This Contract expense is accounted for in the Capital Budget for Wholesale Fiber Contract 4400-02 Cost Center GA0000 Project ID 120689 (2020) and 121689 (2021-Future).
- This is the least cost option based on the type of fiber to the home that we are offering and current provisioning systems.

Legal Review: See attached email.

Recommendation: Commission approval of Contract 170-10397 to Supply Allied Telesis Multiservice Gateway Electronics for Fiber Termination to Graybar Electric in the amount of $2,999,997.00.
I approve

Typing using the tiny keyboard on my mobile device. Please excuse any errors.

From: David Parkhurst <dparkhurst@gcpud.org>
Sent: Wednesday, August 5, 2020 4:21:37 PM
To: Patrick Bishop <Pbishop@gcpud.org>; Derin Bluhm <dbluhm@gcpud.org>; Russ Brethower <Rbretho@gcpud.org>; Troy Holt <Tholt@gcpud.org>
Cc: Carol Mayer <Cmayer@gcpud.org>
Subject: Re: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution

I Approve

Thanks Patrick,
David

From: Patrick Bishop <Pbishop@gcpud.org>
Sent: Wednesday, August 5, 2020 3:05:57 PM
To: Derin Bluhm <dbluhm@gcpud.org>; Russ Brethower <Rbretho@gcpud.org>; David Parkhurst <dparkhurst@gcpud.org>; Troy Holt <Tholt@gcpud.org>
Cc: Carol Mayer <Cmayer@gcpud.org>
Subject: FW: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution

Attached is the Commission Memo approved by Legal. Since we are working remotely, please provide a return email approval in lieu of signing off on the memo. Once I have your approvals, I will submit the materials for the next Commission Packet.

From: Mitchell Delabarre <Mdelaba@gcpud.org>
Sent: Friday, July 31, 2020 4:39 PM
To: Patrick Bishop <Pbishop@gcpud.org>
Cc: Carol Mayer <Cmayer@gcpud.org>
Subject: RE: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution

Pat,
These documents look sufficient.
Mitch
Mitchell P. Delabarre  
General Counsel  
Grant PUD  
mdelaba@gcpud.org  
509 793-1565  

The information contained in this e-mail message is privileged, confidential and protected from disclosure. If you are not the intended recipient, dissemination, distribution or copying of the information contained herein is strictly prohibited. If you think you have received this e-mail message in error, please reply to mdelaba@gcpud.org or call (509) 793-1565.

From: Patrick Bishop <Pbishop@gcpud.org>  
Sent: Friday, July 31, 2020 3:43 PM  
To: Mitchell Delabarre <Mdelaba@gcpud.org>  
Cc: Carol Mayer <Cmayer@gcpud.org>  
Subject: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution  

Mitch,  

Can a Legal review of the DR’s Commission Memo and draft Resolution please be provided prior to submission to the next Commission Packet? The documents can be found under the Commission Packet Documents tab here. Please let me know if you have any questions. Thank you.
I approve.

Thanks,
Russ

---

From: Patrick Bishop <Pbishop@gcpud.org>
Sent: Wednesday, August 5, 2020 3:06 PM
To: Derin Bluhm <dbluhm@gcpud.org>; Russ Brethower <Rbretho@gcpud.org>; David Parkhurst <dparkhurst@gcpud.org>; Troy Holt <Tholt@gcpud.org>
Cc: Carol Mayer <Cmayer@gcpud.org>
Subject: FW: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution

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Cc: Carol Mayer <Cmayer@gcpud.org>
Subject: RE: Contract 170-10397 - Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination - Commission Memo & Resolution

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These documents look sufficient.
Mitch

---

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Contract Documents 170-10397

Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination

for

Public Utility District No. 2
of Grant County, Washington

Bid Due Date: July 14, 2020
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INSTRUCTIONS TO BIDDERS

1. SUBMISSION OF BID

Sealed Bids shall be received by Public Utility District No. 2 of Grant County, Washington at the District’s contracting offices at 154 A Street SE, Ephrata, Washington no later than 2:00 p.m. on July 14, 2020 for Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination as specified in Contract Documents 170-10397. Bids received after that time shall be rejected as non-responsive. Public Bid opening shall take place on July 15, 2020 at 2:30 p.m. via Microsoft Teams video conference. To participate in the Bid opening, please log on by selecting this link. Participants may also call in to the meeting by dialing (509) 703-5291 and use conference ID: 521 442 137#. Note that all District facilities are currently closed to the public until further notice and the Microsoft Teams meeting will be the only manner by which the public can participate in the Bid opening.

The original and one copy of the Bid and all required Bidder’s Data shall be delivered in a completely sealed opaque envelope properly addressed to:

Patrick Bishop, Procurement Officer
Public Utility District No. 2
of Grant County, Washington
PO Box 878
154 A Street SE
Ephrata, Washington 98823

Phone: (509) 793-1556
E-mail: Pbishop@gcpud.org

with the name of the Bidder written on the outside of the envelope with the following:

Contract Documents: 170-10397
Bid for: Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination
Bid due date: July 14, 2020

Each Bid submitted shall constitute an offer to the District and shall be irrevocable for a period of 60 days following Bid opening. Contract Award, if any, shall be made within 60 days from the date of Bid opening.

2. COMPLIANCE WITH BID DOCUMENTS/BIDDER’S EXCEPTIONS

Bids shall be submitted on the Bid Form (see Exhibit “A”) provided with the Contract Documents. All Bid proposals must be quoted in U.S. dollars. Any submittals or data which may be required by the Contract Documents to support a Bid shall be attached to the Bid Form. The Bid Form must be properly executed and all blanks must be filled in. All Bids shall be submitted in strict compliance with the Contract Documents, Technical Specifications, and commercial requirements contained herein. Bids which do not comply with these specifications and requirements or which contain or are conditioned upon different terms provided by the Bidder may be rejected. Any Bid which attempts to disclaim liability for the Bidder's negligence or to disclaim liability for damage, which arises from Bidder's acts, to person or property, may be deemed a non-responsive Bid.
Bidder shall specifically identify by paragraph and page number and describe in detail in its Bid proposal each variation or departure from the Contract Document. If, in the District's opinion, the Bid proposal contains material variations in or departures from the commercial terms or functional design requirements, it may be rejected as being non-responsive.

3. DISCREPANCIES OR OMISSIONS IN CONTRACT DOCUMENTS

If a Bidder finds discrepancies in or omissions from the District's requirements, or if Bidder is in doubt as to the meaning of any provision in the Contract Documents, Bidder shall, at once, notify the District's Procurement Officer. If appropriate, a notice of addendum shall be posted to the District’s ProcureWare site, mailed, e-mailed, or otherwise delivered to each person obtaining a set of Contract Documents. Each person requesting an interpretation shall be responsible for the delivery of their request to the District. The District shall not be bound by, nor responsible for, any other explanations or interpretations of the proposed documents other than those given in writing as set forth in this paragraph. Oral instructions, interpretations or representations shall not be binding upon the District.

4. DISTRICT'S RIGHT TO MODIFY CONTRACT DOCUMENTS

The District reserves the right to revise the Contract Documents by addendum prior to the date set for receiving Bids. The Bidder shall acknowledge the receipt of each addendum on the Bid Form to substantiate that its Bid is in accordance with the revised Contract Documents.

5. BIDDER'S WITHDRAWAL OR MODIFICATION OF BID

The Bidder may, without prejudice to itself, withdraw, modify or correct a proposal after it has been deposited with the District; provided such withdrawal, modification, or correction is filed with the District in writing, before the time set for receiving Bids. The original Bid, as modified, will be considered as the proposal submitted by the Bidder.

6. BID DELIVERY RESPONSIBILITY

It shall be the Bidder's responsibility to deliver the original copy of its properly executed Bid and Bid documents prior to time for Bid receipt stated above. Bids will only be accepted via United Parcel Service, Federal Express, or other carrier or courier service to the address referenced in Instructions to Bidders Section 1. No Bids sent by United States Postal Service or Bidder walk-in Bids will be accepted. The District shall not accept or consider Bids transmitted by any electronic method. No Bid shall be considered which is received after the time stated above, but shall be returned unopened.

7. BID EVALUATION

For the purposes of evaluating Bids, the District will consider a number of factors and will not evaluate based on cost alone. The District may let the Contract to the lowest responsible Bidder or Bidders based upon the plans and specifications, price and any other factors considered. Consideration will be given to the following:

A. Total Bid Price.

B. Bidder’s Data (See Instruction No. 8 which follows). NOTE: Any Bid which does not contain all Bidder’s Data indicated in Section 8 as “required”, if any, shall be rejected.
C. The District, in evaluating its requirements with regards to its system integrities and power and fiber commitments to its customers, has determined that it must take every step prudent to ensure overall utility system reliability. In doing so, the District shall not accept Bids where the proposed supplied system, or any installed subcomponents, are manufactured in the People’s Republic of China or any of its territories.

D. All elements or factors which will affect the final cost to or benefits to be derived by the District which may include, but not be limited to:

1. The ability, capacity, and experience of the Bidder to perform the Contract or provide the material/equipment required;
2. Whether the Bidder can deliver the required material/equipment within the time specified; and
3. The quality of the Bidder’s performance on previous contracts.

8. BIDDER’S DATA

The Bidder shall submit the following information with their sealed Bid:

A. The Bidder shall have had a minimum of three years’ experience in the successful delivering, servicing and maintenance of the type of equipment/material specified by these Contract Documents prior to submission of its Bid. Bidder shall provide a representative user's list with addresses, phone contacts, and material delivery dates to document the experience requirement. The Bidder shall be a factory franchised new equipment/material dealer with full parts, service and warranty capacity.

B. Manufacturer, model and place of manufacture of end assembly and all subcomponents.

C. Nearest parts and service outlet.

9. BID BOND

Each Bid shall be accompanied by a certified or cashier's check payable to the order of Public Utility District No. 2 of Grant County, Washington for a sum not less than 5% of the amount of the Total Bid Price, or accompanied by a Bid Bond on the form provided as Exhibit “B”, in an amount not less than 5% of the Total Bid Price with a corporate surety licensed to do business in the State of Washington, conditioned that the Bidder shall pay the District as liquidated damages the amount specified in the bond, unless Bidder enters into a Contract in accordance with their Bid and furnishes the Payment and Performance Bond hereinafter mentioned within 10 days from Contract Award. If a Bid is rejected, or if a Bid is accepted and a Contract Form executed, any check shall be returned in each instance within a period of 10 days to the Bidder furnishing the same. If the Bid is one of the three low Bids, such check or bond shall be held by the District until Contract Documents are fully executed by the District and successful Bidder and the Payment and Performance Bond provided per Section 13. If a Bid Bond was provided, 30 days following this period, the original Bid Bond shall be destroyed unless the Surety or Contractor requests the return of the bond, in writing, prior to destruction. The Bidder's failure to submit its Bid Bond on the form attached to the Contract Documents may result in rejection of the Bid.
10. WAIVE MINOR ERRORS

The District reserves the right to waive minor errors or irregularities in any Bid if it appears to the District that such errors or irregularities in any Bid were made through inadvertence and are not material. Any errors or irregularities so waived must be corrected on the Bid on which they occur prior to the execution of any Contract Form which may be awarded thereon. No Bidder may withdraw their Bid after the hour set for the opening thereof, unless and until Contract Award has been delayed for a period exceeding 60 days after the date of Bid opening.

11. DISTRICT'S RIGHT TO REJECT BIDS

The District reserves the right to reject any and all Bids or to accept the Bid which in its sole and absolute judgment will under all circumstances best serve the interest of the District.

12. REFUSAL TO EXECUTE CONTRACT

Should the successful Bidder fail or refuse to execute a Contract Form and furnish a Payment and Performance Bond within 10 days following receipt of notification of Contract Award, the Bidder shall be considered to have abandoned the Bid and the check or Bid Bond in the amount of not less than 5% of the Bid delivered with the Bid shall thereupon be due and owing to the District as liquidated damages for such failure or refusal, and the District may thereupon award the Contract to any other Bidder.

13. PAYMENT AND PERFORMANCE BOND

To assure compliance with the terms of the Contract, the Contractor shall furnish a Payment and Performance Bond in an amount equal to 25% of the amount of the Contract Price, excluding Washington State Sales Tax, with surety or sureties who are acceptable to the District. This Payment and Performance Bond shall remain in force for a period of 365 days after final payment. Thirty days following this expiration, the original Payment and Performance Bond shall be destroyed unless the Surety or Contractor requests the return of the bond, in writing, prior to destruction. The Payment and Performance Bond must be on the form provided with these Contract Documents as Exhibit “D”. The cost of the Payment and Performance Bond shall be included in the Total Bid Price.

14. PUBLIC RECORDS ACT

The District is subject to the disclosure obligations of the Washington Public Records Act of RCW 42.56. The Bidder expressly acknowledges and agrees that its Bid and any information Bidder submits with its Bid is subject to public disclosure pursuant to the Public Records Act or other applicable law and the District may disclose Bidder’s proposal and/or accompanying information at its sole discretion in accordance with its obligations under applicable law.

15. CONTRACT DOCUMENTS

The Contract Documents consist of the documents listed in the Table of Contents.

The Contract shall bind both the District and the Contractor to all requirements set forth in the components of the Contract Documents stated above.
16. BIDDER QUESTIONS OR CLARIFICATIONS

Bidders are to submit questions or requests for clarification in writing to the District’s Procurement Officer. If appropriate, response to Bidder’s questions will be posted to the District’s ProcureWare web site. The deadline to submit questions or request for clarification to the District shall be five business days prior to the Bid due date.
GENERAL CONDITIONS

GC-1. FORM OF CONTRACT

The form of the Contract shall be unit price type.

GC-2. DEFINITIONS

Whenever these words occur in the Contract Documents, they shall have the following meanings:

“BID” - The written proposal submitted by the Bidder on the Bid Form provided as Exhibit “A” in these Contract Documents.

“BID EVALUATION” - The criteria for determining the lowest responsive Bid received in response to the Contract Documents.

“BID ITEM” - A line item on the Bid Form which is included in these Contract Documents as Exhibit “A”.

“BID ITEM PRICE” - The correctly calculated (extended) price of all units of each Bid Item (Bid Unit Price times Estimated Quantity).

“BID UNIT PRICE” - The price per unit on a specific Bid Item.

“BIDDER” - Any person or entity who submits a Bid.

“CONTRACT AWARD” - Contract Award is defined as the date the successful Bidder is first notified in writing that the District has accepted the Contractor's Bid. Contract Award, if any, shall be made within 60 days after the date of Bid opening.

“CONTRACT DOCUMENTS” - The Contract Documents shall include all sections listed in the Table of Contents.

“CONTRACT PRICE” - The Total Bid Price plus any optional Bid Items included in the Contract Award and any properly approved Change Orders approved subsequent to Contract Award.

“CONTRACTOR” - The successful Bidder who is awarded the Contract to supply the materials or equipment covered by these Contract Documents.

“DISTRICT” OR “OWNER” - Public Utility District No. 2 of Grant County, Washington.

“DISTRICT REPRESENTATIVE” - The employee designated by the District as its representative during the term of this Contract.

“PROMPT PAYMENT DISCOUNT” - As provided for on the Bid Form, Contractor may accept the prompt payment discount of 2% 10 days, which shall mean, if the District issues payment within 10 days, the payment due shall be reduced by 2%. A payment is considered made on the day it is mailed or is sent through electronic or wire transfer.

“SUBCONTRACTOR” - A contractor/supplier hired by the Contractor to supply materials, equipment or services related to these Contract Documents, if any.
“TOTAL BID PRICE” - The properly calculated total of the Bid Items on the Bid Form.

GC-3. SUSPENSION OF CONTRACT OTHER THAN FOR DEFAULT

The District may, at its sole option, by notice in writing to the Contractor suspend or terminate at any time the performance of any portion or this entire Contract. The Contractor shall use its best efforts to minimize costs associated with suspension or termination.

A. Upon receipt of any such notice, the Contractor shall:
   1. Immediately discontinue work as specified in the notice;
   2. Place no further orders or subcontracts for material, services, or equipment with respect to suspended or terminated portion of the Contract;
   3. Promptly suspend or terminate all orders, subcontracts, and rental agreements to the extent they relate to performance of the portion of the Contract suspended or terminated;
   4. Assist District Representative or District in the maintenance, protection, and disposition of work in progress, plant, tools, equipment property, and materials acquired by Contractor or furnished by Contractor under this Contract; and
   5. Complete performance of the portion of the Contract which is not terminated.

B. As full compensation for such suspension the Contractor shall be reimbursed for the following costs, reasonably incurred, without duplication of any item, to the extent that such costs directly result from such suspension of work:
   1. A standby charge, as determined to be equitable by the District Representative, to be paid to the Contractor during a period of suspension of work sufficient to compensate the Contractor for keeping, to the extent required in the notice, its organization and equipment committed to the work in a standby status;
   2. All reasonable costs, as determined to be equitable by the District Representative, associated with any demobilization and remobilization of the Contractor's plant, forces, and equipment;
   3. Any claim on the part of the Contractor for additional time or compensation shall be made within 10 days after receipt, by Contractor, of a notice to suspend work. Failure to submit a claim within the 10 day period shall constitute a waiver of any such claim; and
   4. In no event shall the amount to be paid the Contractor pursuant to this section exceed the Contract Price.

C. Upon receipt of notice to resume suspended work, the Contractor shall immediately resume performance of the suspended portion of the Contract to the extent required in the notice. Any claim on the part of the Contractor for time or compensation shall be made within 10 days after receipt of notice to resume work and the Contractor shall submit a revised project schedule for review.

D. Upon delivery of a written notice to the Contractor, the District may, without cause and without prejudice to any other right or remedy, elect to terminate the Contract. Upon receipt of any such notice, the Contractor shall take all appropriate steps in part A of this Section GC-3.
Upon any such termination, Contractor shall waive any claims for damages including Contractor's overhead, loss of anticipated profits, and all other inconvenience, expenses, damages, costs and lost profits whatsoever.

If such termination is effected after Contract Award, the District shall pay the reasonable, verifiable and directly attributable costs incurred by the Contractor in the preparation of Bidder's Bid plus 15% of such costs. If Contractor has commenced performance hereunder, the District shall pay the reasonable, verifiable and directly attributable costs incurred by the Contractor as determined by the physical progress of the work satisfactorily completed to date, plus 10% of the sum of all such costs; provided, said payment shall not in any event exceed the Contract Price hereunder. The payment of the District shall constitute full and complete satisfaction and settlement for the Contractor's overhead, anticipated profits, and all other inconvenience, expenses, damages, costs and lost profits whatsoever. The Contractor shall be entitled to no further payments whatsoever for the work.

Contractor shall submit within 30 days after receipt of notice of termination, a request for adjustment to the Contract Price in accordance with the above provisions. District Representative shall review, analyze, and verify such request, and upon District Representative's approval, the Contract shall be amended in writing accordingly.

Those provisions of the Contract that by their nature survive the Contract shall remain in full force and effect after such termination.

**GC-4. TERMINATION FOR DEFAULT/NONCOMPLIANCE**

A. Acts of Default

If Contractor fails in any material way to comply with any of the conditions or provisions of the Contract Documents or is unable to pay its debts as they mature or authorizes or takes any action under bankruptcy or reorganization, readjustment of debt, insolvency, liquidation or other similar laws or proceedings it shall be considered an act of default.

B. Consequences of Default

In the event of default, the District may immediately, without limiting any other remedy available to it in law or equity, withhold any amount otherwise due under the Contract. The District shall provide written notice of default. In the event the default can be cured, and Contractor fails to correct the default within 10 days after written notice of default, the District may terminate the Contractor's right to proceed with all or any portion of the work. The District's right to liquidated damages shall not in any manner limit any other remedy available to the District, including but not limited to, the District's right to terminate the Contractor's right to proceed.

C. Noncompliance

The Contractor shall, upon receipt of written notice of noncompliance with any provision of this Contract and the action to be taken, immediately correct the conditions to which attention has been directed. Such notice, when served on the Contractor or Contractor’s representative, shall be deemed sufficient. If the Contractor fails or refuses to comply promptly, the District Representative may issue an order to suspend all or any part of the
When satisfactory corrective action is taken, an order to resume work shall be issued. No part of the time lost due to any such suspension order shall entitle the Contractor to any extension of time for the performance of the Contract or to reimbursement for excess costs or damages.

GC-5. ASSIGNMENT

The Contractor shall not assign this Contract or any interest in or part thereof, or any monies due or to become due hereunder, without the prior written approval of the District. Any costs to the District associated with the assignment may be deducted from amounts due to the Contractor.

GC-6. INDEMNITY

A. Contractor shall defend, indemnify and hold harmless the District and its representatives (which shall be deemed to include the District's directors, officers, employees and agents) from and against any and all liabilities, claims, losses, damages or expenses of any type or kind, including reasonable legal fees, and expert witness fees, which may be incurred or sustained by the District or its representatives by reason of any act, omission, misconduct, negligence, or default on the part of the Contractor or arising in connection with the supplies, material or equipment to be furnished pursuant to these Contract Documents.

B. Contractor's indemnification obligation shall not apply to liability for damages arising out of bodily injury to persons or damage to property caused by the negligence of the District or its agents or employees and not attributable to any act or omission on the part of the Contractor. In the event of damages to person or property caused by or resulting from the concurrent negligence of District or its agents or employees and the Contractor or its agents or employees, the Contractor's indemnity obligation shall apply only to the extent of the Contractor's (including that of its agents and employees) negligence.

C. Contractor acknowledges that by entering into a contract with the District, Contractor has mutually negotiated the above indemnity provisions with the District. Contractor's indemnity and defense obligations shall survive the termination or completion of the Contract and remain in full force and effect until satisfied in full.

GC-7. LAWS, REGULATIONS, PERMITS

The Contractor represents that it is familiar with, and shall be governed by and comply with, all federal, state and local statutes, laws, ordinances, and regulations including amendments and changes as they occur. The Contractor and any Subcontractors shall be responsible for ensuring that its employees fully comply with the District’s Code of Ethics, a copy of which is available at the District’s offices.

All written instruments, agreements, specifications and other writing of whatsoever nature which relate to or are a part of this Contract shall be construed, for all purposes, solely and exclusively in accordance and pursuant to the laws of the State of Washington. The rights and obligations of the District and Contractor shall be governed by the laws of the State of Washington. Venue of any action filed to enforce or interpret the provisions of this Contract shall be exclusively in the Superior Court, County of Grant, State of Washington or the Federal District Court for the Eastern District of Washington at the District’s sole option. In the event of litigation to enforce the provisions of this Contract, the prevailing party shall be entitled to reasonable legal fees in addition to any other relief allowed.
GC-8. **DAMAGES**

Any claims arising under the Contract by the Contractor shall be made in writing to the District Representative no later than 10 days after the beginning of the event or occurrence giving rise to the claim. Failure to make written claim prior to the time specified in the Contract Documents shall constitute waiver of any such claim.

GC-9. **WARRANTY**

The Contractor agrees that all materials and equipment furnished pursuant to the Contract shall be free from all inherent defects in design, workmanship and material and shall give proper and continuous service under all conditions of service required and specified or which may be reasonably inferred from the Contract Documents. The Contractor shall immediately upon receiving notice from the District repair or replace any materials or equipment which, under normal and proper use, prove defective within one year from the date of delivery to the District. The warranty provided herein is in addition to and not in lieu of manufacturer’s standard warranty normally provided.

If at any time prior to the expiration of the warranty period, Contractor or District discovers any defect in such design, materials or workmanship, the Contractor shall, upon written notice from the District given within a reasonable time after discovery, correct such defects to the satisfaction of the District by redesigning, repairing or replacing the defective work at a time acceptable to District. All costs incidental to such corrective action including but not limited to removal, disassembly, reinstallation, reconstruction, re-testing and re-inspection as may be necessary to correct the defect or demonstrate that the previously defective work conforms to the requirements of the Contract shall be borne by the Contractor.

Contractor shall not be liable to the District either in contract or in tort (including negligence or strict liability) for consequential damages consisting of the District’s loss of profits, its loss of revenue or its cost of replacement power.

The warranty requirements in this section are the minimum requirements for materials or equipment under this Contract. Any other warranty requirements specified in the Contract, including the Technical Specifications, are in addition to, and not in lieu of the minimum requirements specified herein.

GC-10. **CHANGES IN WORK**

Without invalidating the Contract, the District may make changes by altering, adding or deducting from the work, and/or make changes in the Contract Drawings and Technical Specifications requiring changes in the work and/or materials and equipment to be furnished under this Contract; provided such additions, deductions or changes are within the general scope of the Contract. Except as provided herein, no official, employee, agent or representative of the District is authorized to approve any change in this Contract and it shall be the responsibility of the Contractor before proceeding with any change, to satisfy itself that the execution of the written Change Order has been properly authorized on behalf of the District. The District’s management has limited authority to approve Change Orders. The current level and limitations of such authority are set forth in District Resolution No. 8609 which may be amended from time to time. Otherwise, only the District’s Board of Commissioners may approve changes to this Contract.
Charges or credits for the work covered by the approved changes shall be determined by one or more, or a combination of the following methods, at the District's option:

A. Unit prices specified in the Bid Form.

B. An agreed lump sum. When requested, Contractor shall provide a detailed proposal for evaluation by the District, including, as applicable:
   1. Detailed proposed labor categories, hours, and rates.
   2. Specific materials and quantities.
   3. Equipment and equipment hours.
   4. Administrative cost and profit.

C. The actual cost related to the change of:
   1. Labor, including foreman, only for employees who will work directly on the work covered by the Change Order.
   2. Materials entering permanently into the work.
   3. The ownership or rental cost of plant and equipment during the time of use on the project.
   4. Power and consumable supplies for the operation of power equipment.
   5. Insurance.
   7. To the sum of Items 1, 2, 4, 5, and 6 inclusive, there shall be added a fixed fee of 15%. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

When a change is ordered by the District, as provided herein, a Change Order shall be executed by the District and the Contractor before any Change Order work is performed. The District shall not be liable for any payment to Contractor, or claims arising therefrom, for Change Order work which is not first authorized in writing as set forth in this section. All terms and conditions contained in the Contract Documents shall be applicable to Change Order work. Change Orders shall be issued on the form attached as Exhibit “E” and shall specify any change in time required for completion of the work caused by the Change Order and, to the extent applicable, the amount of any increase or decrease in the Contract Price.

If Contractor believes that any requirement, direction, instruction, interpretation, determination, or decision of the District described in a Change Order entitles Contractor to an adjustment in the Contract Price or time for performance and Contractor refuses to execute the Change Order, then Contractor shall submit a claim as provided in Section GC-8 of this Contract. Notwithstanding the submission of any such claim, Contractor shall proceed without delay to perform the work described in the Change Order.

GC-11. PAYMENT

The Contractor may submit an invoice for payment following delivery of the specified equipment/material, which conforms to the Contract Documents. The invoice shall contain detailed
information identifying the number of units of each Bid Item actually furnished multiplied by the applicable Bid Unit Price. The invoice shall be submitted for District verification and approval. Payment will be made to the Contractor within 30 days after the District has inspected the equipment/material and has determined that it is in conformance with the Contract Documents. If accepted by the Contractor on the Bid Form and the District issues payment within 10 days, the payment due shall be reduced by 2%.

Invoices shall include the Contract number 170-10397 and be addressed as follows:

Public Utility District No. 2
of Grant County, Washington
Attn: Accounts Payable
PO Box 878
Ephrata, WA 98823

Phone: (509) 793-1450
E-mail: AccountsPayable@gcpud.org

GC-12. PAYMENTS WITHHELD

The District may withhold the whole or part of any certificate for payment to such extent as may be reasonably necessary to protect itself from loss on account of:

A. Defective or damaged work not remedied or warranties not met.
B. Claims filed or reasonable evidence indicating filing of claims against the Contractor.
C. Failure of the Contractor to make payments properly to Subcontractors or for materials, labor, or equipment.
D. A reasonable doubt that the Contract can be completed for the balance then unpaid.
E. Damage to or loss of District-furnished materials or District property.
F. Contractor's failure to meet any performance warranties required by the Contract Documents.

The Contractor shall provide a contact name, address, and email address to facilitate notification if any payment, or portion of any payment, is withheld for any of the reasons above, or for missing documentation or items incorrectly invoiced. Notification shall be made via email, or shall be mailed, properly addressed and stamped with the required postage to the person designated by the Contractor.

GC-13. CONFLICT AND PRECEDENCE/INTENT

A. In the event there are any conflicting provisions or requirements in the component parts of the Contract, the several Contract Documents shall take precedence in the following order:

1. Change Orders
2. Contract Form
3. Addenda
4. Specific Requirements
5. General Conditions
6. Technical Specifications
7. Stock Catalog Page
8. Instructions to Bidders
9. Payment and Performance Bond
10. Bid Proposal

B. The intent of the Contract Documents is to prescribe a complete work. Contractor shall furnish all labor, tools, equipment, transportation, supplies and incidentals required to provide the materials or equipment to be supplied under this Contract. The Contract Price shall be full pay for all materials or equipment required to be provided under this Contract.

GC-14. TAXES

A. Except for the Washington State retail sales and use taxes as may be levied upon the Contract, pursuant to RCW Chapters 82.08 and 82.12, the Contract Price includes and the Contractor shall have the full exclusive liability for the payment of all taxes, levies, duties and assessments of every nature due and payable in connection with this Contract or its employees and Subcontractors performing work related to this Contract.

B. Washington State retail sales tax and use taxes levied upon this Contract pursuant to RCW Chapters 82.08 and 82.12 are excluded from the rates and if applicable will be reimbursed as follows:

1. If the Contractor has, or is required to have a valid Washington State sales tax identification number, the identification number shall be furnished to the District upon request. The Contractor shall make payment of any Washington State retail sales and use taxes due and Contractor shall be reimbursed by the District for the same. Contractor shall be solely responsible for any interest or penalties arising from late or untimely payment of said taxes.

2. If the Contractor is not required to have a valid Washington State sales tax identification number, it shall notify the District of the same. In such event, the District, after receiving proper invoices from Contractor, shall make payment of said Washington State retail sales and use taxes levied upon this Contract to the Washington State Department of Revenue.

GC-15. NON-WAIVER

No waiver of any provision of this Contract, or any rights or obligations of either party under this Contract, shall be effective, except pursuant to a written instrument signed by the party or parties waiving compliance, and any such waiver shall be effective only in the specific instance and for the specific purpose stated in such writing. The failure of either party to require the performance of any term of this Contract or the waiver of either party of any breach under this Contract shall not operate or be construed as a waiver of any other provision hereof, nor shall it be construed as a waiver of any subsequent breach by the other party hereto.
GC-16. DISTRICT REPRESENTATIVE'S STATUS, AUTHORITY AND PROTEST PROCEDURE

The District Representative shall represent the District. The District Representative has authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the Contract. The District Representative shall also have authority to reject all work, equipment, and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

Approval by the District Representative signifies favorable opinion and qualified consent. It does not carry with it certification, assurance of completeness, assurance of quality, nor assurance of accuracy concerning details, dimensions, and quantities. It is not an acceptance by the District or certification that Contractor has performed the Contract work correctly or according to Contract Documents. Such approval shall not relieve the Contractor from responsibility for errors or for deficiencies within its control.

All claims of the Contractor and all questions relating to the interpretation of the Contract, including all questions as to the acceptable fulfillment of the Contract on the part of the Contractor and all questions as to compensation, shall be submitted in writing to the District Representative for determination within the applicable time period specified in the Contract Documents.

All such determination and other instructions of the District Representative shall be final unless the Contractor shall file with the District Representative a written protest, stating clearly and in detail the basis thereof, within 10 days after the District Representative notifies the Contractor of such determination or instruction. The protest shall be forwarded by the District Representative to the District’s General Manager, who shall issue a decision upon each such protest, and its decision shall be final. Pending such decision, the Contractor, if required by the District Representative, shall proceed with the work in accordance with the determination or instructions of the District Representative.

The District Representative may appoint assistants and inspectors to assist in determining that the work performed and materials furnished comply with Contract requirements. Such assistants and inspectors shall have authority to reject defective material and suspend any work that is being done improperly, subject to the final decisions of the District Representative, or to exercise such additional authority as may be delegated to them by the District Representative. All work done and all materials furnished shall be subject to inspections by the District Representative or inspector at all times during the work.

The District Representative and contact information for this Contract is listed below.

Troy Holt  
Public Utility District No. 2  
of Grant County, Washington  
PO Box 878  
Ephrata, WA 98823  
(509) 754-5088 Ext. 2142  
Tholt@gcpud.org

GC-17. ACTIVITIES ON DISTRICT PREMISES

If Contractor or any of its Subcontractors or suppliers of any tier performs any activities on premises owned, leased, possessed or controlled by the District, Contractor shall:
A. Take all precautions which are necessary to prevent injury to persons and damage to any property or the environment in connection with such activities;  

B. Release, defend, indemnify and hold harmless the District and its officers, agents, and employees from all claims, losses, harm, liabilities, damages, costs and expenses, including but not limited to reasonable attorney's fees that may arise in connection with such activities; and  

C. Maintain in effect at all times during performance of such activities Commercial General Liability insurance (including blanket contractual) with limits not less than $1,000,000 per occurrence; automobile liability for all vehicles used under the contract for bodily injury, and property damage with limits not less than $1,000,000 per accident; statutory workers’ compensation; and employer’s liability with limits not less than $1,000,000. Without limiting the generality of the foregoing, Contractor assumes potential liability for acts brought by Contractor's employees, Subcontractors, or suppliers of any tier.  

D. Upon request, the Contractor shall promptly furnish to District such certificates of insurance and other evidence of the insurance required under this section naming the District as Additional Insured. The District shall have the right but not the obligation of prohibiting the Contractor or its Subcontractors from entering District premises until such certificates have been provided as evidence of compliance with these requirements.
SPECIFIC REQUIREMENTS

SR-1. SCOPE OF SUPPLY

The Contractor shall supply Allied Telesis multiservice gateways manufactured in accordance with these Contract Documents.

SR-2. DELIVERY

The Contractor shall not commence any work under this Contract until after all of the following: (1) receipt of notification of Contract Award; (2) full execution of the Contract Form; (3) providing the required Payment and Performance Bond; and (4) receipt of the District issued purchase order.

The Contractor shall deliver 400 units of Bid Item No. 1 between the 1st and the 15th of each month for 12 consecutive months with the first delivery being in September 2020. For the next 12 consecutive months thereafter, the Contractor shall deliver 300 units of Bid Item No. 1 between the 1st and the 15th of each month subject to any additional quantity increases in accordance with Section SR-3. Delivery shall be F.O.B. the District's Ephrata Warehouse. This shall mean that the Contractor will pay the cost of transportation to have the Allied Telesis multiservice gateways delivered “free on board” to the District's Ephrata Warehouse located at 154 A Street SE, Ephrata, Washington. It also shall mean that the title and risk of loss do not pass until the Allied Telesis multiservice gateways have been inspected and moved from the conveyance.

SR-3. DISTRICT’S RIGHT AND OPTION TO PURCHASE AN ADDITIONAL ALLIED TELESIS MULTISERVICE GATEWAYS

A. The District, as it deems necessary for its requirements, shall have the unilateral right and option to purchase, and the Contractor shall be required to furnish and deliver, up to an additional 2,700 units of the type listed on the Bid Form. Such purchase shall be subject to the terms and conditions contained in these Contract Documents. The District may exercise its option to make such purchase at any time prior to August 31, 2022 by issuing an additional Purchase Order.

B. With respect to the Allied Telesis multiservice gateways which the District may elect to purchase pursuant to Section SR-2, the pricing shall be at the Bid Unit Price specified on the Bid Form. The Contractor shall make delivery of such Allied Telesis multiservice gateways, F.O.B. the District’s Ephrata, Washington Warehouse, within four weeks following the District’s issuance of an additional Purchase Order for the purchase of the additional Allied Telesis multiservice gateways.

C. Contractor understands and agrees that the District is only making a commitment to purchase 8,400 units of Bid Item No. 1, but that the District shall have the unilateral right and option to purchase 2,700 additional Allied Telesis multiservice gateways as specified in Section SR-3.A, but shall have no obligation of any type to make such additional purchase.

SR-4. APPROVED MANUFACTURERS

The District's stock catalog page, Exhibit “F”, which are attached and made a part of the Technical Specifications, list prior approved manufacturers for supplying multiservice gateway electronics.
for fiber termination. Only approved manufacturers shall be considered for supplying multiservice gateways for fiber termination as specified in these Contract Documents.

SR-5. SHIPPING AND NOTIFICATION INSTRUCTIONS

All materials and equipment shall be suitably packed to ensure against damage from weather or transportation and in accordance with the requirements of common carriers. The delivery address and Contract number shall be clearly marked on the outside of all packaging. Each shipment must be accompanied by a packing list, which shall reference the Contract number, the purchase order number and include item descriptions, part numbers, and quantities. Any bills of lading, shipping order or the like shall also contain the above listed information.

Advance notification of shipment of the equipment/material is required. Contractor shall notify the District's Ephrata, Washington Warehouse Foreman, Leroy Boyd at (509) 754-5088, Ext. 2268, 48 hours prior to delivery of shipment. Failure by the Contractor to provide the advance notification specified herein may result in delays in unloading and receipt. The costs of all such delays shall be charged to the Contractor's account.

District receiving hours are Monday through Thursday, 6:30 a.m. – 12:00 p.m. and 12:30 p.m. – 4:00 p.m. No deliveries will be received on District observed holidays or during any other times unless specific prior arrangements have been made with the District's Warehouse Foreman. District observed holidays are as follows: New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If a holiday falls on Saturday, it will be observed on the previous Friday. If a holiday falls on a Sunday, it will be observed on the following Monday.
TECHNICAL SPECIFICATIONS

TS-1 GENERAL

This specification covers the requirements for equipment to provide triple play services to the outside of a home or business where a simplex fiber drop is to be terminated.

TS-2 GATEWAY ELECTRONICS REQUIREMENTS

A. The electronics portion of the gateway shall be separate from the enclosure and easily removed without disturbing the enclosure mounting system.

B. A minimum of six 10/100/1000 Ethernet Ports that may be provisioned for either a single vlan (access port) or multiple vlans (trunk port) and conform to the RJ-45 Form Factor. Ethernet ports will be able to be configured to add a dot1q tag to received traffic that already has a vlan tag and remove a dot1q tag to transmitted traffic. The port will be able to transmit and receive frame sizes up to 9000 bytes. The ports must support the ability to mark incoming traffic with a priority of 0 – 7.

C. A minimum of two POTS Ports that shall be provisioned to a single vlan, conform to the RJ-11 form factor, and should be compatible with the following softswitch manufacturers: Metaswitch, Nortel, Genband, Cirpack, NetCentrex, Sonus, Networks, Marconi, Siemens, Alcatel, AudioCodes, Mediatrix, ArelNet, HotSip, Iptel, Italtel, Lucent, NetMeeting, and Nueva. It is required to be compatible with a Genband Softswitch utilizing the MGCP voice over IP protocol and SIP voice protocol. POTS ports will have a diagnostic function to determine if a customer wiring fault exists.

D. A minimum of one 802.3ah 1000BX compatible Gigabit Ethernet Port that will be used to connect a simplex fiber that has been terminated with either an LC or SC/UPC termination kit. This Gigabit Ethernet port must support the ability to transmit and receive jumbo frames of at least 9000 bytes. Some storage space for fiber inside the enclosure is required. The characteristics of the integrated bi-directional optics will be such that a distance of up to 20km but no less than 10km can be achieved between the upstream switch and the device where no more than 16dB of optical loss exists. The transmit wavelength of the optics shall be 1310nm with a output power of at least -7 dBm and will be capable of receiving a wavelength in the range of 1490nm to 1550nm with a receiver sensitivity of at least -23dBm.

E. The device shall be capable of IGMP Snooping for the purpose of Filtering IGMP Queries to the upstream IGMP capable switch to allow for multiple ports to be configured supporting various set top boxes which will be used to join multicast streams used for delivering multicast video and data streams.

F. The device shall be SNMP v2 capable and should support the standard IF-MIB for the purpose of collecting traffic statistics for individual Ethernet interfaces and shall support rebooting of the device utilizing a specified Enterprise MIB.

G. The device shall be capable of being configured utilizing a file via TFTP which are known to the device utilizing standard DHCP options. It is preferred that changes to the configuration via SNMP are possible without rebooting the device but is not required.
H. The device shall be configurable using a command line interface.

I. The device shall have a local port available for local configuration and access to the command line interface. This port will also provide access to web interface if required for configuration of equipment.

J. The device shall be required to operate in an outdoor environment in Grant County, WA.

K. The device shall be powered from a 12VDC power source, which will be provided by the District. The power source may have a +/- 2VDC voltage swing. It is required that the termination point is of a screw down terminal type.

L. Part Number AT-iMG2426F-GC-9B1, Bid Item No. 1, reflects a change from the factory software/firmware configuration to the District’s newest configuration. This preloading of the configuration shall be included for every delivered device.

TS-3 UPGRADES AND SUPPORT

There must be software/firmware upgrades and/or phone only support available for purchase for a minimum of five years beyond the date of delivery. This support shall be available for purchase at the discretion of the District at any time during that five year period.
EXHIBIT "A" - BID FORM

COMPANY NAME OF BIDDER: _________________________________________  
(Full Legal Name)

MANUFACTURER: ____________________________________________________

TO: Public Utility District No. 2  
of Grant County, Washington  
PO Box 878  
154 A Street SE  
Ephrata, Washington  
98823

Having carefully examined Contract Documents, including any Technical Specifications and Contract Drawings as well as the premises and conditions affecting the delivery, the undersigned hereby proposes to furnish and deliver the specified equipment/material in strict accordance with these Contract Documents for the price(s) indicated below.

As evidence of good faith, a certified check, Cashier's Check or a Bid Bond in an amount not less than 5% of Total Bid Price is attached hereto. The undersigned understands and hereby agrees that should the following offer be accepted and the undersigned should fail or refuse to enter into a Contract and furnish the required Payment and Performance Bond, the undersigned's Certified Check, Cashier's Check or an amount equal to 5% of the total amount Bid shall be forfeited to the District as liquidated damages.

The Total Bid Price (calculated total of Bid Item Price of Bid Item No. 1) shall be used in the Bid Evaluation. A price must be placed on each blank or the Bid shall not be considered. In case of an error in addition, the correctly calculated total of the Bid Item Prices (Estimated Quantity times Bid Unit Price) shall prevail.

<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Description</th>
<th>Unit Type</th>
<th>Estimated Quantity</th>
<th>Bid Unit Price</th>
<th>Bid Item Price</th>
</tr>
</thead>
</table>
| 1            | Stock No. TDSI-60980100  
Allied Telesis multiservice gateway electronics for fiber termination, 
Catalog No. AT-iMG2426F-GC-9B1 (Grant County/bundle – TAA) This bundled part number includes config flashing and the optics. | Each      | 11,100             | $              | $              |

Prices are F.O.B. the location specified in the Contract Documents. Prices quoted include the cost of the Payment and Performance Bond required by Contract Documents but do not include Washington State and Local Taxes.
The above quantities are estimated quantities. Payment shall be made by Bid Item based on the actual quantity of the Bid Items completed satisfactorily, up to the amount of the Contract Price. The undersigned acknowledges and understands the District is committing to 8,400 units of Bid Item No. 1 and may terminate this Contract after that point without incurring any additional cost (see Section SR-3). Yes ____ No ____

Prompt Payment Discount of 2% 10 days (see Section GC-2). Bidder understands and accepts the Prompt Payment Discount. Yes _____ No _____

Bidder has enclosed a Cashier's Check, Certified Check or Bid Bond in accordance with Instructions to Bidders Section 9. Yes ____ No ____

Bidder shall deliver all materials/equipment in accordance with Sections SR-2 and SR-3. Yes ____ No ____

<table>
<thead>
<tr>
<th>Bidder (full legal name):</th>
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<tbody>
<tr>
<td>Street Address:</td>
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<td>Mailing Address:</td>
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<td>City, State, and Zip Code:</td>
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<td>Phone:</td>
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<td>Email:</td>
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The District uses DocuSign to sign the final Contract Form following Contract Award. Please provide the following information for the person who will be signing the final Contract Form in the event you are the successful Bidder.

<table>
<thead>
<tr>
<th>Name: _______________________</th>
<th>Title: _______________________</th>
<th>Email: ____________________</th>
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<tbody>
<tr>
<td>Washington State Unified Business Identifier (UBI) No.</td>
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<tr>
<td>Washington State Sales Tax ID Number</td>
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</table>

☐ We hereby certify that we are not required to have a Washington State Sales Tax Identification Number for this work:

Attached hereto is the Bid proposal and all Bidder’s Data required in support of this Bid.

Addendum Nos. (list all) __________ have been received and have been considered in preparing this Bid.

Signature: ___________________________ Title: ___________________________

Name (Print): ________________________ Date: ________________________

Authorized Representative

Location or Place Executed (City and State): _______________________________________

Note: Failure to sign the Bid Form above shall result in rejection of the Bid. Digital signatures are not allowed on the Bid Form.
EXHIBIT “B” - BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we
______________________________________________________________________ (hereinafter called
"the Principal"), as Principal, and ___________________________________________________ duly
licensed for the purpose of making, guaranteeing or becoming sole surety upon bonds or undertakings required
or authorized by the laws of the State of Washington, as Surety, are held and firmly bound unto PUBLIC
UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON (hereinafter called "the Obligee") in
the penal sum of $____________________ lawful money of the United States of America, for the payment
of which, well and truly to be made, we hereby bind ourselves and each of our successors and assigns, jointly
and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the Obligee shall make
any award to the Principal for __________________________________________________________
______________________________________________________________________________________
according to the terms of the proposal or Bid made by the Principal therefore, and the Principal shall duly
make and enter into a contract with the Obligee in accordance with the terms of said proposal or Bid and
award and shall give bond for the faithful performance thereof with the
__________________________________, as Surety, or with other Surety or Sureties approved by the
Obligee, or if the principal shall, in case of failure so to do, pay to the Obligee the penal amount of the deposit
specified in the call for Bids, then this obligation shall be null and void; otherwise it shall be and remain in
full force and effect, and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated
damages, the amount of this bond.

IN WITNESS WHEREOF, said Principal and said Surety have caused these presents to
be duly signed and sealed this _____ day of ______________, 20__.

PRINCIPAL

Signature

Print Name

SURETY

Signature

Print Name

* Bidder shall attach Power of Attorney for person signing on behalf of Surety.
EXHIBIT “C” - CONTRACT FORM

This Agreement, effective upon full execution, is by and between Public Utility District No. 2 of Grant County, Washington (“District”) and Full Legal Name of Contractor (“Contractor”);  

W I T N E S S E T H:  

That parties hereto for the considerations set forth in the Contract Documents agree as follows:  

1. SCOPE OF WORK - The Contractor agrees to furnish Allied Telesis multiservice gateways in the manner and form provided by the Contract Documents 170-10397 made a part hereof, entitled Supplying Allied Telesis Multiservice Gateway Electronics for Fiber Termination.  

2. DELIVERY - The Contractor shall deliver the equipment/materials, F.O.B. the District's Warehouse. The Contractor shall deliver the equipment/materials on or before the dates specified in these Contract Documents; failure to do so may result in damage to the District.  

3. PAYMENT - The District agrees to pay the Contractor for the equipment/materials to be provided the not to exceed sum of $__________________, subject to the Prompt Payment Discount provision (see Section GC-2), plus applicable Washington State Sales Tax in accordance with the Contract Documents.  

4. PAYMENT AND PERFORMANCE BOND - The Contractor shall furnish in favor of the District, a Payment and Performance Bond as required by the Contract Documents, and this Contract shall not obligate the District until such Payment and Performance Bond has been tendered.  

The parties to this Agreement have caused it to be executed on the dates indicated below. This Agreement may be executed in counterparts, each of which shall be deemed to be an original but all of which taken together shall constitute one and the same agreement.  

Public Utility District No. 2  
of Grant County, Washington  

By: ____________________________  
Name: ____________________________  
Title: ____________________________  
Date: ____________________________  

Full Legal Name of Contractor  

By: ____________________________  
Name: ____________________________  
Title: ____________________________  
Date: ____________________________  


EXHIBIT “D” - PAYMENT AND PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That ______________________________________
of __________________________________________, (hereinafter called the "Principal"), and
______________________________________________, as Surety, are jointly and severally held and bound unto PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON (hereinafter called the "District"), in the sum of $ ______________ for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

This bond is executed pursuant to and compliance with Chapter 39.08, Revised Code of Washington, and all rights and remedies under this bond shall be determined in accordance therewith.

THE CONDITION of this bond is such that, WHEREAS, the said Principal herein, executed a certain contract with the District, by the terms, conditions and provisions of which contract the said Principal herein, agrees to furnish all material and do certain work, to--wit: ______________________________________ per the Contract Documents made a part of said contract, which contract as so executed is hereunto attached, is now referred to and by reference is incorporated herein and made a part hereof as fully for all purposes as if here set forth at length.

NOW, THEREFORE, if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of said contract in all respects, including all guarantees and warranties arising thereunder, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said contract, upon the terms proposed therein and within the time prescribed therein, or within such extensions of time as may be granted under said contract and shall hold the District harmless from all costs and damages (including reasonable legal fees) which it may incur by reason of any failure to do so, and shall fully reimburse and repay the District for all expense which it may incur in making good any such failure of performance on the part of the Principal, and shall pay all laborers, mechanics, and subcontractors and material suppliers, and all persons who supply such person or persons, or subcontractors, with provisions and supplies for the carrying on of such work and shall fully reimburse the District for any excess in cost of construction over the cost set in the contract and any amendments thereto, occasioned by any default of the Principal under the contract and any amendments thereto, then this obligation shall be null and void, but otherwise shall remain in full force and effect.

No prepayment or delay in payment and no change, extension, addition, or alteration of any provision of the Contract agreed to between the Contractor and the District, and no forbearance on the part of the District, shall operate to relieve surety from any liability on this bond, and consent to make these alterations without further notice to or consent by the surety is hereby given.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, except as provided herein, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or to the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid to the Principal shall automatically increase the obligation of the Surety on the bond and notice to Surety is not required for such increased obligation.
Dated this _________ day of _______________, 20___.

"PRINCIPAL"

Full legal company name

______________________________________________

Signature

______________________________________________

Print name

"SURETY"

Full legal company name

______________________________________________

Signature

______________________________________________

Print name

Address of local office and agent, and home offices of Surety Company:

_______________________________________

_______________________________________

_______________________________________

_______________________________________

* Contractor shall attach Power of Attorney for person signing on behalf of Surety.
EXHIBIT “E” - CHANGE ORDER

NO. __

Pursuant to Section GC-10, the following changes are hereby incorporated into this Contract:

A. Description of Change:

B. Time of Completion: The revised delivery date shall be ___________.

   OR

   The delivery date shall remain ___________.

C. Contract Price Adjustment: As a result of this Change Order, the not to exceed Contract Price shall remain unchanged (be increased/decreased by the sum of $__________ plus sales tax). This Change Order shall not provide any basis for any other payments to or claims by the Contractor as a result of or arising out of the performance of the work described herein. The new total revised maximum Contract Price is $____________, including changes incorporated by this Change Order.

D. Except as specifically provided herein, all other Contract terms and conditions shall remain unchanged.

Public Utility District No. 2 of Grant County, Washington

Full Legal Name of Contractor

Accepted By: __________________________

Name of Authorized Signature

Title

Date: _________________________________

Accepted By: __________________________

Name of Authorized Signature

Title

Date: _________________________________
EXHIBIT “F” – STOCK CATALOG PAGE

Exhibit “F” – Stock Catalog Page, will be posted as a separate document on the District’s ProcureWare web site.
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- **9:00am Judy/Tom Customer Site Visit - Blue Lake**
- **10:00am Randalynn Hovland Commission Meeting (Teams Meeting)**
- **1:00pm Document Signing (Judy, Nelson, Dale, Tom)**
- **1:00pm Document Signing (Larry)**
- **12:00pm Customer Meeting - Dobler (Nelson and Tom) (Moses Lake)**
- **9:00am Randalynn Hovland Financial Advisory Committee (Judy and Larry)**
- **8:30am Energy NW New Board Member Orientation (Dale) (Teams - login sent)**
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<td>12:00pm 1:1 GM/Commissioners Lunch with Kevin/Tom</td>
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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>8:00am Randalynn Hovland HOLIDAY - Randalynn Hovland</td>
<td>10:00am Randalynn Hovland Commission Meeting (HQ-Commission) - Randalynn Hovland</td>
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<td>12:00pm 1:1 GM/Commissioners Lunch with Kevin/Dale</td>
<td>10:00am Randalynn Hovland Commission Meeting (HOB-118 Conf Rm; HOB-117 Large Mtg_Commission Rm;</td>
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<td>12:00pm 1:1 GM/Commissioners Lunch with Kevin/Nelson</td>
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- **Sep 27**: 10:00am Randalynn Hovland Commission Meeting
- **Sep 27**: 2:00pm Public Budget Hearing (location / platform tbd)
- **Sep 27**: 6:00pm Public Budget Hearing (location / platform tbd)
- **Sep 28**: 9:00am WPUDA Budget Committee Meeting (Zoom Meeting) - Commission Meetings
- **Sep 28**: 6:00pm Public Budget Hearing (location / platform tbd) - Commission Meetings
- **Oct 1**: 8:00am Energy Northwest Executive Board Meeting & Board of Directors Meeting (Tri-Cities, WA)
- **Oct 1**: 8:00am Energy Northwest Executive Board Meeting & Board of Directors Meeting (Tri-Cities, WA)
- **Oct 25**: 10:00am Randalynn Hovland Commission Meeting (HQ-Commission) - Randalynn Hovland