UGP Polar Vortex Implications

Midwest Electric Consumers Association
Water and Power Committee
May 14, 2021 | Virtual

Dave Neumayer
Acting Sr. VP and Regional Manager
Upper Great Plains Region
Western Area Power Administration
Winter storm Uri

**SPP REGION IN COLDEST PART OF U.S.**

*SPP Southwest Power Pool*

Lowest temperatures forecast for Feb. 14-16, 2021
Source: National Weather Service, Global Forecast System

- **SPP service territory/balancing authority**
- Temperatures below 0°F
- Between 0° and 32°F
- Above 32°F

*Locations of ISOs/RTOs are approximate*
Generation Deficiency

- Texas generation went offline due to cold because not winterized
- Oklahoma rain and cold caused icing on the wind turbines
- Midwest wind speeds were less than 2 mph
- Numerous plant outages
Outage in the SPP Footprint
Generation Outages by Reason

[Graph showing outage data by reason over time]
Generation Outages by Fuel Type

![Graph showing generation outages by fuel type from February 11 to February 20. The y-axis represents outage (MW) and the x-axis represents weeks. The graph includes lines for Gas, simple-cycle, Gas, combined-cycle, Coal, Wind, Hydro, Oil, and Other.](image-url)
Extreme weather event Feb 2021
COE generation: Scheduled and actual

![Bar chart showing COE generation for Feb 2021](chart.png)
Extreme weather event
Total daily generation and load
UGP marketing – energy only

*Purchase and sales as of 3/11/2020*
Risk Management

Dave Neumayer & Neil Lindgren, Energy Management and Marketing Manager
UGP Available Capacity
Month to Month – Jan. 2021 to Feb. 2021

5 Year UGP Average Load vs COE BOR Forecast Resource

5 Year Avg Total Load vs COE BOR Basic Forecast

Acredited Resource Capacity
UGP Firm Obligations vs. Resource Net Position - April 2020 to March 2021

<table>
<thead>
<tr>
<th>Month</th>
<th>Firm Obligations</th>
<th>Resource Net Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-20</td>
<td>229,838.54</td>
<td>400,000.00</td>
</tr>
<tr>
<td>May-20</td>
<td>309,306.44</td>
<td>300,000.00</td>
</tr>
<tr>
<td>Jun-20</td>
<td>244,466.14</td>
<td>200,000.00</td>
</tr>
<tr>
<td>Jul-20</td>
<td>249,504.31</td>
<td>100,000.00</td>
</tr>
<tr>
<td>Aug-20</td>
<td>147,080.29</td>
<td>(100,000.00)</td>
</tr>
<tr>
<td>Sep-20</td>
<td>207,128.30</td>
<td>(200,000.00)</td>
</tr>
<tr>
<td>Oct-20</td>
<td>54,591.60</td>
<td>(300,000.00)</td>
</tr>
<tr>
<td>Nov-20</td>
<td>(126,658.20)</td>
<td>(400,000.00)</td>
</tr>
<tr>
<td>Dec-20</td>
<td>(225,407.44)</td>
<td></td>
</tr>
<tr>
<td>Jan-21</td>
<td>(299,793.36)</td>
<td></td>
</tr>
<tr>
<td>Feb-21</td>
<td>(107,839.83)</td>
<td></td>
</tr>
<tr>
<td>Mar-21</td>
<td>(125,591.60)</td>
<td></td>
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</tbody>
</table>
Mountain Snow Pack Water Content

Missouri River Basin – Mountain Snowpack Water Content
2020-2021 with comparison plots from 1997*, 2001*, and 2011
9-May-2021

Total above Fort Peck

Total Fort Peck to Garrison

On May 9, 2021 the mountain Snow Water Equivalent (SWE) in the “Total above Fort Peck” reach was 9.9", 75% of the May 9 average and 60% of the normal April 15 peak. The "Total above Fort Peck" reach peaked on March 31, 2021, at 14.1" SWE and 86% of the normal peak. On May 9, 2021 the mountain SWE in the “Fort Peck to Garrison” reach was 11.2", 87% of the May 9 average and 77% of the normal April 15 peak. The "Fort Peck to Garrison" reach peaked on April 26, 2021, at 14.0" of SWE and 96% of the normal peak.

Provisional data. Subject to revision.
U.S Drought Monitor

https://www.drought.gov/drought/

droughtmonitor.unl.edu
Drought Update

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for April 15 - July 31, 2021
Released April 15

Author: Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

http://go.usa.gov/3eZ73
https://www.cpc.ncep.noaa.gov/
Questions?
Polar Vortex Rate Impact & Pick-Sloan Missouri Basin Program Power Repayment Study (PRS)

Linda Cady-Hoffman, Rates Manager
Rate Structures

Pick-Sloan
ED
Rate

Pick-Sloan Missouri Basin Program
PRS

Eastern Division Rev. Req.
Western Division Rev. Req.

LAP
Rate

Pick-Sloan
Western Division Rev Req

Fry-Ark
Rev Req

Fryingpan -Arkansas
PRS
P-SMBP Drought Adder Charge Components

Drought Adder

Adjusted Annually, by up to 2 mills, or by Public Process

Base

Adjusted only by Public Process
Rate Component Overview

- Drought Adder
  - Recovers cost associated with the drought
    - Purchase Power for drought
    - Historical drought debt
    - Interest on drought debt

Base

- O&M
  - Annual O&M
  - Investments - Additions and Replacements

Capital

- Annual Interest on Investment
- Inflation

Interest

- Normal Purchases (timing)
- Transmission Costs
P-SMBP rate update

• Study set at 24.29 mills/kWh for Pick Sloan Composite rate

• *Polar Vortex Impact*
  • Pick Sloan FY21 PPW projection of $46M, two weeks of SPP billing totaled $138M
  • Deficit very likely this Fall
    • Too early to predict amount
    • Deficits have 10-year balloon payment
    • With average water, could potentially pay off deficit in 3 years

• Pinch Point in 2045 – $231M Aid to Irrigation

• Drought Adder customer notification
  • Preliminary Notice in June
  • Final Notice in October
P-SMBP Composite Rate

Approved Composite with Forced Pmts

Solve without forced payments

FY 15  FY 16  FY 17  FY 18  FY 19  FY 20  FY 21  FY 22  FY 23
P-SMBP Preliminary 2021
PRS required payments

Deficit  Adds  Rep  Aid  BOR Oakes Transfer

$45M  $231M  $133M  $58M  $54M
P-SMBP Revenue Distribution

$ Millions

O&M
Transmission
Purchased Power
Interest
Deficit
Forced Payments
Aid to Irrigation
Replacements
Additions
Forced Pmts
Aid to Irrigation
Column1

Western Area Power Administration

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Rate Approaches

• Power Repayment Study (PRS)
  • Study solves for deficit

• Drought Adder
  • Not anticipated at this time
  • Decision in October

• Rate Process
  • January 2022 start process for 2023 Rate
# Draft Schedule for 2022 Rate Process

<table>
<thead>
<tr>
<th>Jan 2022</th>
<th>Apr 2022</th>
<th>Jul 2022</th>
<th>Oct 2022</th>
<th>Jan 2023</th>
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<tbody>
<tr>
<td>Public Process</td>
<td>Federal Register Notice</td>
<td>Information Forums</td>
<td>Final Rate</td>
<td>New Rate in Effect</td>
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<tr>
<td>Informal Meetings</td>
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<td>Comment Forums</td>
<td>Final FRN Rate</td>
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<tr>
<td>Federal Register Notice</td>
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<td>Final Rate 30 Day Notice</td>
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## Firm Power Customer Notification Schedule

- **Feb-Mar**: Finalize annual PRS. Determine if Base/Adder needs adjustment via formal rate adj
- **Early Summer**: Preliminary review of Drought Adder-Notify Customer of estimated change
- **Sept-2nd Review of Drought Adder**: Notify Cust of Drought Adder Change eff Jan
- **October**: New Rate Effective Jan 1

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**Western Area Power Administration**
Questions
Power Purchase and Wheeling Build Back
Traci Albright, Finance Manager
UGPR Purchased Power and Wheeling (PPW)
Source of Funding (In Millions)
WAPA Use of Receipts Reserve Target for PPW is $393M

- Must have Authority
- Authority is available in the year authorized
- Once matched with receipts, resource is available until expended
- Can only be used on PPW
PPW Use of Receipts Reserve Overview FY21 by Region In Millions

<table>
<thead>
<tr>
<th></th>
<th>FY21 Beginning Balance</th>
<th>FYE21 Projected Balance</th>
<th>Target</th>
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<tbody>
<tr>
<td>UGPR</td>
<td>311</td>
<td>183</td>
<td>311</td>
</tr>
<tr>
<td>Beg</td>
<td>311</td>
<td></td>
<td></td>
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<tr>
<td>CY Auth</td>
<td>22</td>
<td></td>
<td></td>
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<tr>
<td>Reserve Used</td>
<td>128</td>
<td></td>
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<tr>
<td>YE</td>
<td>183</td>
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</tbody>
</table>

Legend:
- Blue: FY21 Beginning Balance
- Orange: FYE21 Projected Balance
- Grey: Target
### Forecasted Cash Use by Pick-Sloan (East and West) in Millions

<table>
<thead>
<tr>
<th></th>
<th>FY20 Actuals</th>
<th>FY21 Forecast</th>
<th>FY22 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipts from Revenue</td>
<td>590.9</td>
<td>581.9</td>
<td>581.9</td>
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<tr>
<td>Current Year PPW Cash Use</td>
<td>(145.1)</td>
<td>(157.3)</td>
<td>(163.6)</td>
</tr>
<tr>
<td>Customer Advance Financing</td>
<td>(108.8)</td>
<td>(118.1)</td>
<td>(86.3)</td>
</tr>
<tr>
<td>Net Zero for Annual Expenses</td>
<td>(117.4)</td>
<td>(112.4)</td>
<td>(129.1)</td>
</tr>
<tr>
<td>Revolving Fund for Capital and O&amp;M</td>
<td>(51.1)</td>
<td>(54.5)</td>
<td>(55.0)</td>
</tr>
<tr>
<td>External Transfers</td>
<td>(2.5)</td>
<td>(2.5)</td>
<td>(2.5)</td>
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<tr>
<td>Available Cash after Financing</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Requirements*</td>
<td>165.9</td>
<td>137.1</td>
<td>145.4</td>
</tr>
<tr>
<td>Additional Use of Receipts Authority for Reserve Requested</td>
<td></td>
<td></td>
<td>(93.0)</td>
</tr>
</tbody>
</table>

*based on FY22 assumptions as of 5/11/21.
Questions?
Contact me + follow WAPA

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Ft Peck, COE