RTO Membership
Public Information Forums

Alternative Operations Study Recommendation

Jody Sundsted, UGP Power Marketing Manager
Lloyd Linke, UGP Operations Manager

November 19, 20, & 21, 2013

Upper Great Plains Region
Public Information Forums

• November 19, 2013, 8:30 a.m. to no later than 1 p.m. CST
  Holiday Inn Lincoln Downtown
  141 North 9th Street
  Lincoln, Nebraska

• November 20, 2013, 8:30 a.m. to no later than 1 p.m. CST
  Holiday Inn City Centre
  100 West 8th Street
  Sioux Falls, South Dakota

• November 21, 2013, 8:30 a.m. to no later than 1 p.m. CST
  Ramada Plaza Fargo Hotel
  1635 42nd Street South
  Fargo, North Dakota
Recommendation for Western-UGP

• Recommendation to pursue formal negotiations with the Southwest Power Pool, a Regional Transmission Organization, concerning membership.

– *Federal Register* Notice (FRN) published November 1, 2013 and is the start of the public comment period.
Meeting Agenda

• Overview Integrated System (IS)
• AOS studies
  – Integrated System Business Model
  – Multi-Criteria Decision Analysis
• RTO statutory topics
• UGP RTO considerations
• Where we are now and the next steps
IS Options for Future

IS Owners

Stand Alone

MISO

SPP

Other Facility Owners:
Missouri River Energy Services
NorthWestern Energy
Western Area Power Administration

Our Power Comes From

- Hydroelectric energy produced at Federal generating agencies
- Multi-purpose projects
- Variable water availability
Where We Get The Power
Pick-Sloan Missouri Basin Program-ED

Congressionally Authorized Project Purposes:
- Flood Control
- Navigation
- Irrigation
- M&I Water Supply
- Hydropower
- Recreation
- Fish & Wildlife (includes endangered species)
Basin / Western / Heartland Integrated System (IS)

And Other Facility Owners:
Missouri River Energy Services
NorthWestern Energy
Integrated System & SPP Regions
UGP Summer Load*

- UGP West = 4%
- UGP East = 36%
- MISO = 23%
- SPP = 37%

* 2010 summer CROD peak
UGP Winter Load*

- UGP West = 5%
- UGP East = 50%
- MISO = 27%
- SPP = 18%

* 2010 winter CROD peak
Future market access is the predominant issue.
## TLR Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Curtailed</th>
<th>Total MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>&gt;2,000</td>
<td>Not Available</td>
</tr>
<tr>
<td>2010</td>
<td>7,299</td>
<td>612,307</td>
</tr>
<tr>
<td>2011</td>
<td>7,150</td>
<td>360,999</td>
</tr>
<tr>
<td>2012</td>
<td>1,577</td>
<td>49,324</td>
</tr>
</tbody>
</table>
2002-2012 Bilateral Trading Partners*

* - Excludes ~4 entities in the Western Interconnect
RTO’s and Federal Power Implications

• Historical and future operational concerns
  – Low & high hydro generation
  – Evolving market situations
  – Congestion and TLRs

• Regardless of the IS RTO decision, future operations for UGPR will have to change
  – Purchased power and surplus sales strategies will have to change
AOS Study Methodology

Integrated System Business Model

1. Trade Benefits (Nodal Analysis)
2. Administrative Costs
3. Transmission Expansion
4. Capacity Benefits
5. IS Transmission Revenue (Costs Shifts)
6. Drive-Outs

Multi-Criteria Decision Analysis

1. Marketing Plan & Rate Stability
2. Agreements
Trade Benefits
(Nodal Analysis)

• IS owners engaged The Brattle Group to perform a Nodal Analysis.

• Evaluate the benefits and costs of:
  – Staying Independent
  – Joining MISO
  – Joining SPP

• Looking at near-year of 2013 and out-year of 2020

• Results will be quantified in an “Enhanced Adjusted Production Cost” metric

• Also analyzed several sensitivities
# Trade Benefits
(Nodal Analysis)

<table>
<thead>
<tr>
<th>Cost Benefit Summary</th>
<th>Western – UGP</th>
<th>Stand Alone - $m</th>
<th>Join MISO - $m</th>
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<tbody>
<tr>
<td>Trade Benefits</td>
<td></td>
<td>First Yr</td>
<td>First Yr</td>
<td>First Yr</td>
</tr>
<tr>
<td>(Nodal Analysis)</td>
<td></td>
<td>3.9</td>
<td>0.6</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.6</td>
<td>13.6</td>
<td>26.9</td>
</tr>
</tbody>
</table>
2 Administrative Costs

• Major components included:
  – RTO administrative fees
  – RTO FERC fees
  – Internal cost increases (staff & technology)
  – Savings in IS reliability coordination
## Administrative Costs

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<td>Out Yr</td>
<td>First Yr</td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 Trade Benefits</strong></td>
<td>(3.2)</td>
<td>(3.2)</td>
<td>(4.7)</td>
</tr>
<tr>
<td>(Nodal Analysis)</td>
<td>3.9</td>
<td>23.6</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>2 Administrative Costs</strong></td>
<td></td>
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</table>
Transmission Expansion Costs

- What will be built?
  - IS projects
  - MISO projects
  - SPP projects

- What is the cost allocation method?
  - Who pays?
  - UGP seeking exception from RTO-wide expansion costs linked to our Federal Statutory Exemption (FSE) status for Federal service to load
### Transmission Expansion Costs

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<td><strong>3 Transmission Expansion</strong> (Includes West 345-kV Loop)</td>
<td>(28.7)</td>
<td>(34.0)</td>
<td>(31.4)</td>
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</tbody>
</table>
• MISO and SPP have different approaches for resource adequacy, operating reserves, and planning reserves.

• No Benefit/cost shown for Western
  – Western assumed no additional water would be available to create more energy under any small changes in additional capacity benefits.
## Capacity Benefits

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<td><strong>4 Capacity Benefits</strong></td>
<td>0.0</td>
<td>0.0</td>
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IS Transmission Revenue
(Cost Shifts)

• Fundamental Change in Transmission Pricing with an RTO
• IS utilizes a “Postage Stamp” pricing method.
  – One rate for moving into, thru, and out of the IS footprint
• MISO and SPP utilize a “License Plate” pricing method.
  – Only load in the license plate zone pays for the transmission costs in that zone. Generation sourced in one zone sinking to load in the another zone pays no sourced zone transmission costs.
License Plate Pricing Impact

License Plate

Postage Stamp
UGP FSE Service
## IS Transmission Revenue (Cost Shifts)

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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>5</strong> IS Transmission Revenue</td>
<td>(55.6)</td>
<td>(51.6)</td>
<td>(61.5)</td>
</tr>
</tbody>
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Drive-Outs

- IS owners and others have load off of the IS system but take IS service for that load.
  - Effectively a Drive Out charge for generation that sources in or thru the IS but serves load off the IS
  - Revenues are currently shared among the IS owners.

- Both MISO and SPP have Drive Out charges based on the RTO transmission rate.
  - Revenues are shared among all the RTO load.
  - Results in a loss of revenue to the IS parties

- UGP FSE impacts
Drive Out Costs – Independent

Integrated System

Drive Outs pay IS Rate
Revenue shared between IS owners
Drive Out Costs – Join MISO
MISO/Integrated System

Drive Outs pay **MISO Rate**
Issue is Revenue Sharing
Drive Out Costs – Join SPP
SPP/Integrated System

Drive Outs pay SPP Rate
Issue is Revenue Sharing
## Drive Outs

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<td>0.0</td>
</tr>
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<td>(55.6)</td>
<td>(51.6)</td>
<td>(61.5)</td>
</tr>
<tr>
<td>6 Drive-Outs</td>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>(0.7)</td>
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# Summary Table of IS Business Model Overall Cost/Benefit Analysis

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<td>0.0</td>
<td>0.0</td>
<td>(0.7)</td>
</tr>
<tr>
<td><strong>Base Case Total Benefits (Costs)</strong> (Includes West 345-kV Loop)</td>
<td>(83.6)</td>
<td>(65.2)</td>
<td>(97.7)</td>
</tr>
<tr>
<td><strong>Base Case - Join Options Relative to Stand Alone</strong> (Includes West 345-kV Loop)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
## Economic Evaluation

### Comparison to Stand Alone ($M)

<table>
<thead>
<tr>
<th></th>
<th>Join MISO</th>
<th>Join SPP</th>
<th>Join MISO</th>
<th>Join SPP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Year</td>
<td>Out Year</td>
<td>1st Year</td>
<td>Out Year</td>
</tr>
<tr>
<td><strong>Trade Benefits (Nodal Analysis)</strong></td>
<td>(3.3)</td>
<td>(10.0)</td>
<td>.9</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Administrative Costs</strong></td>
<td>(1.5)</td>
<td>(1.5)</td>
<td>(4.0)</td>
<td>(4.0)</td>
</tr>
<tr>
<td><strong>Transmission Expansion (1-345 KV lines in ND)</strong></td>
<td>(2.7)</td>
<td>(2.2)</td>
<td>12.7</td>
<td>13.2</td>
</tr>
<tr>
<td><strong>Capacity Benefits</strong></td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>IS Transmission Revenue (Cost Shifts)</strong></td>
<td>(5.9)</td>
<td>(4.4)</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Drive Outs</strong></td>
<td>(0.7)</td>
<td>(1.2)</td>
<td>(0.3)</td>
<td>(0.4)</td>
</tr>
<tr>
<td><strong>Total Benefit (Cost)</strong></td>
<td>($14.1)</td>
<td>($19.3)</td>
<td>$11.5</td>
<td>$14.2</td>
</tr>
</tbody>
</table>
### Multi-Criteria Decision Analysis Summary

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
<th>Metric</th>
<th>Weight</th>
<th>Optimized Stand Alone</th>
<th>MISO</th>
<th>SPP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marketing Plan &amp; Rate Stability</strong></td>
<td>65%</td>
<td>Access to Bilateral Markets</td>
<td>40%</td>
<td>Extreme</td>
<td>Insignificant</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TLR Susceptibility</td>
<td>30%</td>
<td>Major</td>
<td>Moderate</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peaking Contracts</td>
<td>10%</td>
<td>Extreme</td>
<td>Extreme</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contingency Reserves</td>
<td>20%</td>
<td>Major</td>
<td>Insignificant</td>
<td>Insignificant</td>
</tr>
<tr>
<td><strong>Agreements</strong></td>
<td>35%</td>
<td>Flexibility</td>
<td>40%</td>
<td>Insignificant</td>
<td>Major</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Governance</td>
<td>30%</td>
<td>Insignificant</td>
<td>Moderate</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seams Agreement(s)</td>
<td>10%</td>
<td>Insignificant</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Withdrawal</td>
<td>10%</td>
<td>Insignificant</td>
<td>Major</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>East - West</td>
<td>10%</td>
<td>Insignificant</td>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>RISK SCORE ( Lower score is less risk )</strong></td>
<td></td>
<td></td>
<td></td>
<td>62</td>
<td>42.2</td>
<td>22.3</td>
</tr>
</tbody>
</table>
Section 1232 of EPAct 2005

• May enter into contract placing all or part of a Federal utility’s transmission system under an RTO

Contract shall include:

– Performance standards for operations and use that ensure:
  
  • Cost recovery for facilities under the RTO
  
  • Consistency with (1) existing contracts, (2) third party financing arrangements, and (3) statutes
Section 1232 of EPAct 2005 (cont’d)

Contract shall also include:

- Monitoring and oversight by the Federal utility
- Right of the Federal utility to withdraw from the Agreement

Does not confer FERC jurisdiction over:

1. Federal generation assets
2. Capacity
3. Energy
4. power sales activities
Recommendation

• Studies have shown monetary separations between the options studied with the Join SPP option having more benefits. Multi-Criteria Decision Analysis showed a lower qualitative risk score for the Join SPP option.

• Western concluded that the potential benefits of the Join SPP option are significant enough for Western-UGP to solicit feedback from customers and other stakeholders regarding its recommendation to pursue formal negotiations with SPP regarding membership.
  – Western has appreciated SPP’s governance model which provides a collaborative approach to addressing Western’s and the IS owner’s concerns.
Current Status

• *Federal Register* Notice (FRN) published November 1, 2013 and is the start of the public comment period

• November 19-21\textsuperscript{st}, 2013 – Public meetings

• December 16, 2013 – Public Process concludes
Next Steps

• December 2013/January 2014
  – Review customer comments
  – Decision whether or not to pursue RTO membership
  – Notify customers and stakeholders of decision

• January – April 2014 – Finalize membership/participation agreements

• April 2014 – Sept 2015 – Complete operational preparations to participate as a full member of the RTO
  – Anticipate SPP tariff changes & filing(s) at FERC
Alternative Operations Study (AOS) Recommendation

Western Area Power Administration, Upper Great Plains Region, a power marketing administration of the Department of Energy, is publishing a recommendation to pursue formal negotiations with the Southwest Power Pool, a Regional Transmission Organization, concerning membership. Western is seeking public comment from Western’s customers, Tribes, stakeholders, and the public at large. A decision to pursue implementation of the recommendation is expected mid-December and will be posted on this website.

***NEWS FLASH***

The Federal Register Notice was published November 1, 2013. The 45-day public comment period is open November 1 through December 16, 2013.

- **Recommendation Support & Documentation**
  - Federal Register Notice (270 kb pdf)
  - Customer Notification Letter (212 kb pdf)
  - Alternative Operations Study Summary (377 kb pdf)
  - Alternative Operations Study Recommendation (616 kb pdf)
Questions