Agenda

• Integrated Marketplace Updates
• Tariff Attachment Z2 Credits
• Regional Cost Allocation Review (RCAR) Update
• Regional and Interregional Planning Updates
Integrated Marketplace Update

Bruce Rew, PE
Vice President, Operations
SPP Integrated Marketplace Update

- Marketplace Statistical Information
- Marketplace Wind Peak and Penetration
- Integrated Marketplace Savings
Dispatch by Fuel Type

Real-Time

Generation (TWh)

- Jul 15
- Aug 15
- Sep 15
- Oct 15
- Nov 15
- Dec 15
- Jan 16
- Feb 16
- Mar 16
- Apr 16
- May 16
- Jun 16
- Jul 16
- Aug 16
- Sep 16

- Other
- Gas-SC
- Gas-CC
- Coal
- Hydro
- Renewable
- Wind
- Nuclear
Marketplace Operational Highlights

- 3rd Quarter Peak Load of 50,622 on July 21, 2016
  - New market footprint record
  - Largely due to addition of Integrated Systems October 2015

- Total of 12,400 MW of installed and operational wind capacity to date
  - As of October 1st, an additional 3,300 MW of wind registered
  - A portion of that has begun the commissioning/testing phase

- Additional 140MW of operational solar capacity
  - Total of 190MW currently installed and operational capacity
  - 25 MW registered, not yet operational
July – September 2016

Daily Averages

- Average of Wind Output MW
- Average of Wind Penetration

Wind MW

Wind Penetration

0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55%

0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000
Integrated Marketplace Savings

- Market continues to provide savings even with extremely low natural gas prices below $2
- First year net savings calculated to be $380 million
- 2015 annual net savings calculated to be $422 million
- At the July RSC Staff projected over $1 Billion in savings by the 75th Anniversary
- At the end of September the savings amount was:

$1,000,009,648
Questions

Integrated Marketplace
Significant FERC Dockets

Original Obligations

- **Rulemaking (RM02-1):** Established national policy for revenue credits from transmission service for Generator Interconnection customers that bear upgrade costs [FERC ORDER 2003]

- **ER05-109:** Created revenue credits to compensate entities in SPP that bear directly assigned service upgrade costs (Attachment Z)

Clarifying Filings at FERC

- **ER08-746:** Attachment Z was separated into Z1 - Aggregate Study Procedures and Z2 – Revenue Crediting Procedures (Credits)
  - Credits based upon NITS & PTP service that could not be provided “but for” the existence of the upgrade
  - Included credits for Project Sponsors
  - Recognized that a Network Upgrade may also provide benefits for service in the opposite direction

- **ER13-1914:** Clarifications to Revenue Crediting
  - Clarified the funding of credits and the distribution of credit revenue for Creditable Upgrades under the Tariff
  - Included provisions that were designed to reduce the number of Creditable Upgrades over time
Attachment Z2 Background

- SPP Tariff Attachment Z2 provides a process to compensate (via revenue credits) those Upgrade Sponsors who pay for upgrades that are subsequently used by transmission customers

- Unpaid credit amounts occur as early as 2008
  - FERC approved a waiver of the Tariff to permit settlement of the 2008-2016 charges and credits under Attachment Z2
Z2 Implementation – Key Dates

Begin historical processing Feb. 16

Network direct assignments to fund CPOs Apr. 28

Provided long-term CPOs and Schedule 11 impacts July 12

Posted initial settlements for historical period Sept. 13

  Summary and detailed results for each company

Input data

Payment plan election Oct. 7

Post updated settlements for historical period Oct. 19

Provide overall total on payment plan Oct. 19

Invoice for historical period and September 2016 Nov. 3
## ATRRs Compared to Annual Credit Payment Obligations (CPOs) ($millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ATRR (Sch. 9+11)</th>
<th>Total CPO of LT Service</th>
<th>Percentage of ATRR</th>
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<td>2008</td>
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OATT Requirements
SPP Tariff Requirement – Reviews.

• The Transmission Provider shall review the reasonableness of the regional allocation methodology and factors (X% and Y%) and the zonal allocation methodology at least once every three years in accordance with this Section III.D.

• The Transmission Provider and/or the Regional State Committee may initiate such review at any time.

• Any change in the regional allocation methodology and factors or the zonal allocation methodology shall be filed with the Commission.
# RARTF Members

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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<tr>
<td>Chairman</td>
<td>Steve Stoll</td>
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<td>Richard Ross</td>
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<td>Harry Skilton</td>
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RCAR II RESULTS
# RCAR II– B/C Ratio

## Present Value of 40-yr Benefits for the 2015-2054 Period (2016 $million)

<table>
<thead>
<tr>
<th></th>
<th>Avoided Savings</th>
<th>Mitigation of Transmission Outage Costs</th>
<th>Benefit from Meeting Public Policy Goals</th>
<th>Marginal Benefit of Reliability Projects</th>
<th>Capital Savings from Reduced Customers' Load</th>
<th>Total Benefits</th>
<th>PV of 40-yr ATRRs Before PtP and MISO Revenue Offset</th>
<th>PV of 40-yr ATRRs After PtP and MISO Revenue Offset</th>
<th>Benefit/Cost Ratio</th>
<th>Gap to Reach B/C Ratio of 0.8 (2016 $million)</th>
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**Notes:**
- Not Monetized.
Work with Deficient Zone

• City Utilities of Springfield (CUS)
  • Staff has worked with CUS to address remedy options
  • CUS has expressed interest in Remedy #2
    • Issuance of NTCs for selected new upgrades
  • CUS will be focused on upcoming planning processes
    • 2017 ITP10 (January 2017)
    • Seams Study with AECI (End of 2016)
    • Seams Study with MISO (TBD)
  • Another option would be for the SPP BOD to direct a High Priority Study for the CUS area
Other Zones

- Two additional zones are above the 0.8 threshold but below the 1.0
  - OPPD and Empire
  - RARTF Report and Lessons Learned both stated that zones above the threshold but below 1.0; “that this analysis should be used and considered as a part of SPP’s transmission planning process in the future.”
  - Staff will work with both in upcoming planning processes to address needs and solutions for OPPD and Empire
2017 ITP10 Overview

October 24th, 2016

RSC
2017 ITP10 Futures

• Future 1 – Regional Clean Power Plan Solution

• Future 2 – State Level Clean Power Plan Solution

• Future 3 – Reference Case
Needs and Project Evaluation

2017 ITP10
ITP10 Needs in CUS and Empire Area

- Neosho - Riverton 161 kV FLO Neosho - Blackberry 345 kV
  - Empire District
  - West to east power transfer limitation in southeast KS

- Brookline 345/161 kV transformer #1 FLO Brookline 345/161 kV transformer #2
  - City Utilities of Springfield
  - Bulk power transfer to serve load in the city of Springfield

- Both of these needs are chronic operational issues as well

- Solutions for these needs are currently being analyzed
2017 ITP10 Needs in CUS and Empire
Project Portfolios
2017 ITP10
Future 1 Portfolio – Regional CPP

E&C Cost: $107.1M*
- 1-year Cost: $18.2M
- 1-year APC Benefit: $82.1M

* One project is included in both the economic and reliability portfolios
E&C Cost: $88.5M
- 1-year Cost: $15.0M
- 1-year APC Benefit: $86.5M
Future 3 Portfolio – Reference Case

E&C Cost: $62.6M
- 1-year Cost: $10.6M
- 1-year APC Benefit: $61.4M

2017 ITP10 Solutions
(Future 3)

Business As Usual

- Cap Bank/Reactor
- New Sub
- Condenser
- Terminal Equipment
- Transformer
- New Line
- Line Upgrade

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Multi-Variable Portfolio

• Certain transmission issues identified under out of scope criteria were posted for informational purposes

• This was done to allow for submittal and further evaluation of projects that may support SPP initiatives but are not addressing official Needs per the ITP10 Scope
  • RCAR II
  • Seams
    • Operational issues

• Current target areas for potential project recommendations
  • Eastern Seams
    • Southeast Kansas – Southwest Missouri
    • Northeast Oklahoma – Northwest Arkansas
  • Texas Panhandle
    • SPS North to South
Next Steps

TODAY’S RSC

Portfolio Consolidation
Staging
Sensitivity Analysis
OCT - 2016

Report
DEC - 2016

OCT/NOV - 2016

Benefit Metrics
Stability Analysis
40-Year Financial Analysis
Questions

ITP-10 Planning Process
5 Focus Areas
2016 SPP-AECI
JCSP Target Areas

- Northeast Oklahoma potential overloads and voltage issues
- Brookline potential overloads and voltage issues
- Norton & Georgetown potential low voltage issues
- Wheaton area potential upgrades
- Mid-Missouri potential low voltages
Next Steps

- **October 4th, 2016**
  - Target Area Models posted to TrueShare
  - Target Area needs posted to TrueShare
  - Solution ideas were requested from stakeholders

- **November 7th, 2016**
  - Deadline for stakeholder developed solutions to be submitted into the process

- **December 2016**
  - Issue draft study report

- **Ongoing**
  - SPP & AECI staff developing solutions
SPP-MISO CSP
Interregional Order 1000

- Completed 2014 CSP in June 2015
- Received final FERC order on compliance on April 6, 2016
- Have begun 2016 CSP

- Process Improvements
- Interregional “Overlay” Study

- Received final FERC order on compliance on April 12, 2016
- SPP-SERTP meeting held on June 30, 2016 to review respective regional transmission plans
- No interregional projects have been submitted or identified for evaluation

Credit FERC
# 2016 SPP-MISO CSP Needs

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<tr>
<th>NEED ID</th>
<th>CONSTRAINT</th>
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<td>3</td>
<td>Sub3 - Granite Falls 115kV Ckt1 FLO Lyon Co. 345kV Ckt1</td>
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<td>Sioux Falls - Lawrence 115kV FLO Sioux Falls - Split Rock 230kV</td>
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<td>7</td>
<td>Brookline 345/161kV Ckt 1 Transformer FLO Brookline 345/161kV Ckt 2 Transformer</td>
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Request for solutions

• October 3rd, 2016
  • Needs posted to SPP’s TrueShare
  • Background presentation and maps
  • Solution ideas were requested
  • SPP and MISO regional models are available for project testing

• November 30th, 2016
  • Deadline for stakeholder developed solutions to be submitted into the process

• Ongoing
  • 2016 SPP-MISO Joint Model Build
# Schedule

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<tr>
<th>SPP-MISO CSP Tasks</th>
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<tr>
<td>1. Develop and finalize scope document for CSP study – August 2016</td>
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<tr>
<td>2. Develop detailed schedule for CSP study – August 2016</td>
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<tr>
<td>3. Economic Evaluation</td>
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<tr>
<td>• Model Development – November 2016</td>
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<tr>
<td>• Determine needs list from regional studies – August 2016</td>
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<tr>
<td>• Solution Development – November 2016</td>
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<tr>
<td>• Solution Evaluation and Robustness Testing – February 2017</td>
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<tr>
<td>• Reliability No Harm Analysis – March 2017</td>
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<tr>
<td>• Determine interregional cost allocation - March 2017</td>
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<tr>
<td>4. Coordinated Reliability Assessment – March 2017</td>
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<tr>
<td>5. Draft Coordinated System Plan study report – April 2017</td>
</tr>
<tr>
<td>6. Regional Evaluation and Cost Allocation (if needed)</td>
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Questions