AESO 2010 Tariff Stakeholder Consultation

John Martin, Lee Ann Kerr, and Raj Sharma
AESO Regulatory
June 24, 2009 — Calgary

Agenda

- Introduction (slides 1-5)
- Studies
  - POD cost function update (slides 6-12)
  - TFO O&M cost causation study (slides 13-17)
  - Operating reserve charge investigation (slides 18-22)
- 2010 rate proposals (slides 23-42)
- 2010 terms and conditions proposals (slides 43-71)
- Next steps (slides 72-75)
Recent Applications

- AESO 2009 Rates Update
  - Filed March 12, 2009
  - Responses to information requests due this Friday, June 26
  - New rates may be effective October 1, 2009
- AESO 2008 Deferral Account Reconciliation
  - Filed April 9, 2009
  - Interim approval to recover $6.4 million net shortfall on May 2009 statements of accounts to be settled at end of June 2009
  - Responses to information requests due Monday, July 13
  - Final decision expected in late fall 2009

AESO 2010 Tariff Application

- Plan to file in late September 2009
- Working group meetings being held from May to July 2009
  - Working group information posted on AESO website
  - Parties should contact working group members to discuss progress
- 2010 tariff will build on existing tariff
  - Changes to rates include hourly DTS operating reserve charge and potential additional export and import rates
  - Changes to terms and conditions include revision to contribution policy and revisions to align and consolidate information
- Discussion documents and comment processes to review proposed changes
Meeting Objectives

• Understanding of preliminary results of studies being prepared for tariff application
• Understanding of preliminary proposals for tariff changes
• Establish expectations for remainder of consultation process and for filing of application
• Proposals are discussed “without prejudice” and may not be included or may be different in tariff application when filed
• Please ask questions during presentation

POD Cost Function Update

Raj Sharma
Senior Tariff Analyst, AESO Regulatory
### Updated “Greenfield” Data Set

- 48 load-only interconnection projects included in POD cost function in 2007 tariff proceeding
  - From 1987 to 2006
  - Escalated to 2007 using Alberta CPI in 2007 GTA study
- Removed one project that was cancelled
- Added 17 new load-only interconnection projects
  - From 2006 to 2009
- Updated project costs to most recent estimates or final costs
  - Minimum +20%/-10% (“PPS”) estimate or better
- All project costs based on AESO Standard Facilities

### Composite Price Index

- Project costs escalated to 2008 using composite price index
- Based on four historical price indices from Statistics Canada
  - Canada equipment index ➤ substations
  - Canada materials index ➤ transmission line
  - Alberta industrial services index ➤ engineering
  - Average of Calgary and Edmonton industrial structures indices ➤ construction
- Historical price indices weighted in proportion to average weighting of cost components for interconnection projects
- Project costs escalated from 2008 to 2010 using forecast of Alberta CPI
POD Cost Function Increase

- 2007 POD cost function:
  \[ \text{Cost} = 2,213,108.54 \times \text{MW}^{0.37} \]
- 2010 POD cost function
  \[ \text{Cost} = 2,542,800 \times \text{MW}^{0.4197} \]
- Power curve remains “best fit” to data
- Shape of curve essentially unchanged
- Increases of:
  - 27% at 7.5 MW
  - 32% at 17 MW
  - 38% at 40 MW

2010 Cost Function Is About 35% Higher than 2007 Cost Function

Graph showing the comparison between the 2007 approved/2009 rates update and the 2010 composite index for POD cost ($) vs. DTS capacity (MW).
**Shape of Curve Is Essentially Unchanged**

- 2007 Approved/2009 Rates Update
- 2010 Composite Index

**Next Steps**

- Final discussion paper planned for mid-July
  - Data will be distributed with discussion paper
- Stakeholder comment process on discussion paper
- Final results will be incorporated into 2010 tariff application
TFO O&M Cost Causation Study

John Martin
Director, Tariff Applications, AESO Regulatory

Study Status

• Study being completed for AESO by Arnie Reimer of PS Technologies
• Study scope developed and reviewed
• Initial interviews completed with TFOs
  – Study will be based on information from four largest TFOs: AltaLink, ATCO Electric, ENMAX, and EPCOR
• Study will examine costs from 2005 to 2009
• O&M costs will be defined broadly to include all non-capital costs
  – All costs except depreciation, return, income tax, and related costs
  – Includes operation and maintenance, general, and administrative costs
**Preliminary Results**

- Study is less data-intensive than wires cost causation study
- O&M costs appear to generally be considered demand-related costs
  - O&M primarily to maintain or improve reliability
  - Expected to increase demand weighting of bulk system and local system functions
- O&M costs appear to be:
  - Less than average for bulk system function
  - More than average for local system function
  - Average for point of delivery function
  - Expected to shift costs from coincident demand charge in bulk system to billing capacity demand charge in local system

**Impact on Cost Functionalization and Classification**

**Impact on Results From Wires Cost Causation Study**

<table>
<thead>
<tr>
<th>Function</th>
<th>Total</th>
<th>Demand  ($/MW)</th>
<th>Usage  ($/MWh)</th>
<th>Customer ($/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk System</td>
<td>41.7%</td>
<td>34.2%</td>
<td>7.5%</td>
<td>–</td>
</tr>
<tr>
<td>Local System</td>
<td>17.4%</td>
<td>14.3%</td>
<td>3.1%</td>
<td>–</td>
</tr>
<tr>
<td>POD</td>
<td>40.9%</td>
<td>35.0%</td>
<td>–</td>
<td>5.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>83.5%</strong></td>
<td><strong>10.6%</strong></td>
<td><strong>5.9%</strong></td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding
Next Steps

- Finish study over summer
- Release study in early September
- Stakeholder comment process on study
- Final results will be incorporated in 2010 tariff application

Operating Reserve Charge Investigation

Raj Sharma
Senior Tariff Analyst, AESO Regulatory
Operating Reserve Charge

- DTS operating reserve charge recovers costs of active and standby operating reserves (regulating, spinning, and supplemental)
  - Also recovers related amounts, including trading fees, non-compliance charges, and liquidated damages
- Operating reserve costs are forecast to be $236 million in 2009
  - Related amounts totalled $7 million credit in 2008
- All costs are incurred hourly
  - Related amounts are billed in month following production

Operating Reserve Charge Review

- AESO had initially proposed moving from single-block to two-block operating reserve charge
  - Reduced deferral account balances significantly
- Stakeholders recommended AESO consider hourly allocation of operating reserve costs
- Hourly allocation appears feasible
  - Hourly operating reserve costs would be allocated over all DTS load in each hour
  - Allocation would be completed at month end and included on preliminary and final statements
Hourly Operating Reserve Charge

- AESO will maintain single-block operating reserve charge to allow customers to estimate magnitude of charge
  - Actual charge would be calculated from actual costs
- Operating reserve charge deferral account significantly reduced
  - Deferral account would likely still be used for related amounts
- AESO investigating how to provide information to allow customer to verify billing charges

Next Steps

- Finalize review of feasibility of hourly charge
- Final discussion paper planned for early August
- Stakeholder comment process on discussion paper
- Final results will be incorporated into 2010 tariff application
Rate Levels

- Rate levels will initially be based on 2009 costs as filed in AESO 2009 Rates Update application
  - Wires costs will be updated with recent TFO tariff approvals
- Rate levels will be updated to reflect 2010 costs when those costs are approved late in 2009
  - TFO costs will also be updated if further TFO tariff approvals occur
- Working groups examining:
  - Fort Nelson Rate
  - export and import rates
  - Primary Service Credit
  - deferral account Riders B and C
Demand Transmission Service
Rate DTS

- Interconnection charge updated to reflect
  (a) updated POD cost function, and
  (b) updated wires cost functionalization and classification
    from TFO O&M costs causation study
    - No changes to structure, billing determinants, or methodology
- Operating reserve charge revised to:
  
  $\text{highest 15-minute Metered Demand in each hour} \times
  \text{operating reserve unit cost in each hour}$

  where operating reserve unit cost is the total cost of
  operating reserves in the hour divided by the sum for all
  DTS customers of the highest 15-minute Metered Demand
  for each customer in the hour

Demand Transmission Service
Rate DTS (cont’d)

- No change to voltage control charge
- No change to $$/MW component of other system support service charge
- Power factor deficiency charge will increase
  - Still determining appropriate level
  - Threshold will remain at 90% power factor during interval of highest
    Metered Demand
DTS Interconnection Charge

### Preliminary Comparison

<table>
<thead>
<tr>
<th>Component</th>
<th>2009 Rates Update</th>
<th>2010 Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bulk System</strong></td>
<td>$2,229.00/MW</td>
<td>$2,156.00/MW</td>
</tr>
<tr>
<td></td>
<td>$0.78/MWh</td>
<td>$0.51/MWh</td>
</tr>
<tr>
<td><strong>Local System</strong></td>
<td>$653.00/MW</td>
<td>$866.00/MW</td>
</tr>
<tr>
<td></td>
<td>$0.32/MWh</td>
<td>$0.22/MWh</td>
</tr>
<tr>
<td><strong>Point of Delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• First (7.5 × SF) MW</td>
<td>$3,955.00/MW</td>
<td>$3,920.00/MW</td>
</tr>
<tr>
<td>• Next (9.5 × SF) MW</td>
<td>$1,368.00/MW</td>
<td>$1,495.00/MW</td>
</tr>
<tr>
<td>• Next (23 × SF) MW</td>
<td>$802.00/MW</td>
<td>$917.00/MW</td>
</tr>
<tr>
<td>• All Remaining MW</td>
<td>$425.00/MW</td>
<td>$507.00/MW</td>
</tr>
<tr>
<td>• Fixed Component</td>
<td>$7,030.00 × SF</td>
<td>$5,270.00 × SF</td>
</tr>
<tr>
<td>SF = Substation Fraction</td>
<td></td>
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</tbody>
</table>

Fort Nelson Demand Transmission Service Rate FTS

- Working group discussion has focussed on assessing costs in three time frames:
  - the current situation with significant TMR requirements,
  - after the northwest transmission development is complete, when the need for TMR is reduced, and
  - after significant load growth in the future when either TMR is again required or additional transmission development is needed

- Working group has not yet completed examination of issues
Fort Nelson Demand Transmission Service Rate FTS (cont’d)

- AESO is generally supportive of:
  - continuing current rate for loads included in the northwest transmission development need application, and
  - serving incremental load growth beyond those levels by prorating future incremental costs over total incremental load growth
- Working group will continue to examine issues in support of a proposal to be included in the AESO’s 2010 tariff application

Demand Opportunity Services Rates DOS

- No changes to structure, billing determinants, or methodology
  - Rate levels will change to reflect changes in costs
- Integrate some terms and conditions onto rate sheets
Export Transmission Service
Rates XTS

- Rate XTS would provide a “firm” export service comparable to Rate DTS load service
- Export and import rates working group suspended to allow a separate interties workgroup to develop a vision and product requirements for export and import services
- Export and import rates working group will resume meeting when interties work is complete
  - Interties work is expected to be completed in July
- Work may not be completed in time to be included in 2010 tariff application, and may require a supplemental or amendment application

Export Opportunity Services
Rates XOS

- No changes to structure, billing determinants, or methodology
  - Rate levels will change to reflect changes in costs
  - Rate levels will also reflect any changes arising from implementation of WECC BAL-002 contingency reserve standard
Demand Under-Frequency Load Shedding Credit Rate UFLS

- No changes to structure or billing determinants
- AESO is examining whether Rate UFLS should apply to direct-connect load customers
  - Currently Rate UFLS applies to distribution facility owners only

Primary Service Credit Rate PSC

- No changes to structure, billing determinants, or methodology
  - Rate levels will change to reflect changes in costs
- 55% of DTS POD charge components continues to represent share of costs attributable to substation
  - Based on updated data set used for POD cost function update
- Working group examining effectiveness of PSC price signal
  - Credit based on average embedded cost
  - Customer incurs specific incremental cost when building own substation
Supply Transmission Service
Rate STS

• No changes to structure, billing determinants, or methodology
• RGUCC levels will reduce in accordance with existing schedule of charges

Import Transmission Service
Rate ITS

• Rate ITS would provide a “firm” import service comparable to Rate STS generation service
• As with Rate XTS, export and import rates working group was suspended and will resume meeting when interties work is complete
• Work may not be completed in time to be included in 2010 tariff application, and may require a supplemental or amendment application
Import Opportunity Services Rates IOS

- No changes to structure, billing determinants, or methodology
  - Possibility of additional opportunity services to provide additional priority distinctions, based on product requirements developed by interties workgroup

Riders

- DAT Riders A1–A4: no changes
- Working Capital Deficiency/Surplus Rider B:
  - increase to threshold (currently $7.0 million)
  - clarification of process
- Deferral Account Adjustment Rider C:
  - change to include prior year balances
  - examining other possible changes in working group
  - also examining possible changes to reconciliation approach and process
- Losses Calibration Factor Rider E: no change
- Balancing Pool Consumer Allocation Rider F: no change
### Deleted Riders

- **Bill Impact Mitigation Rider G**
  - Expires December 31, 2009
- **Interim Refundable Fort Nelson Rider H**
  - Addressed as part of Rate FTS

### Amortized Contribution Option Rider I

- Would allow credit-worthy customers to pay customer contributions over time rather than as up-front cash payment as currently required
- Would be available to both DTS and STS customers
- Credit-worthiness test may be restrictive
- Matters such as term, recalculation, and triggers for repayment still being examined in working group
Wind Forecasting Cost Recovery
Rider J

- As part of implementation of market and operational framework, AESO is proposing a centralized wind forecasting service with costs recovered from wind generators
- Cost will likely be recovered under a rider approved as part of the AESO’s tariff
  - Rider would apply only to wind generators
  - Rider would likely be on a $/MWh production basis
- AESO will consult with wind stakeholders on design and implementation of rider

Rate Appendix
Regulated Generating Units

- No material changes contemplated
- Incorporate relevant provisions from Article 14.6
2010 Terms and Conditions Proposals

John Martin
Director, Tariff Applications, AESO Regulatory

Terms and Conditions Changes

- Update throughout to reflect changes in legislation, rules, and standards
- Interconnection process will be revised through separate initiative
  - Revised process will be reflected in terms and conditions
- Working groups examining:
  - TOAD-related changes
  - Customer contribution policy
Article 1
Definitions

• AESO proposes to combine definitions from all authoritative documents into a single centralized glossary
  – Definitions would be used consistently in tariff, rules, and reliability standards

• Definitions would then no longer appear in tariff

• Definitions must be approved before residing in centralized glossary
  – AESO will apply for approval of definitions and movement to centralized glossary as part of 2010 tariff application

• Definitions used in a single article would be embedded in that article rather than moved to glossary

Article 2
Application of Tariff

• Clarify that current tariff applies to all customers, unless exceptions are identified
  – Such as original investment policy applying for contract changes that do not require construction

• No other material changes
Article 3
Provision of Service

• Will state that service may be subject to remedial action schemes or special protection schemes
• No other material changes

Article 4
Interconnection Requirements

• Removal of information already addressed in technical requirements
  – Primarily Article 4.4 for generating units
  – Already required in interconnection technical requirements
Article 5
System Access Applications

- Will be significantly revised to align with redesigned interconnection process
- Customer will work directly with TFO or own consultant
- Two processes are contemplated, one for load interconnections and one for generator interconnections
- Application fees will be eliminated
- Process will be developed over summer and included in 2010 tariff application when filed

Article 6
Security and Agreements

- Will be significantly revised to align with redesigned interconnection process
- Security requirements will be revised to align with expenditure of costs by TFOs
Article 7  
Metering

• Removal of information already addressed in technical requirements  
  – Several paragraphs include requirements already included in Metering Standard

Article 8  
Provision of Information

• Removal of information already addressed in technical requirements  
  – Several paragraphs already required in data and reporting standards
Article 9
Contribution Policy

- Clarification of contribution payment requirements
  - Amortized contribution option to be available to credit-worthy customers through Rider I
  - Otherwise, contribution payments to be staged to follow costs as incurred
- Further guidance on determination of system- and customer-related costs
- Further guidance on determination of AESO standard facilities
  - Will likely reside in policy document outside of tariff
- O&M charge will be updated based on TFO O&M study
  - Application will also reflect decision in R&V proceeding

Article 9 (cont’d)
Investment Levels

- Investment levels will be increased to reflect updated POD cost function
  - Will continue to use multiplier of 1.15 on average POD cost function

<table>
<thead>
<tr>
<th>Component</th>
<th>2007 Tariff</th>
<th>2010 Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>First (7.5 × SF) MW</td>
<td>$28,900/MW/year</td>
<td>$37,400/MW/year</td>
</tr>
<tr>
<td>Next (9.5 × SF) MW</td>
<td>$10,000/MW/year</td>
<td>$14,300/MW/year</td>
</tr>
<tr>
<td>Next (23 × SF) MW</td>
<td>$5,900/MW/year</td>
<td>$8,700/MW/year</td>
</tr>
<tr>
<td>All Remaining MW</td>
<td>$3,100/MW/year</td>
<td>$4,800/MW/year</td>
</tr>
<tr>
<td>Fixed Component</td>
<td>$51,400 × SF/year</td>
<td>$50,300 × SF/year</td>
</tr>
</tbody>
</table>
Article 9 (cont'd)
Greenfield Investment Comparison

- Clarify that maximum investment will be based on contract capacity increase since last investment
  - Rather than increase at time of request (as is current practice)
- Clarifications of staged load, cost changes, contribution changes, and shared facility requirements
- No changes to generator system contribution requirements
Article 10
Demand Opportunity Service (DOS)

- Consolidate terms onto rate sheets if possible
- Move business practices to ISO Rules or into information document

Article 11
Ancillary Services (TMR)

- No changes contemplated
**Article 12**

**Under-Frequency Load Shedding**

- Consolidate terms onto rate sheet if possible

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**Article 13**

**Capacity Increases and Allocation**

- Will be significantly revised to align with redesigned interconnection process
- Details will be developed over summer and included in 2010 tariff application when filed
**Article 14**
Reductions or Terminations

- Clarify that payment in lieu of notice is based on present value of local system charge only
- Explicitly require payout of RGUCC charges in the event of termination of RGU service before end of base life
- Move regulated generating unit provisions in Article 14.6 to Rate Appendix

**Article 15**
Security and Billing

- Explicitly state that interest will not apply to adjustments to statements of account
- Review provisions and applicability for late payment charges
Article 16
Peak Demand Waiver

- No material changes contemplated

Article 17
Interruptions and Force Majeure

- No material changes contemplated
Article 18
Limitation of Liability

- No material changes contemplated

Article 19
Dispute Resolution

- Investigating consolidation of dispute resolution procedures in ISO Rules
  - Provides consistency of process
- Tariff would incorporate process by reference to ISO Rule
### Article 20

**Confidentiality**

- ISO Rule being developed to comprehensively address confidentiality matters
- Propose to remove confidentiality requirement from tariff to avoid redundancy

### Article 21

**Miscellaneous**

- No material changes contemplated
Appendix A
Metering Equipment

• Propose deleting appendix as information already addressed in Metering Standard

Appendix B
Agreement Proformas

• Being reviewed to better address needs of AESO and customers
• Will align with redesigned interconnection process
Appendix C
Procedure for TMR Procurement

• No material changes contemplated

Next Steps
John Martin
Director, Tariff Applications, AESO Regulatory
Next Steps

- Completion of working group discussion in July 2009
  - Possibility for some groups to continue into August
- Distribution of slide presentation with notes for stakeholder comment in July 2009
- Development of tariff detail during August
- General stakeholder meeting in early September
- Discussion paper and final opportunity for feedback in mid-September
- Tariff application filed in late September
- Effective date of 2010 tariff likely to be early 2011

Discussion and Questions
## For More Information

- **John Martin**  
  Director, Tariff Applications  
  403-539-2465 or john.martin@aeso.ca

- **Lee Ann Kerr**  
  Manager, Tariff Applications  
  403-539-2741 or leeann.kerr@aeso.ca

- **Raj Sharma**  
  Senior Tariff Analyst  
  403-539-2632 or raj.sharma@aeso.ca

- Consultation documents on AESO web site at www.aeso.ca  
  Tariff ➤ Current Consultations ➤ 2010 Tariff