

Reliable **Power**

Reliable **Markets**

Reliable **People**

Demand Response in Alberta

August 20 Meeting



Topics



1. Design Principles
2. Gap Analysis
3. Reliability Products
4. Energy Market Participation

Design Principles



- Support FEOC
 - Align with the energy market design
 - Meet a clearly defined need
 - Allow open competition on the same price signal between different types of providers where technically feasible
 - Do not fracture market with multiple similar products/maintain market depth
 - A product or market is generally the action required not the problem solved
 - Can an existing product meet the same need?
- Maintain Reliability
 - Technical standard is based on reliability criteria
 - Response time, measurable, predictable, compliance monitoring, etc.
- High Level: Remove barriers, maximize competition between resource types and avoid market bifurcation when possible

Gap Analysis

- Can competitively procured DR take the place of ‘out of market’ actions currently undertaken by the AESO?
 - Generation Outage Coordination and Rescheduling
 - Long Lead Time Energy Directives
 - Actions Within OPP 801
 - Other?

Long Lead Time Energy & Short Term Adequacy Assessments



- Generating assets that have a start up time > 1 hour and have not provided an indication of their intention to start are included in the long lead time energy list
- The SC uses OPP 705 to perform short term adequacy assessments
 - If the adequacy assessment indicates that a supply short fall is anticipated the SC can direct long lead time energy on to reduce the possibility of shedding firm load
- The short term adequacy assessment incorporates DR by using estimates for:
 - Price Responsive Load (current real-time value is used for the current day and following day, 200 MW static estimate after)
 - DOS (20 MW static estimate)

Generator Outage Coordination



- Based on a long term adequacy assessment, OPP 606 outlines that if it is determined that an outage will impact system reliability it may be directed to reschedule
- DR, specifically price responsive load (200 MW) and DOS (20 MW) can be accounted for in this metric
 - By accounting for DR, this reduces the possibility that there will be an adequacy issue

OPP 801 Actions



- Steps 1-4: SC actions
- Steps 5 & 6: Ensure inerties are optimized
- **Steps 7-9: DOS curtailed**
- Step 10: Cancel any intertie transmission maintenance
- Steps 11-13: Optimize operating reserves
 - **Step 13: Activate standby supplemental loads to release supplemental generators to supply energy (<1hr shortfall)**
- Steps 14-17: SC actions
- Step 18: Distribution voltage reduction request
- Step 19: Out of market generation increase
- **Step 20: Optimize operating reserves (may see SUPL receive a directive)**

OPP 801 Actions



- **Step 21: Arm ILRAS, increase ATC**
- Step 22: Permit mid-hour interchange transactions
- **Step 23: Reduce non-essential station service loads**
- **Step 24: Dispatch off voluntary load curtailment program loads (VLCP), require ≥ 1 hour notice**
- Step 25: Increase ATC in excess of what is permitted in OPPs 304, 312
- **Step 26: Curtail remaining LSS loads**
- Step 27-28: Optimize operating reserves provided over the intertie
- Step 29: Issue AS directives
- Step 30: Request emergency energy
- **Step 31: Curtail firm load**

Reliability Products



- Ramping products (wind integration)
- Voluntary Load Curtailment (during supply shortfall events)
- TMR supplied by load

Ramping Product

- Load can supply ramping product when wind is ramping down rapidly
 - Technical standards still to be determined
 - Initial thought is it looks something like Supplemental and Standby Sup
 - May be required relatively quickly – depends on wind capacity additions
 - Perhaps as early as Q3 2010
 - AESO is open to load competing in this market

Voluntary Load Curtailment Product



- Load volunteers to curtail when the EMMO is exhausted
 - Technical standards still to be determined
 - Design of product and required volumes to be determined
 - Design will preclude impact on the energy market during normal operations, i.e. AESO product will not influence spot market price between \$0/MWh and \$999.99/MWh

- Is price certainty a barrier?
- What is the benefit of loads bidding
 - Could amend rules for payments to bids on the margin
 - Creates price certainty intra-hour only
 - No price certainty for anyone beyond the hour
- Do the ‘costs’ of putting in a bid outweigh the benefits?
 - Price likely increases
 - Compliance requirement
 - What would payments to bids on the margin look like