



Electricity: The AESO's Perspective

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Electricity: Key to Alberta's Growth

- **Electricity is one of the cornerstones for Alberta's ongoing economic growth and a critical piece of public infrastructure**
 - **Societal benefits**
 - **Economic benefits**
- **Electricity becomes even more important as Alberta becomes "the" supplier of energy for North America**
 - **Infrastructure to support the development**
 - **Reliable supply of electricity for operations**
 - **Implications of an interruption in supply are felt well beyond Alberta**
 - **Reputational risks**



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It's About Reliability

- **Adequacy of supply**
 - **Reliance on the market to provide supply**
- **Adequacy of the delivery system**
 - **Reliable system operation**
 - **Development of the transmission system to meet the long term needs**
- **Reliable and timely customer interconnections**



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The AESO's Role

- **Fair, efficient and openly competitive electricity market (FEOC)**
 - **Development and operation of the “pool” market**
 - **Facilitation of other electricity markets**
- **Operation of the Alberta Interconnected Electric System (AIES) -- safe, reliable and economic**
- **Planning the development of the AIES**
- **System Access Service**
 - **Connecting customers**



Implementing Market Policy

➤ **Government of Alberta's Market Policy**

- **Policy published June 2005**
- **Expect the supporting regulation Q2 2006**

➤ **Policy focused on:**

- **refinements to existing market with the objective of increasing price fidelity and credibility in the market signal**
- **identified the need for supplemental market signals to ensure long-term adequacy of supply**

➤ **AESO's role is to interpret and implement the policy**



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Implementation Underway

- **Addressing priority short-term adequacy, price fidelity and merit order stabilization concerns**
- **Primary design elements:**
 - **Generators must offer/must comply**
 - **Imports allowed to set pool price**
 - **Limitations on restatements – two-hour lock down**
 - **Payments to marginal generators**
- **Extensive stakeholder consultation on conceptual design**
- **Market rules issued for stakeholder review**
- **Modification to AESO IT systems underway**
- **Target implementation: March 2006**
- **Another element: Pool Price reconstitution for transmission must-run generation**
 - **Requires a change to the Transmission Regulation**



Future Work

- **Reliability unit commitment (RUC)**
 - Time ahead commitment of generators by the AESO for reliability
- **Unscheduled flows**
 - Actual generation deviates from dispatch level
 - Intermittent resources (wind generation)
- **Long-term adequacy**
 - Supplemental market signals
- **Ancillary services market redesign**
 - self procurement
- **Alignment of dispatch and settlement periods**



Confidence in the Energy Market

- **With the proper signals AESO is confident the market will provide adequate supply**
 - **Trusted price index -- price fidelity**
 - **Robust transmission system**
- **Inadequate supply is not acceptable – the risk must be managed**
- **Our view:**
 - **The price signal should be supplemented by other market signals that reflect the adequacy of available supply on an ongoing basis.**
 - **The appropriate metrics must be designed to provide that signal.**
 - **The market must have every opportunity to respond to the signal.**
 - **If the market does not respond then some other action must be taken to ensure supply adequacy with a minimum intrusion.**



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Transmission Development

- **Implementing approved system reinforcements:**
 - Southwest system reinforcement
 - Edmonton to Calgary 500 kV reinforcement
 - City of Edmonton reinforcement

- **Initiating studies on second 500 kV transmission line between Edmonton and Calgary**

- **Regional plans:**
 - Northwest
 - Northeast
 - Southeast

- **Integration of wind generation development**

- **20-Year Outlook/10-Year Transmission Plan**

- **Merchant Transmission – working with Montana Alberta Tie Ltd. to reliably integrate project into Alberta’s grid**



System Development: Other Considerations

- **How does transmission get built?**
 - Traditional planning criteria – reliability based
 - Additional criteria from the Transmission Regulation
 - Transmission to lead generation
 - Remove congestion
 - Reduce/eliminate transmission must-run generation
 - Restore inter-ties

- **Transmission system must respond to the challenges of:**
 - Growing economy
 - Possibility of a major system disturbance
 - Extreme weather
 - Expanding electricity markets require inter-tie capability

- **Best response to these challenges is a robust and geographically diversified transmission system**



Managing Today's Grid

- **Managing major operating challenge: south system voltage stability**
- **Implemented 500 MVAR capacitors in Calgary area**
- **Benefits:**
 - **Reduced risk of voltage instability**
 - **Lower system losses/increased efficiency**
 - **Enhanced import and export capability**



Managing Today's Grid (cont.)

- **Transmission must-run: AESO committed to competitive procurement**
- **Increased dependence on strength of AESO Operations Planning & System Coordination**
 - Increased diligence in operations planning studies
 - Improved “real time” operating tools and ongoing controller training to enhance system management
 - Ongoing updates to AESO operating polices and procedures (OPPs)
- **NERC/WECC Audit**
 - Strong endorsement of AESO system operations
 - Recommended three AESO practices as “industry best practice”
- **Leading emergency preparedness work with transmission facility owners and industry partners₁₂**



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Increasing Import/Export Capability

- **Inter-ties are critical to the success of Alberta's competitive electricity market and investment in new supply**
 - Reliability of supply and transmission system operation
 - Positive impact on investment in new supply in Alberta and long-term supply adequacy
- **Transmission Regulation requires restoration of existing inter-ties to design capability**
 - 500 kV Edmonton to Calgary reinforcement built for reliability but provides partial inter-tie restoration
 - Second 500 kV transmission line in Edmonton to Calgary corridor for system reliability and restoration of the inter-tie capability
- **maximize existing system inter-tie capability while maintaining system reliability**
- **Ongoing consultation with stakeholders to identify and implement ways to enhance our inter-tie capability**



System Access Service

- **Six months experience with new interconnection process – increase in customer satisfaction – on the right track**
- **Currently about 100 active transmission system access applications at various stages in the interconnection process**
- **Average of about 50 to 60 applications received annually**
- **In the last few months of 2005:**
 - **about 30 transmission system access applications in last quarter of 2005**
 - **seven wind generators (460 MW)**
 - **nine load customers (about 200 MW)**
 - **In January 2006, another four wind projects (550 MW)**
 - **In all about \$55 million in commitment payments have been made**



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Electricity: Key to Alberta's Growth

- **Alberta's MUST have reliable and competitively priced supply of electricity**
- **Our focus on strategic decisions to deliver:**
 - **Develop and facilitate fair and open markets**
 - **Reliable system operation**
 - **Development of a robust transmission system that will facilitate a competitive market and investment in new supply**



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