



Electricity Restructuring in Alberta

Presentation to
The South Asian Initiative on Energy
Calgary
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Alberta's Restructuring Evolution Outline

- The role of the Department of Energy
- Unique Characteristics of Electricity
- Background on Restructuring
- Today's Market Framework
- Continued Market Evolution and Issues



The Electricity Division, Department of Energy

- Responsible for the policies, legislation and regulations that combine to:
 - Encourage private investment in electricity generation
 - Enable the development of a competitive wholesale market
 - Ensure sufficient transmission capacity
 - Support a fair and sustainable retail market ensuring the benefits of restructuring flow through to Albertans.



Why electricity is different

- Production and consumption virtually simultaneous, requiring real-time supply/demand balancing
- Currently impractical to store in large quantities
- Provincial economic growth depends on availability of electricity – both for citizens and industry
- No substitutes in the short run
- Facilities are capital intensive and immobile
 - Alberta is practically an electricity island
- Small customer demand is largely inelastic (little response to prices). Feeling of entitlement.
 - Current metering not capable of supporting pricing innovation



Restructuring Overview

Electric Utilities Act

1995

EU Amendment Act

1998

Electric Utilities Act

2003



- Restructuring an industry is a journey not a destination.
- The Legislation and associated regulations have been refined as the market developed



Alberta's Electricity Industry Pre-1995

- Three integrated utilities owned generation, transmission, distribution and served customers
- Some municipalities owned their distribution systems and served customers in their service area (EPCOR, ENMAX, Lethbridge, Red Deer etc)
- REAs were formed about 1950 to serve eligible rural members
- Customers 'belonged' to the utility
- Electric Energy Marketing Act (EEMA) provided a province-wide rate for generation and transmission



Why was Change Needed

- New technologies and smaller scale plants
- EEMA cost averaging weakened accountability
- Regulatory challenges – costly, timing, errors
 - Genesee 2 took more than ten years
- Competitive generation better than regulation
 - Shifts risks from consumers to suppliers
 - Encourages efficiency
- Trends elsewhere – moving to restructuring



Action

- Electric Utilities Act (EUA) 1995
 - Replaced EEMA
 - Unbundled integrated utilities
 - Opened new generation to competition
 - Wires remained regulated by EUB
 - Created an open access power pool (1996)
 - Established an independent transmission administrator (TA) to manage a single interconnected provincial system
 - **No forced divestiture**



Action

- EUA Amendment 1998
 - Power Purchase Arrangements (PPAs) for legacy (pre 1996) generation to move it into competitive market
 - Framework for retail choice: January 1, 2001
 - Transition protection for small customers with stable rate [RRO] “Business as usual”
 - Market Surveillance Administrator (MSA) as watchdog
 - Level playing field – code of conduct for incumbent utilities to participate in competitive markets
 - Independent Transmission Administrator



Electricity Market Continued to Evolve

- August 2000 PPA Auction raised over \$1 billion
- Balancing Pool created to manage transition issues (e.g., unsold PPAs)
- Short term sale of unsold PPAs raised \$1 billion
- Rebates to customers in 2001 of over \$2 billion from Balancing Pool



Action – EUA 2003

Independent implementing agencies

- Independent System Operator (ISO)
 - Critical market operator
 - Operates open power pool
 - System control and dispatch
 - Transmission system planning and management
 - Load settlement
- Independent Market Surveillance Administrator
- Independent Balancing Pool
- Energy and Utilities Board remains the regulator

Provisions to regulate EPCOR and ENMAX (major municipal utilities)

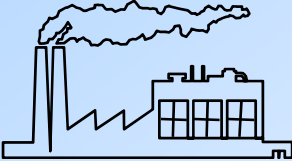

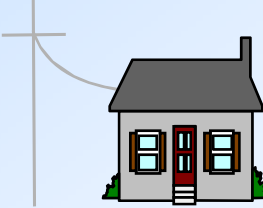



What does Independent Mean

- Must still ensure policy coherence and agency coordination
- Essentially, these agencies are independent within government but not independent of government.



Pre and Post Restructuring

		1995 Pre-EUA	2005
Power Generation 		Regulated	Competitive: Not Regulated
High Voltage Transmission 		Provincially Regulated	Provincially Regulated
Low Voltage Transmission (distribution) 		Provincially/ Municipally Regulated	Provincially Regulated
Retail Sales 			RRO Customer choice



Report Card on Restructuring

- ✓ Open competition for generation. More than 4,000 MW new generation added.
- ✓ Many more market participants. Number of pool participants increased from 50 (1999) to 219 (2006); number of retailers to all customer classes is increasing
- ✓ Supply Diversity – more green power and cogeneration
- ✓ Migrated PPAs into competitive market
- ✓ Regulated, province-wide transmission system managed by independent TA. Fair rates and non-discriminatory access
- ✓ Modern technology – Genesee 3 uses supercritical technology and Alberta leads Canada in wind development
- ✓ Customer choice introduced. Competitive and active industrial market. Small customer market evolving, regulated rate option available.



Alberta's Market Today

<p style="text-align: center;">Supply</p> <ul style="list-style-type: none"> • Independent Power Generators • PPA holders • Imports 	<p style="text-align: center;">Distribution System Owners</p> <ul style="list-style-type: none"> • FortisAlberta • ATCO • City of Edmonton, City of Calgary
<p style="text-align: center;">Transmission System Owners</p> <ul style="list-style-type: none"> • AltaLink • ATCO • EPCOR and ENMAX • Lethbridge, Red Deer 	<ul style="list-style-type: none"> • Municipalities: Lethbridge, Red Deer Fort Macleod, Ponoka, Cardston Crownsnest Pass • REAs
<p style="text-align: center;">RRO Providers</p> <ul style="list-style-type: none"> • EPCOR • ENMAX • Direct Energy • REAs 	<p style="text-align: center;">Competitive Retailers</p> <ul style="list-style-type: none"> • ENMAX • Direct Energy • Alberta Energy Savings Corp. • Many companies for large customers



Industry Implementing Agencies

- Independent System Operator



- Balancing Pool



- Market Surveillance Administrator (MSA)



- Alberta Energy and Utilities Board (EUB)





What we Learned

- A major interface between the regulated sector of the electricity market (wires) and the restructured sector is meter and data that flows from it.
- Data integrity issues did caused problems for customers with respect to billing accuracy.
- Information must be timely and accurate



Principles of Restructuring

- Reliability is not compromised
- Fair and sustainable market based on competitive forces
- Market signals leading to construction of new generation on a timely basis. Must be prepared to withstand price excursions.
- Stable policy and regulatory framework to provide confidence to investors
- Framework must preclude the exercise of market power and unwarranted transfer of wealth
- Framework must be adaptable
- Framework must provide for transition to the end state.



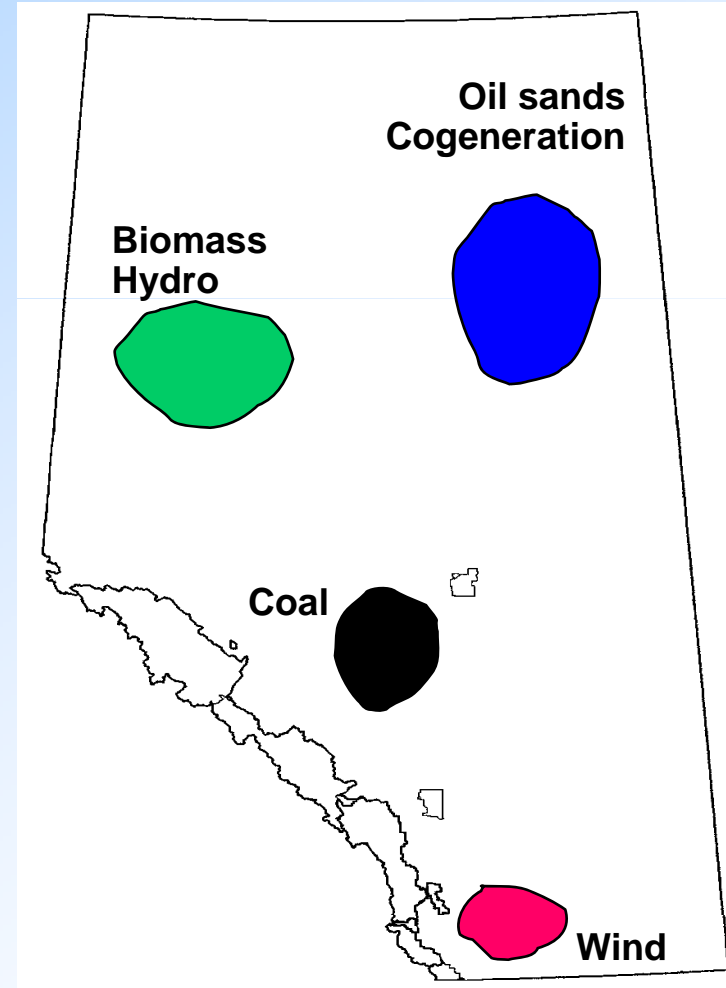
Transmission Policy

- Loads pay for transmission
- Proactive planning is required
- Transmission system must be able to transport electricity without congestion on a normal basis.
- Conform to international transmission reliability standards
- Minimize must-run generation and temporary measures.
- Reinforce tie-lines to facilitate import and export of electricity as needed.



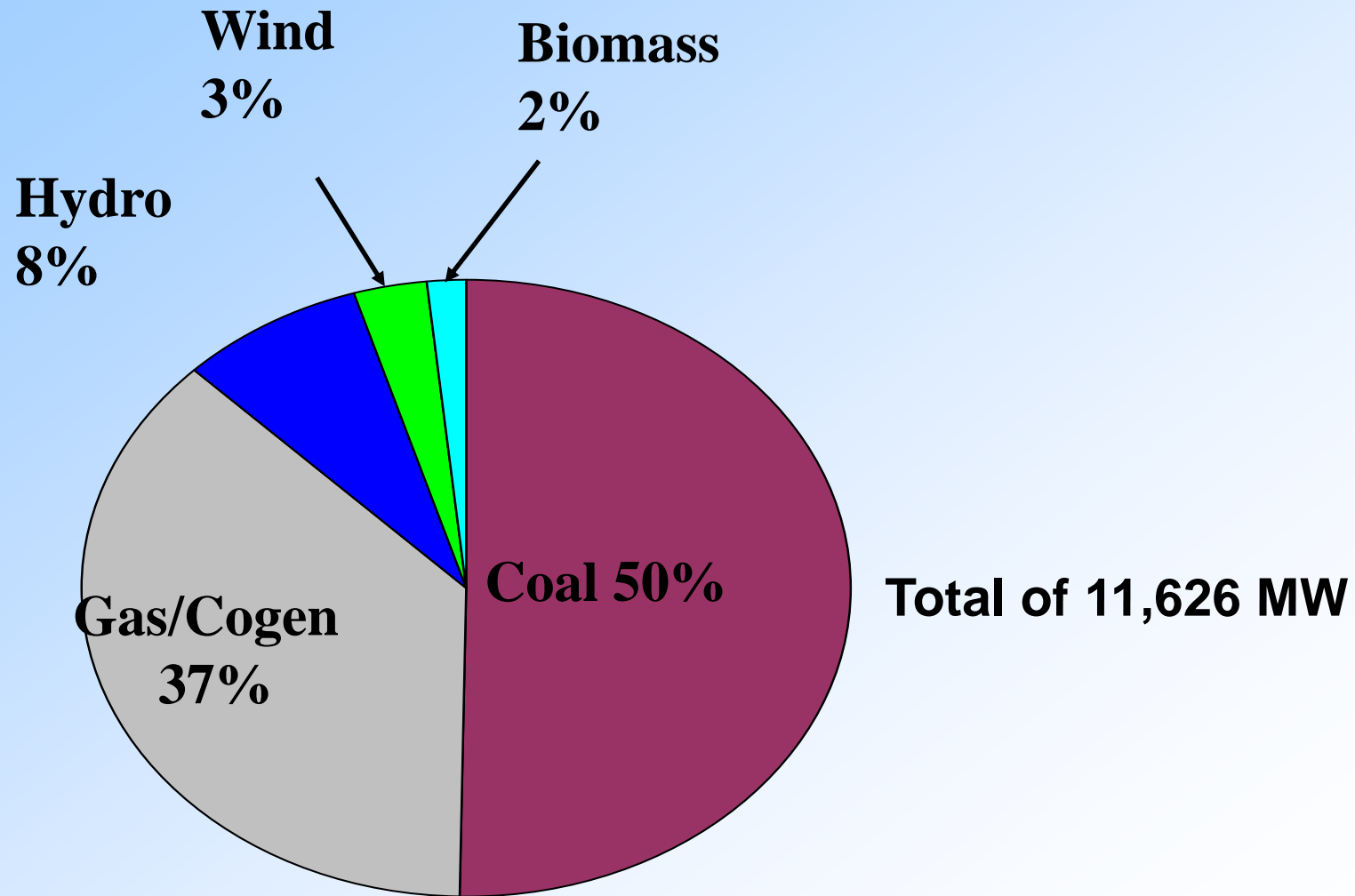
Location & Types of Energy Resources

- Coal – at existing mines
- Wind – south
- Biomass – wood waste from forestry and agriculture
- Hydro – run of river & storage: Taylor Chute, Oldman
- Natural gas – combined cycle gas turbines (CCGT)
- Cogeneration – Oil sands





Generation in Alberta: 2006





Retail Statistics

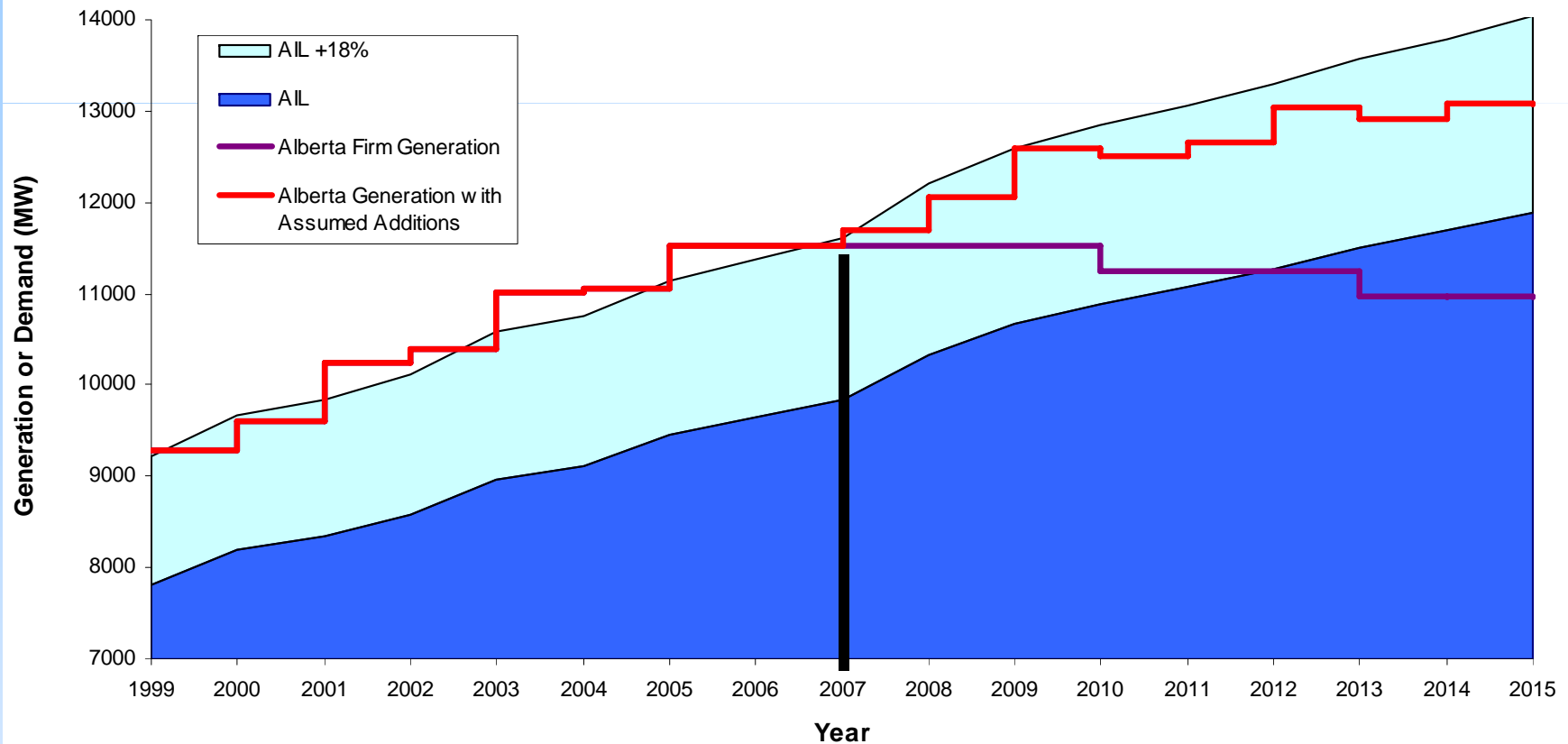
	Residential	Farm	Commercial	Industrial	Total
Customers	~ 1M	~100,000	~160,000	~14,500	~1.3 M
Retailers	3	8 (including 3 REA companies)	7	20	
Sales (kWh)	16%	4%	15%	65%	100%
Contract Sites	16%	7%	40%	86%	
Contract Load	17.20%	18.50%	58.50%	96.65%	

- Residential customers are largest group and account for about 15% of annual electricity sales.
- Industrial customers account for 66% of energy consumption
- Three retailers compete for residential customers



Alberta's Supply and Demand Outlook

- Currently a healthy reserve margin of about 20%
- New supply may be needed as soon as 2007





Future Challenges

- ✓ Transmission:
 - Critical that transmission must be upgraded to serve the future market development
- Wholesale and Retail Market Review
 - Market refinements to improve market pricing signals
 - Incenting the building of new generation to meet the needs of a growing population
 - Transition of the regulated rate for small consumers to a forward monthly hedge