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ALBERTA
ELECTRIC
SYSTEM
OPERATOR

Southern Alberta System Reinforcement

Welcome

The AESO welcomes you to its first round of open houses on the need to reinforce the electricity system in Southern Alberta

- Registration
- Orientation

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Southern Alberta System Reinforcement

Who is the Alberta Electric System Operator (AESO)?

- Not-for-profit
- Public interest mandate
- Independent of the market
- Impartial
- Regulated by the Alberta Energy and Utilities Board (EUB)
- Governed by an independent board

AESO Vision

The AESO will be seen as a **key contributor to the development of Alberta** and the **quality of life** for Albertans, through our leadership role in the facilitation of **fair, efficient and openly competitive** electricity markets and the **reliable operation** and development of the Alberta Interconnected Electric System (AIES).

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Regulatory Process for Transmission Development

The Players

The Regulator: The Alberta Energy and Utilities Board (EUB)

The Planner: The AESO

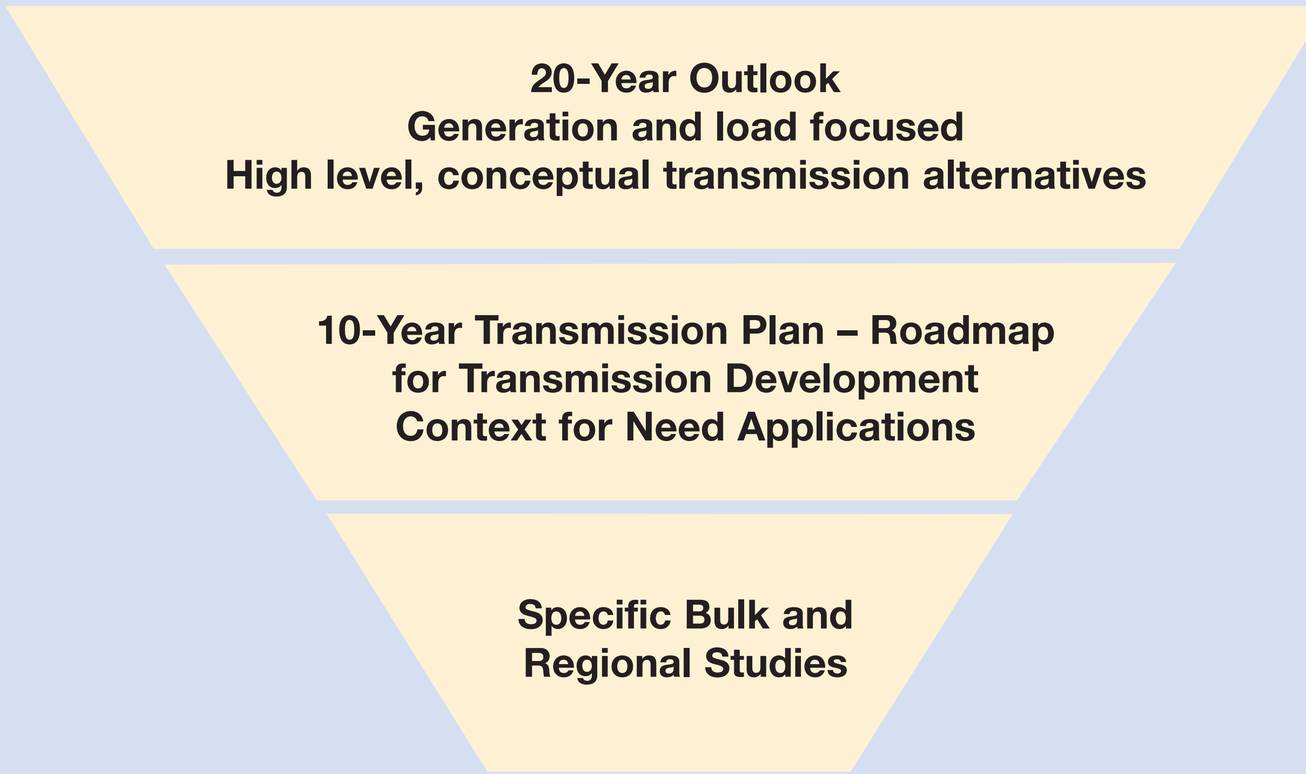
The Builder: A Transmission Facility Owner (TFO) (e.g. AltaLink)

The Process (two parts)

1. The Need: The EUB approves the need for transmission development.
   The AESO studies the need for transmission development and applies to the EUB.

2. The Facility (lines, towers and substations):
   To meet the need, the builder applies to the EUB to construct facilities.

Transmission Planning at the AESO



The AESO's transmission planning process

Two main drivers of transmission planning:

1. Generation development (supply)
2. Load growth (demand)

System reinforcement

The AESO is constantly monitoring the capacity of the transmission system to reliably meet Albertans' demand for electricity. As our population grows and our economy expands, the need for power increases. To maintain reliability, the transmission system must keep pace with Alberta's growth.

Supply and Demand

Supply

- Delivering power to the grid (generators)

Demand

- Taking power from the grid (customers)

The AESO's role

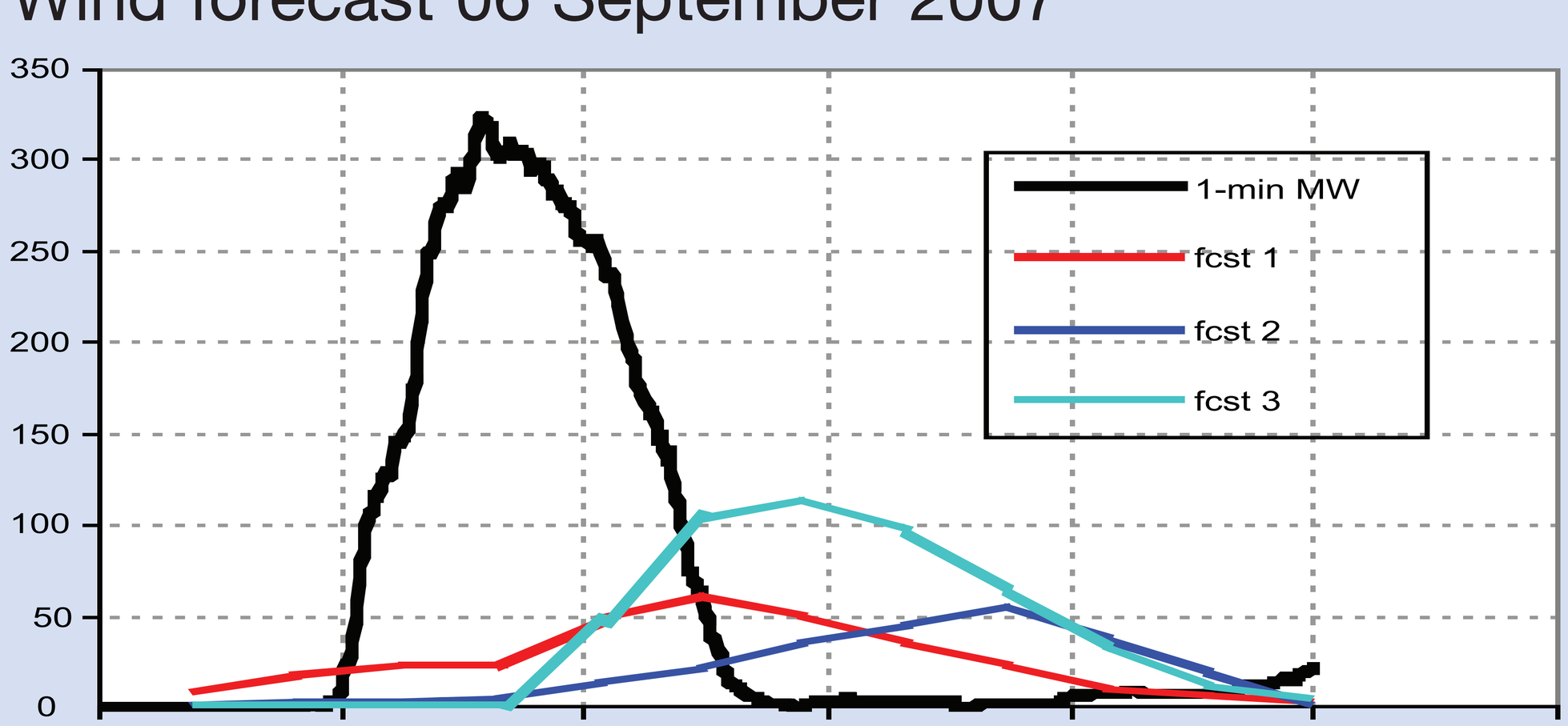
- To connect generators and customers to the grid

The AESO's planning considerations

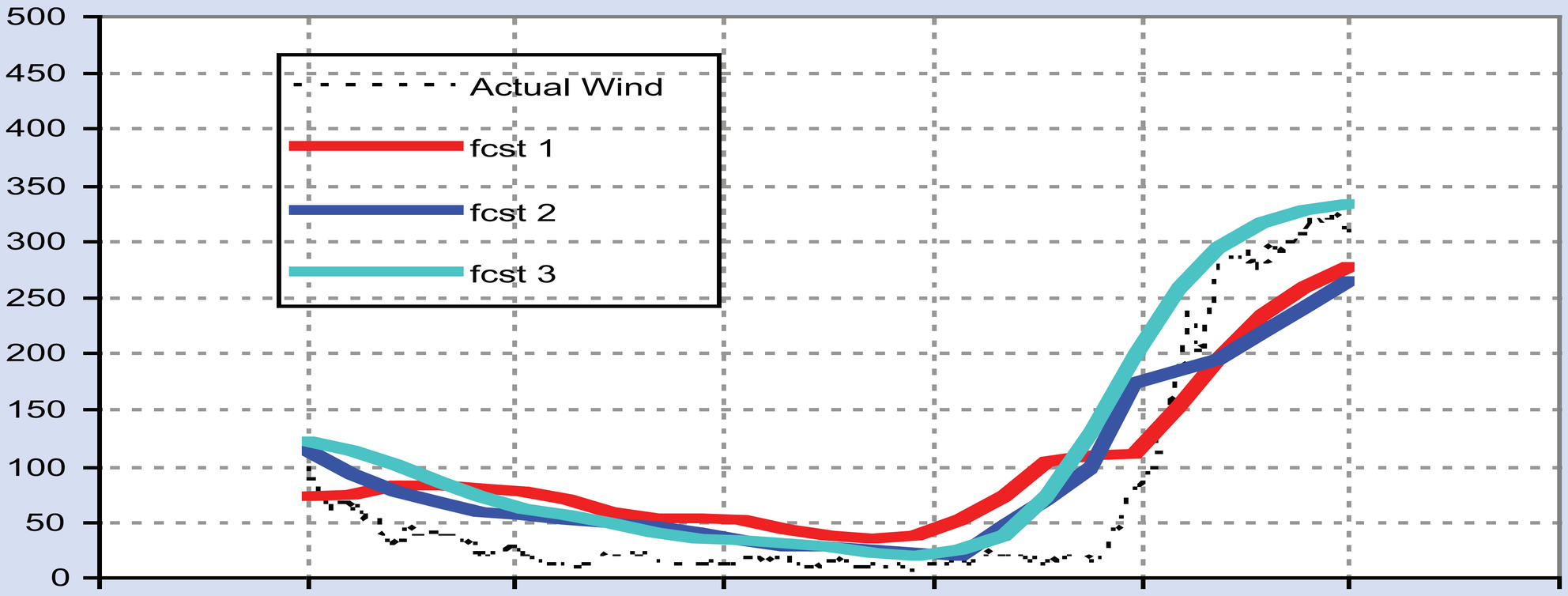
- Social impacts
- Technical requirements
- Cost

Wind Energy and the AIES

Wind forecast 06 September 2007

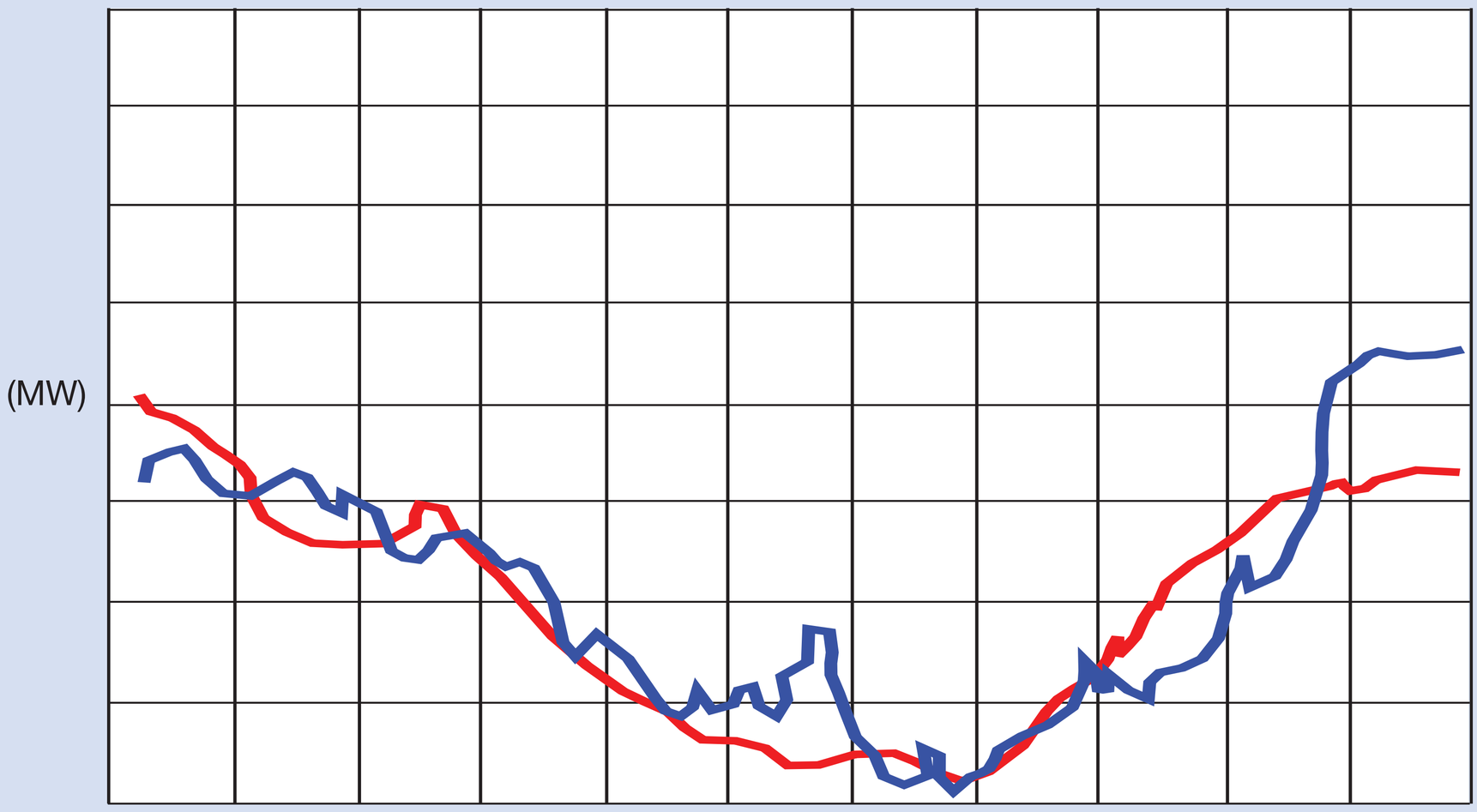


Wind forecast 10 October 2007

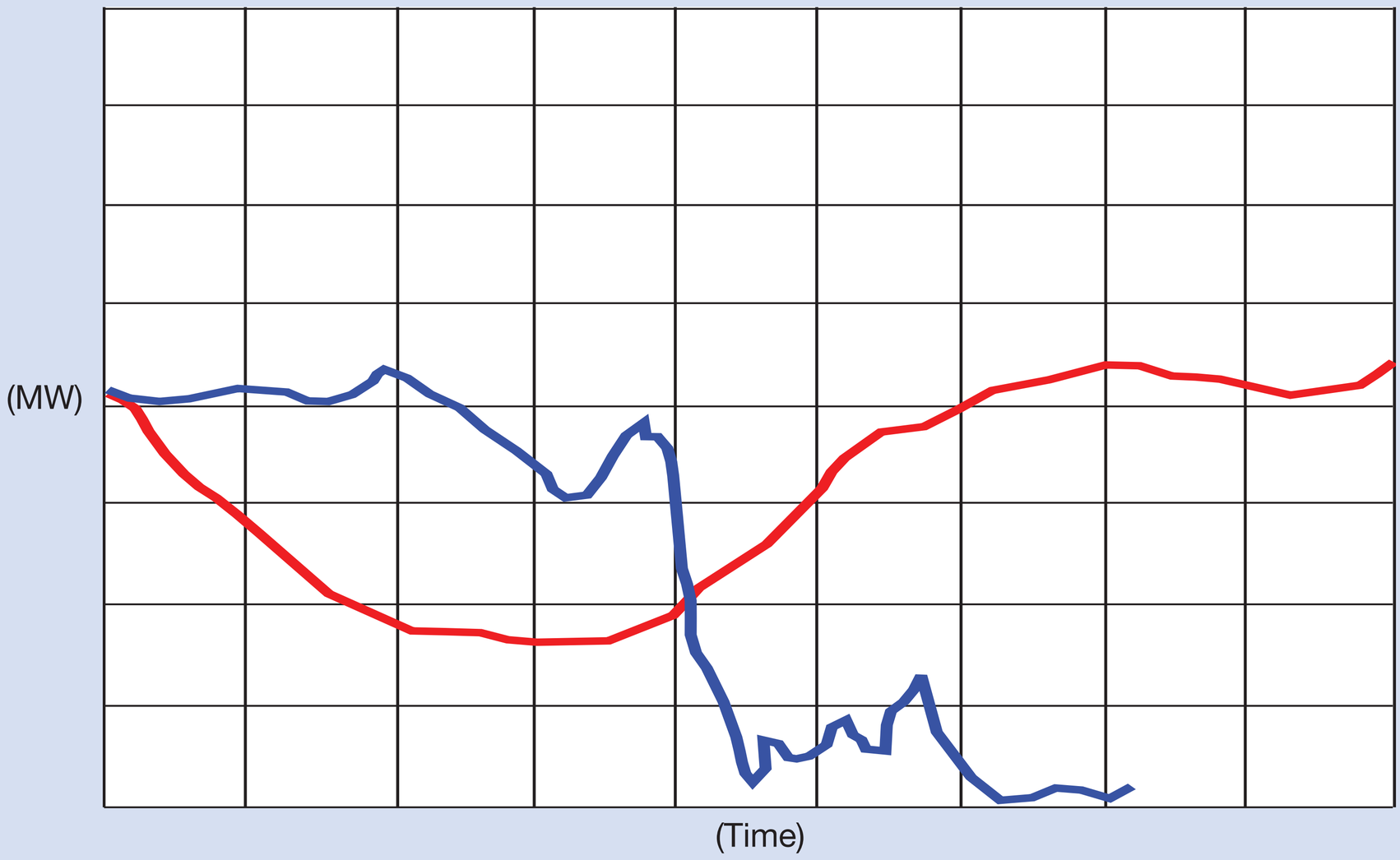


Wind Variability

Wind and load correlate well



Wind power and load do not correlate well



Integrating Wind Energy

Challenge

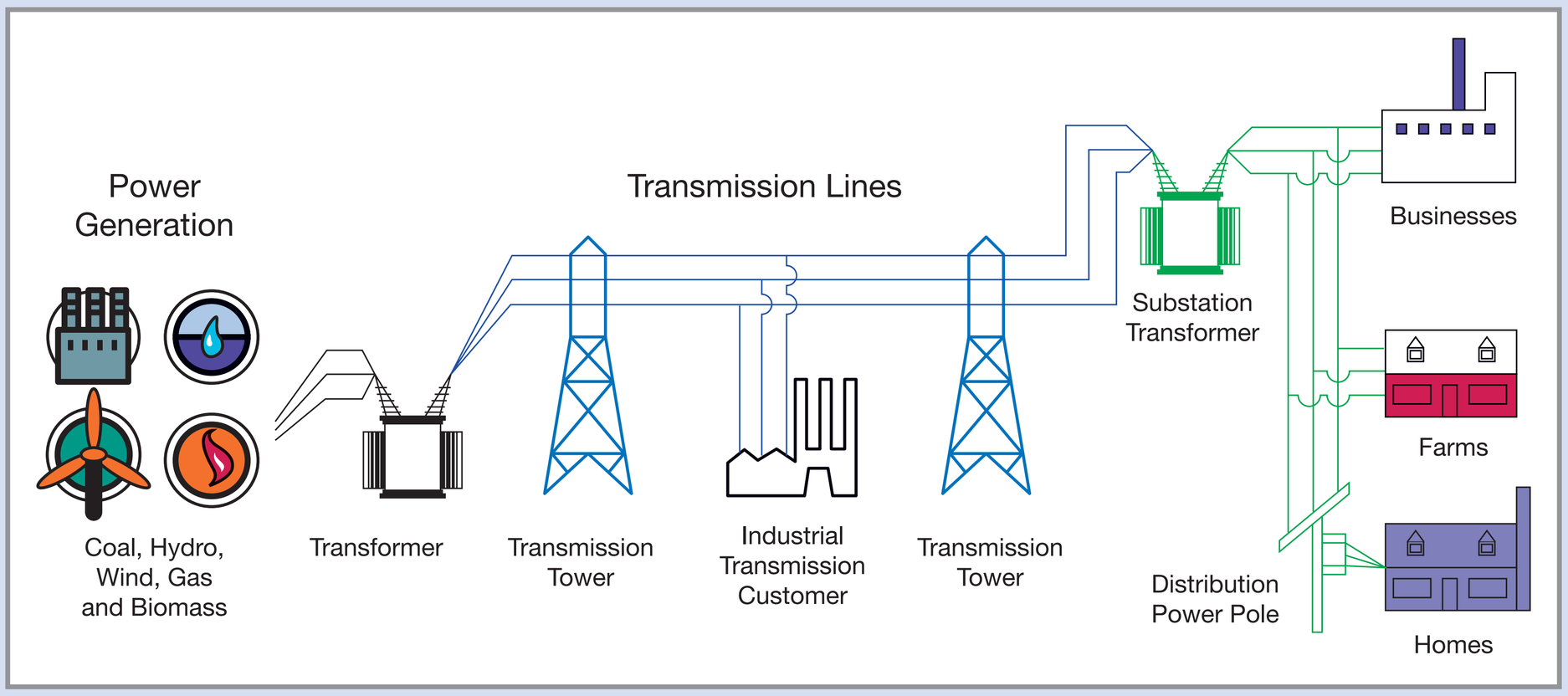
- Wind energy is variable and can be unpredictable

Measures to integrate wind

- Alberta leads the nation in wind integration
- The Market & Operational Framework
- The AESO wind power interconnection process
- Generation Projects queue

The Big Picture

The Flow of Power



There are three distinct functions involved in moving power from its source to consumers; each plays a different role in a complete electric system.

Alberta's Electric Industry

- More than 21,000 km of transmission lines
- Interties B.C. (up to 780 MW) & Saskatchewan (up to 150 MW)
- Over 280 generating units
- 9,661 MW system peak demand
- About 200 market participants
- 11,814 MW total maximum generating capacity

Alberta's Electricity Generation

Coal-Fired Plants		5,840 MW
Natural Gas-Fired Plants		4,422 MW
Hydro Power		869 MW
Green Power	Wind Power	505 MW
Green Power	Other Renewables	178 MW
Total Installed Generating Capacity		**11,814 MW**

Transmission Interconnections

British Columbia	Import: 0-780 MW; Export 0-800 MW
Saskatchewan	Import: 0-150 MW; Export 0-60 MW

MW – Megawatts

Planning for Need

- Load growth:
  3.3% from 2006/2007 to 2016/2017
- 80% system load factor
- 3,800 MW of new generation is required over the next 10 years

Transmission Development in the South

Two drivers

- Increasing demand for electricity (system reinforcement)
- Additional power generation (wind energy)

Planning Challenge: How does the AESO Plan for Wind Energy?

Long-term planning underway

Using generation scenarios

- The AESO load forecast and generation scenarios are key inputs to transmission system concepts
- Generation scenarios describe the development that may occur under the Market & Operational Framework

Consultation

- Ongoing with generation developers and CanWEA to create reasonable 10-and 20-year generation development scenarios

What kind of reinforcement may be required?

- 240 kV
- 500 kV
- HVDC and HVDC light

Consultation Program for Southern Alberta System Reinforcement

Consultation with

- Southern Alberta residents
- Area First Nations
- Industry stakeholders
- Southern Alberta Government representatives (municipal and provincial)

Consultation activities

- Open Houses (November, 2007 and April, 2008)
- Meetings
- Follow up

Information on the AESO's consultation efforts

- The AESO website
- Newspaper advertisements
- Radio advertisements
- Transmission projects phone line 1-888-866-2959

The AESO Stakeholder Consultation Principles

Our principles for public involvement in transmission system planning are:

1. Every member of the public must have an opportunity to comment on the plans.

2. The public must have an opportunity to be informed in a timely manner of the direction, plans, status of issues and decisions related to a project.

3. The experience and expertise offered through public involvement is used to improve the quality and implementation of decisions.

4. The public involvement process and the rationale for decisions are transparent.

A stakeholder is anyone who has a stake in the outcome of the project.