

**Open House Floor Plan, Southern Alberta System Reinforcement, April 28 – May 15, 2008**

**Entrance**

Welcome and Orientation – Station 1

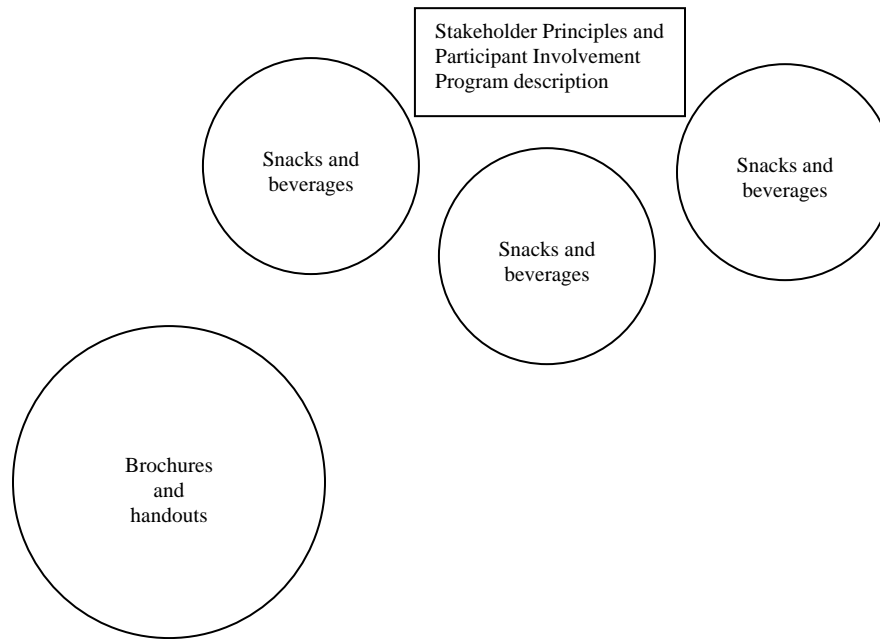
- Greeting and welcome
- Orientation to OH format and print information/materials available
- Privacy statement
- Registration

Corporate Information – Station 2

- Who is the AESO? (role)
- AESO statement of Principles
- Transmission approval process (Need and Facilities applications)
- AESO Transmission planning process

Wind and the AIES – Station 3

- Nature of wind energy
- Challenges of integrating wind
- AESO measures to integrate wind. (e.g., AB leads nation)
- Outline process for how individual projects will be connected
- Queue explained



Stakeholder Principles and Participant Involvement Program description

Exit interviews

CanWEA

AltaLink

Planning Challenges (“Need”) Station 4

- AESO planning considerations
- Description of south need
- Transmission tower reference diagram

Wind Interest map

Wind Interest map

Local Land Use – Station 5

Land use Map

Local Land Use – Station 5

Land use Map

Alternative 1 map	Alternative 2 map
Alternative 3 map	Alternative 4 map

Alternative 1 map	Alternative 2 map
Alternative 3 map	Alternative 4 map

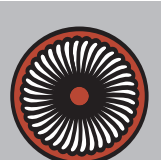


## Southern Alberta System Reinforcement

# Welcome

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

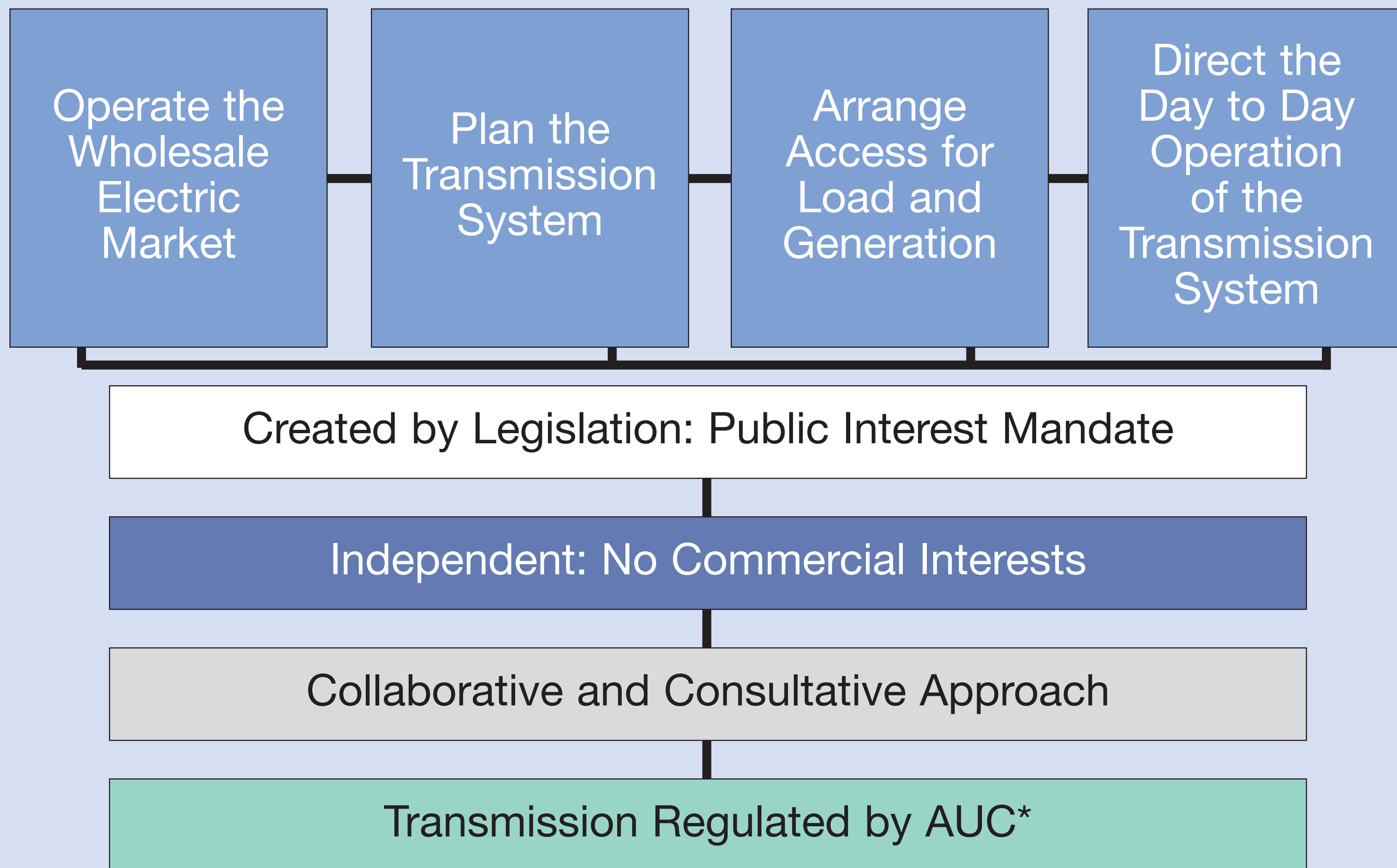
- Registration
- Orientation





## Southern Alberta System Reinforcement

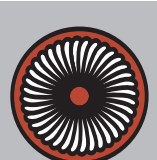
# AESO: Our Role and Context



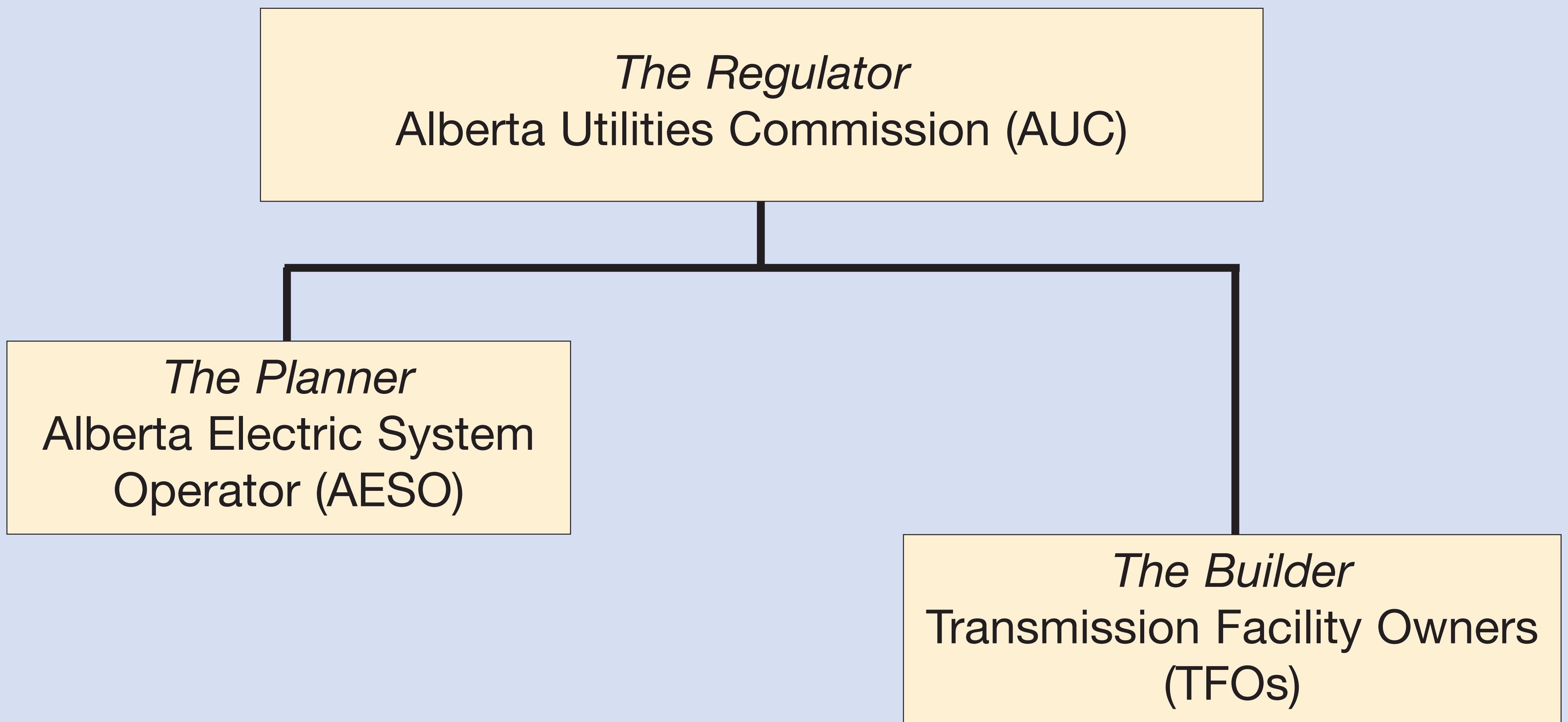
\*Alberta Utilities Commission

## 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).



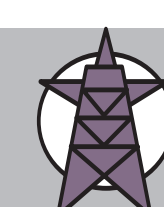
# Regulatory Process for Transmission Development



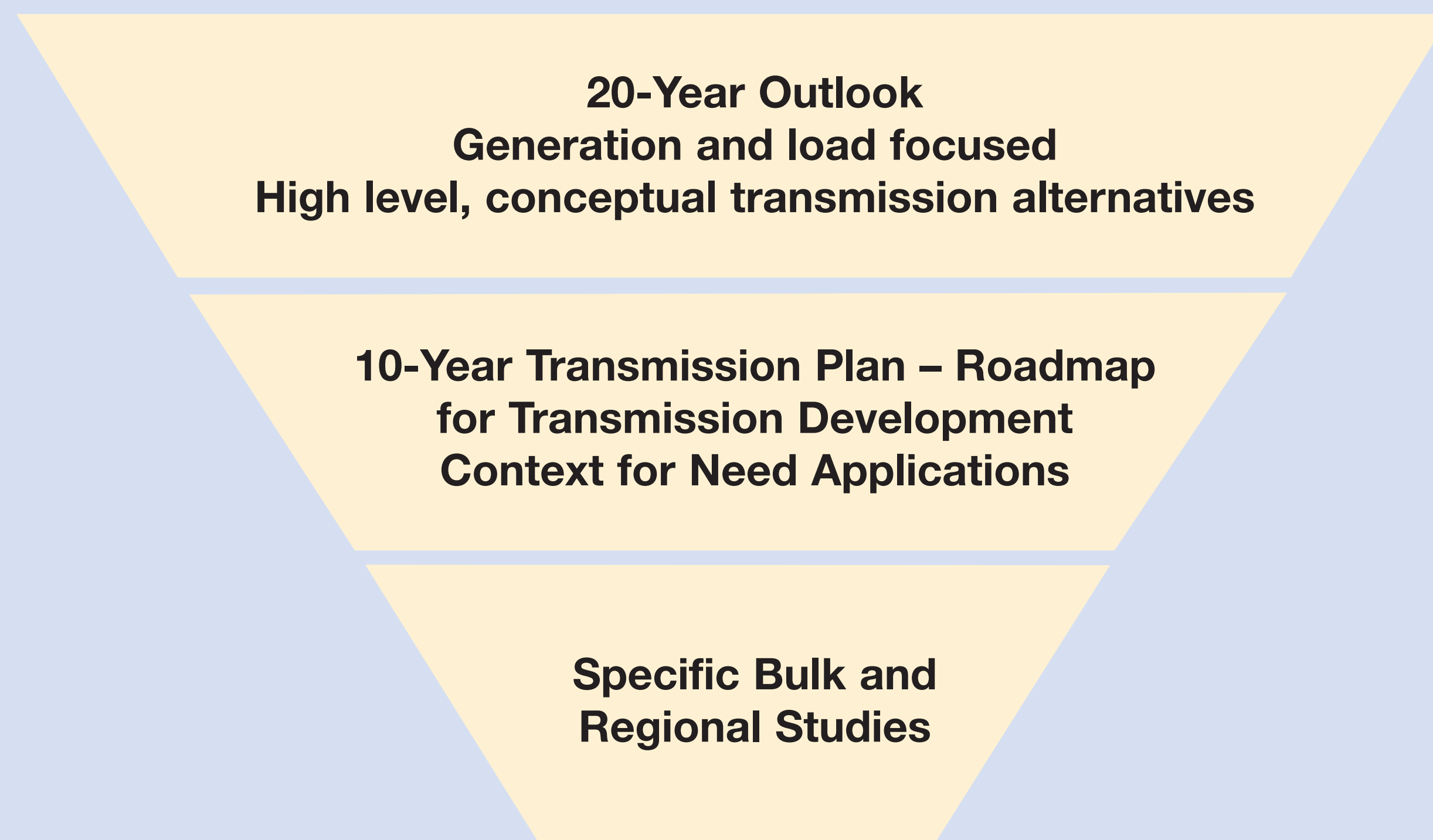
## The Process (two parts)

1. The Need: The AESO studies the need for transmission development and applies to the AUC for approval.
2. The Facilities (lines, towers and substations): To meet the need, the TFO applies to the AUC for approval to construct facilities.

In southern Alberta the TFO is AltaLink.



# Transmission Planning at the AESO



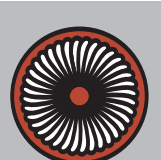
## The AESO's transmission planning process

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.

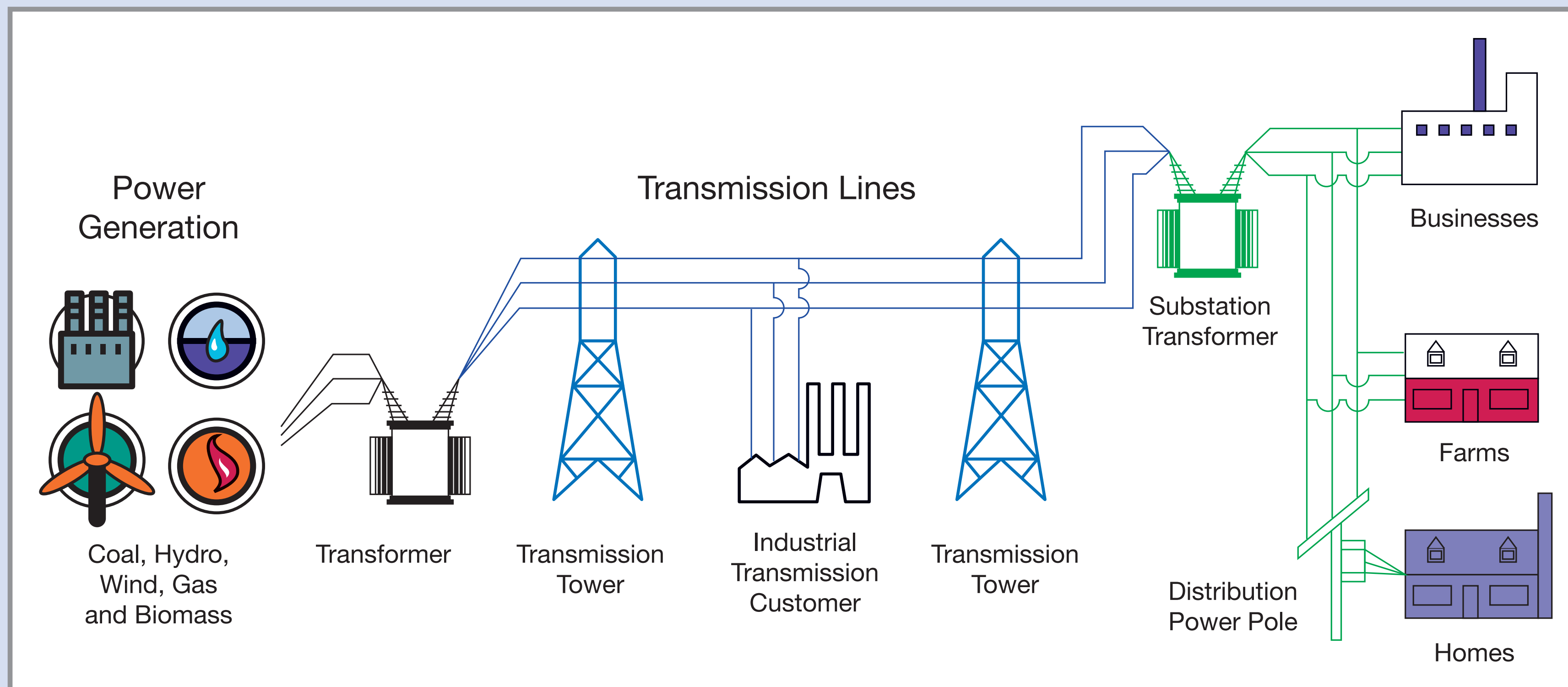




## Southern Alberta System Reinforcement

# The Big Picture

## The Flow of Power

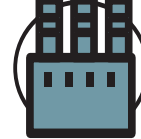






There are three distinct functions involved in moving power from its source to consumers; each plays a different role in a complete electric system.

## 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
- 9,701 MW system peak demand
- About 200 market participants
- 12,188 MW total maximum generating capacity

## Alberta's Electricity Generation

	Coal-Fired Plants	5,893 MW
	Natural Gas-Fired Plants	4,669 MW
	Hydro Power	869 MW
	Green Power	
	Wind Power	523 MW
	Green Power	
	Other Renewables	234 MW
<b>Total Installed Generating Capacity</b>		<b>12,188 MW</b>
<b>Transmission Interconnections</b>		
	British Columbia	Import: 0-780 MW; Export 0-800 MW
	Saskatchewan	Import: 0-150 MW; Export 0-60 MW

Figures as of April 2008





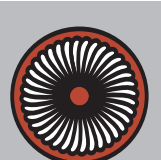
# Integrating Wind Energy

## Challenge

- Wind energy is variable and can be unpredictable

## Measures to integrate wind

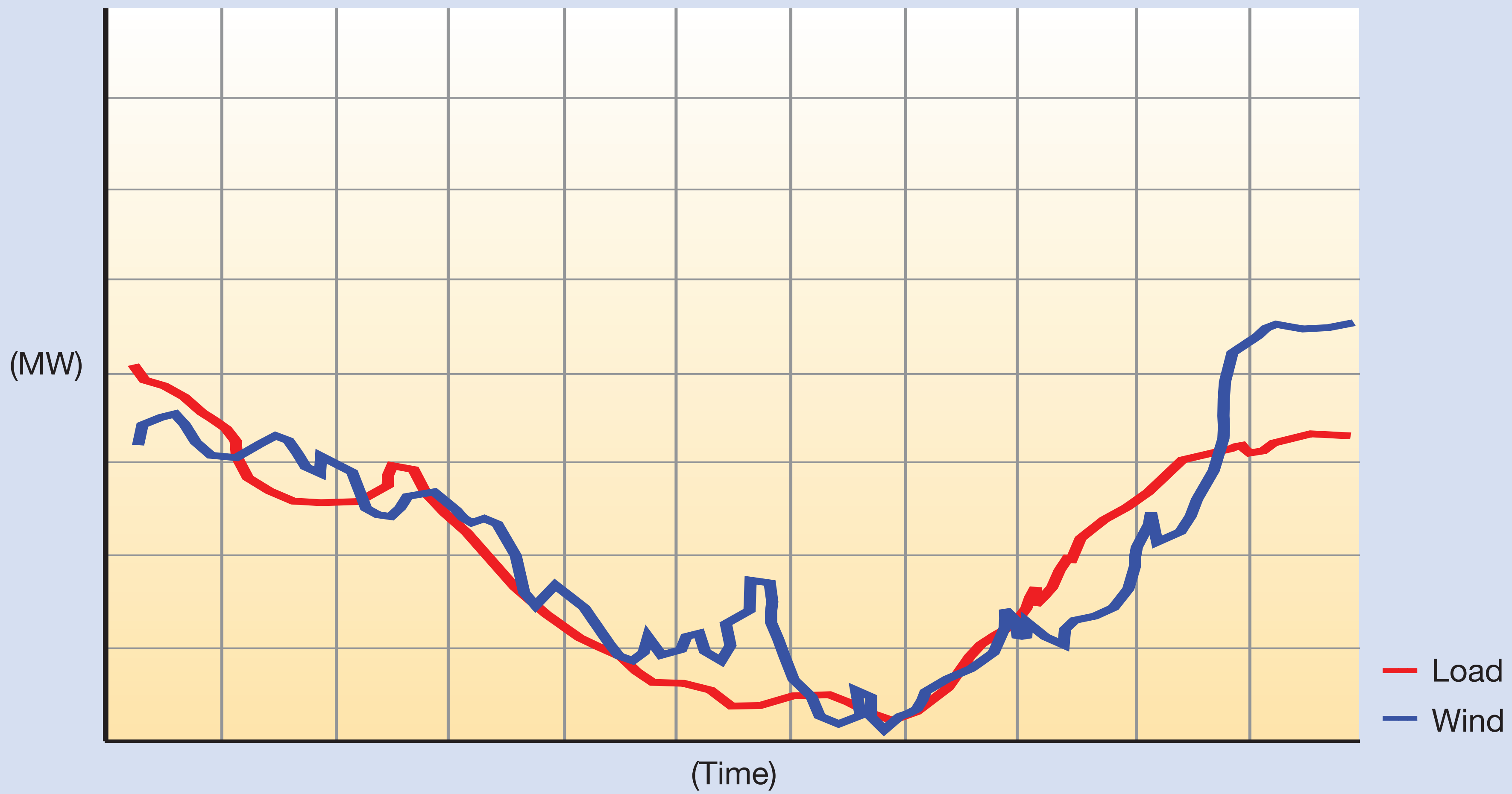
- Alberta leads the nation in wind integration
- The Market & Operational Framework
- The AESO wind power interconnection process
- Generation Projects queue



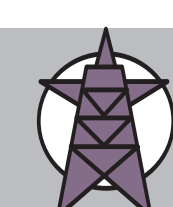
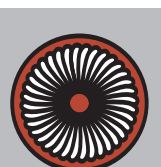
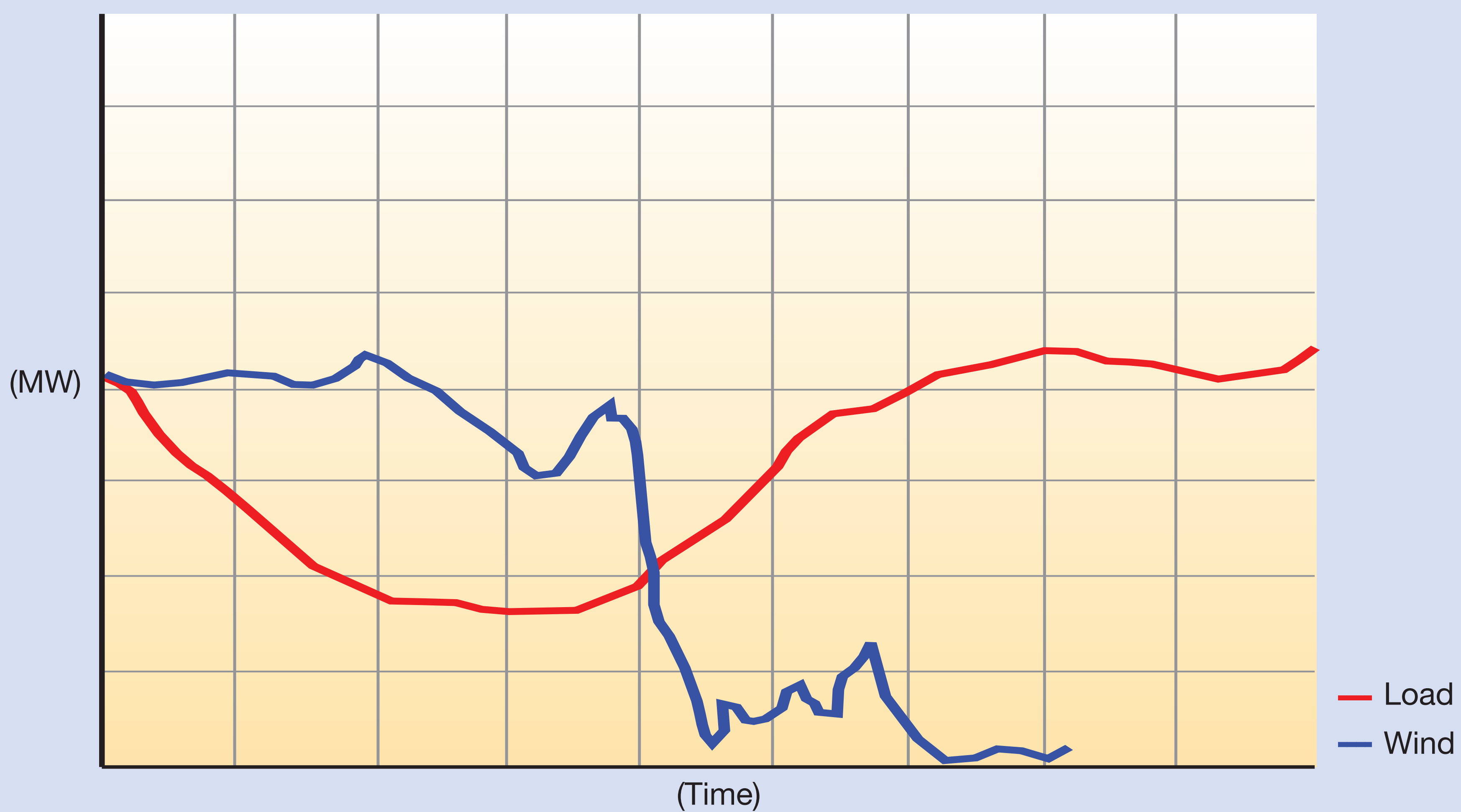
## Southern Alberta System Reinforcement

# Wind Variability

Wind and load correlating well



Wind power and load not correlating well





## Southern Alberta System Reinforcement

### Planning for Need

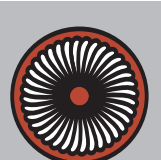
- Generation development
- Load growth

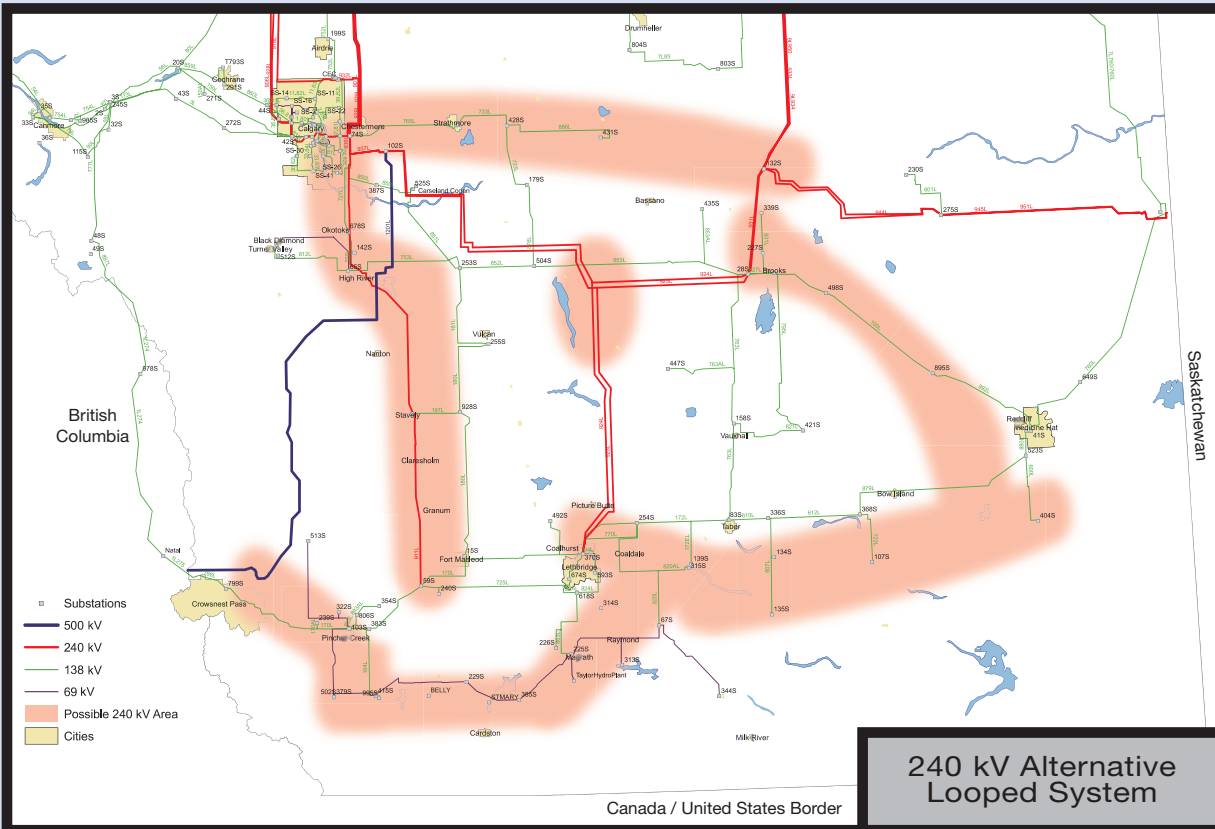
### Transmission Development in the South

- Over 60 wind applications totalling over 10,000 MW
- Limited capacity remaining on existing transmission system

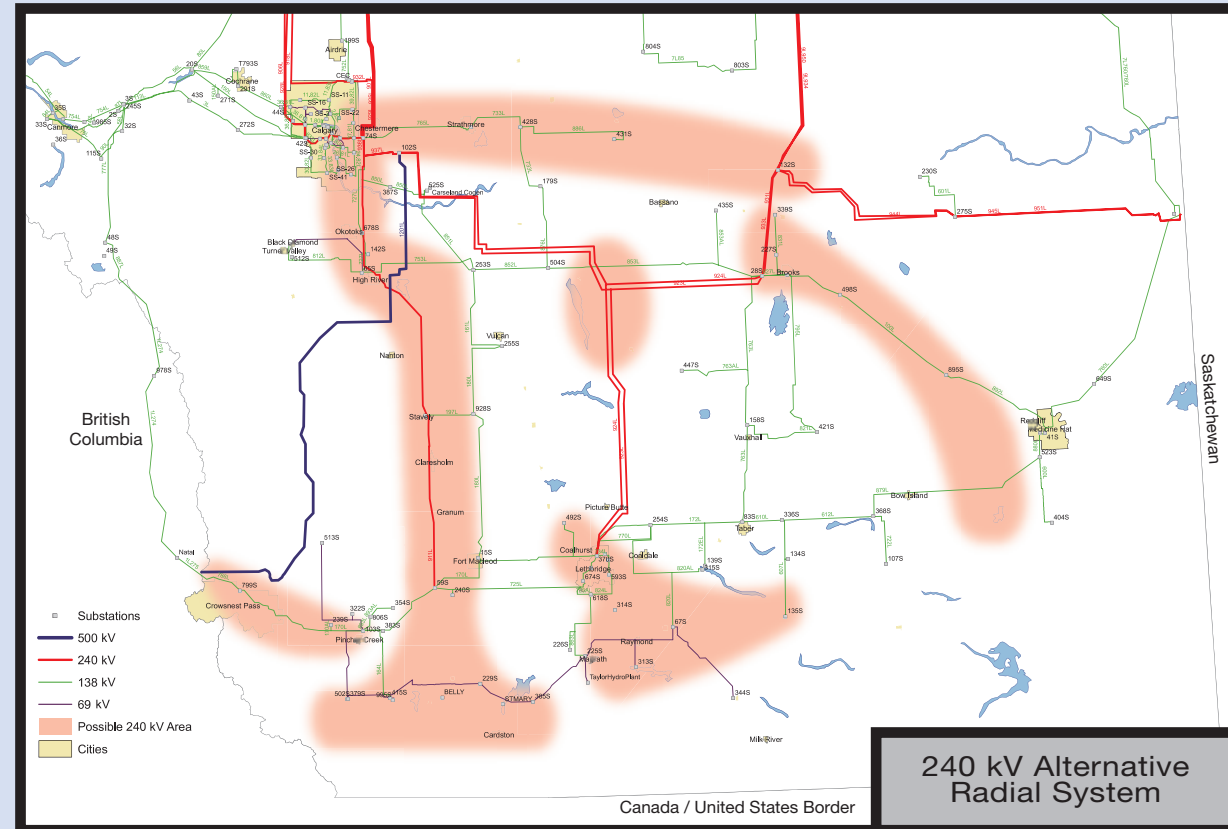
### The AESO's Planning Considerations

- Social
- Technical
- Economic

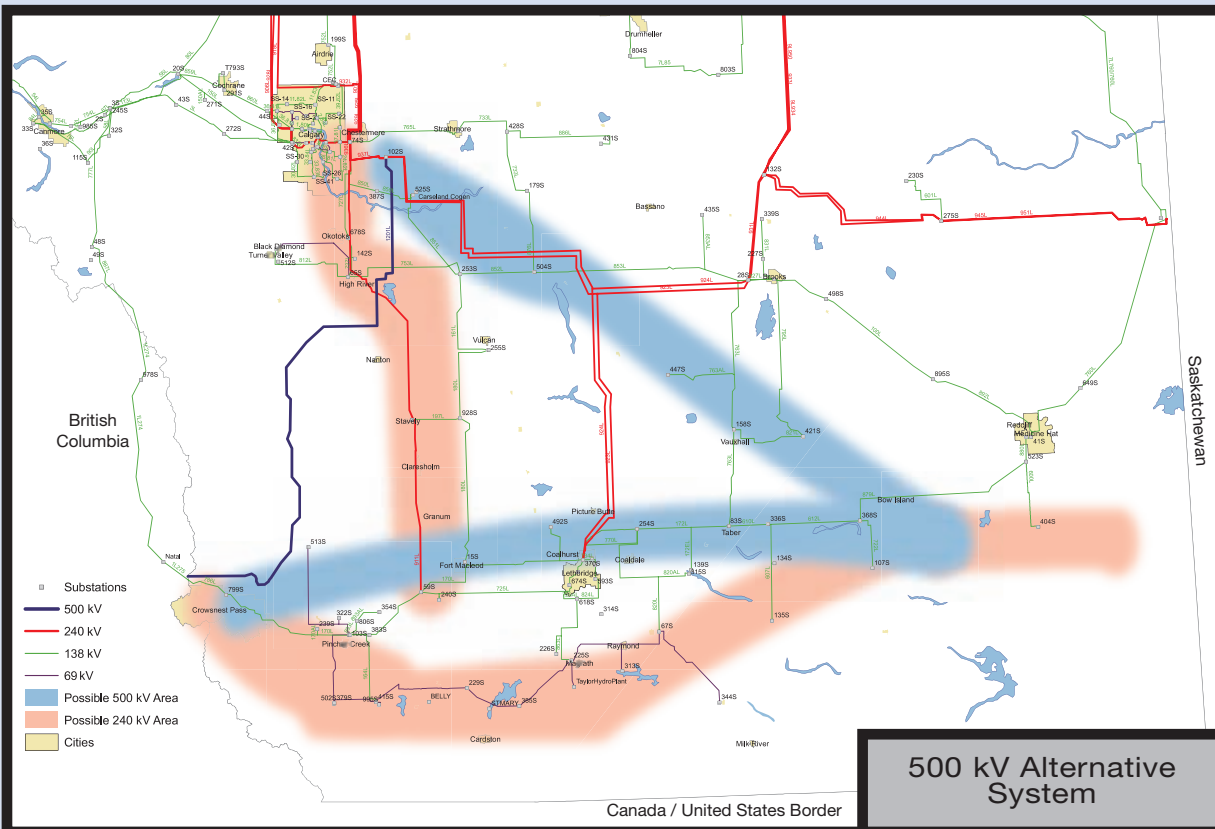




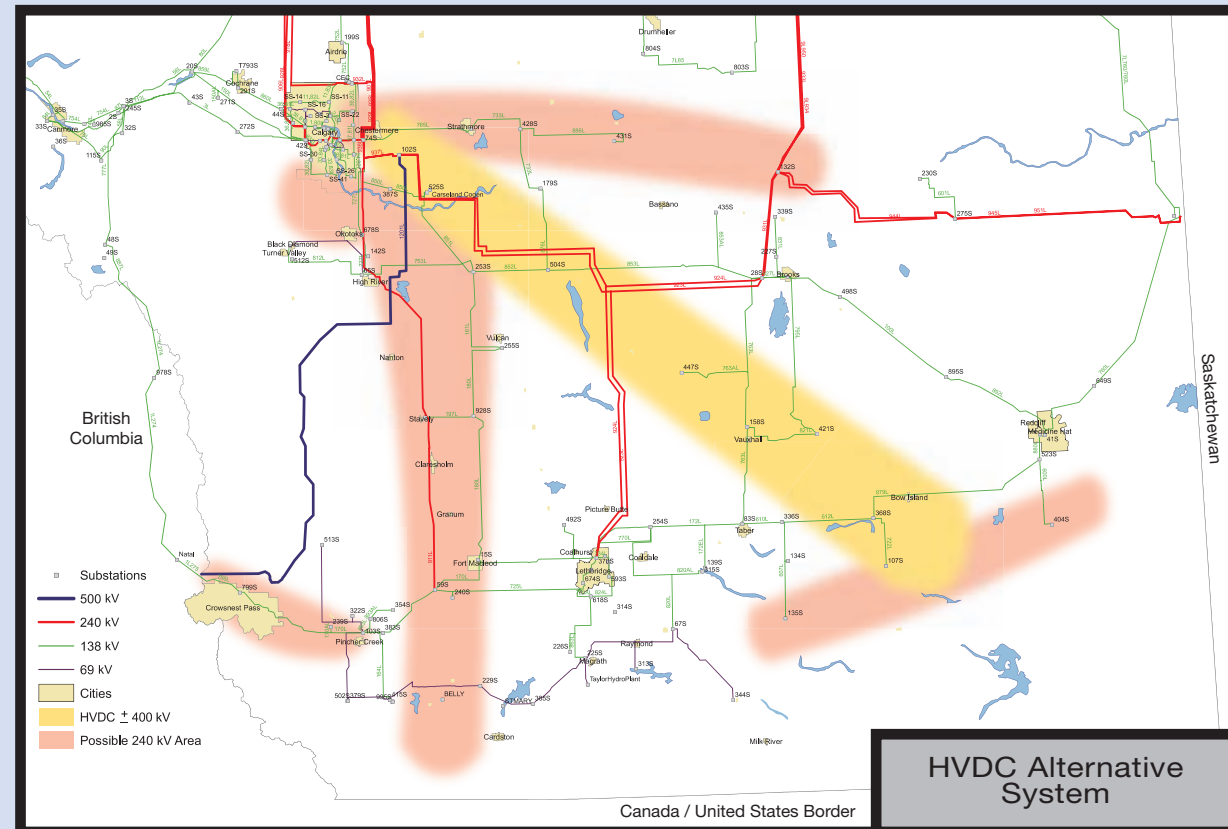
240 kV Alternative Looped System



240 kV Alternative Radial System

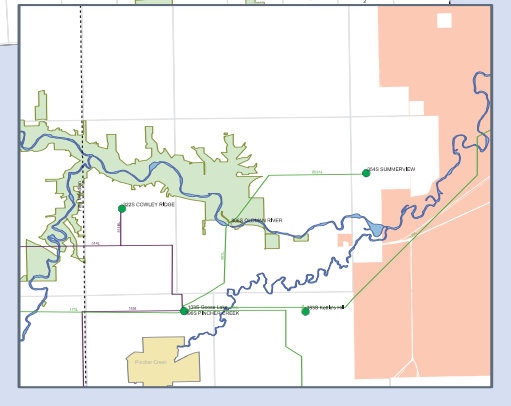
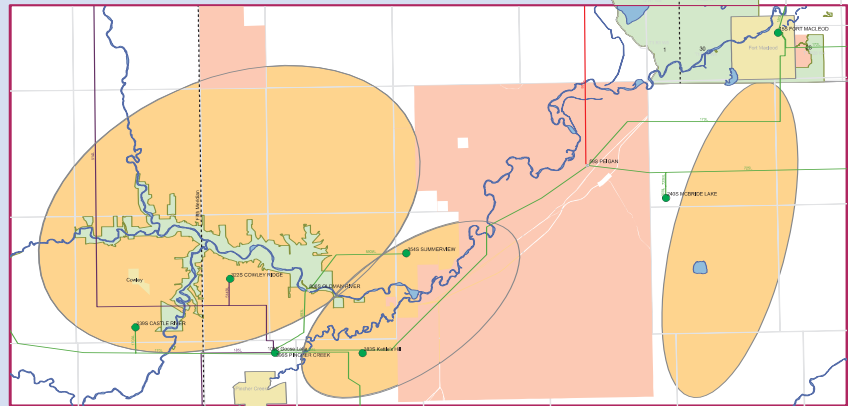
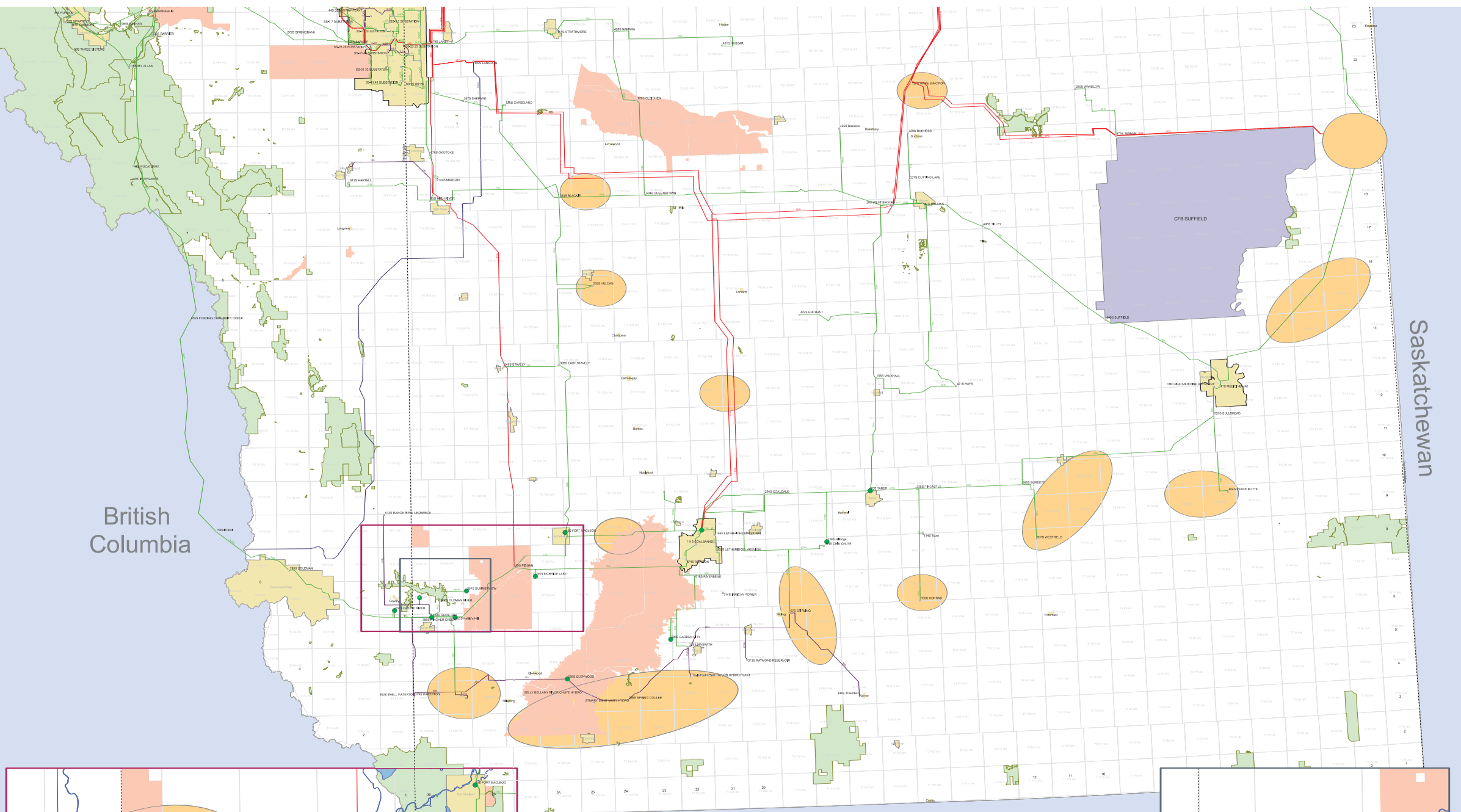


500 kV Alternative System



HVDC Alternative System





Canada / United States Border

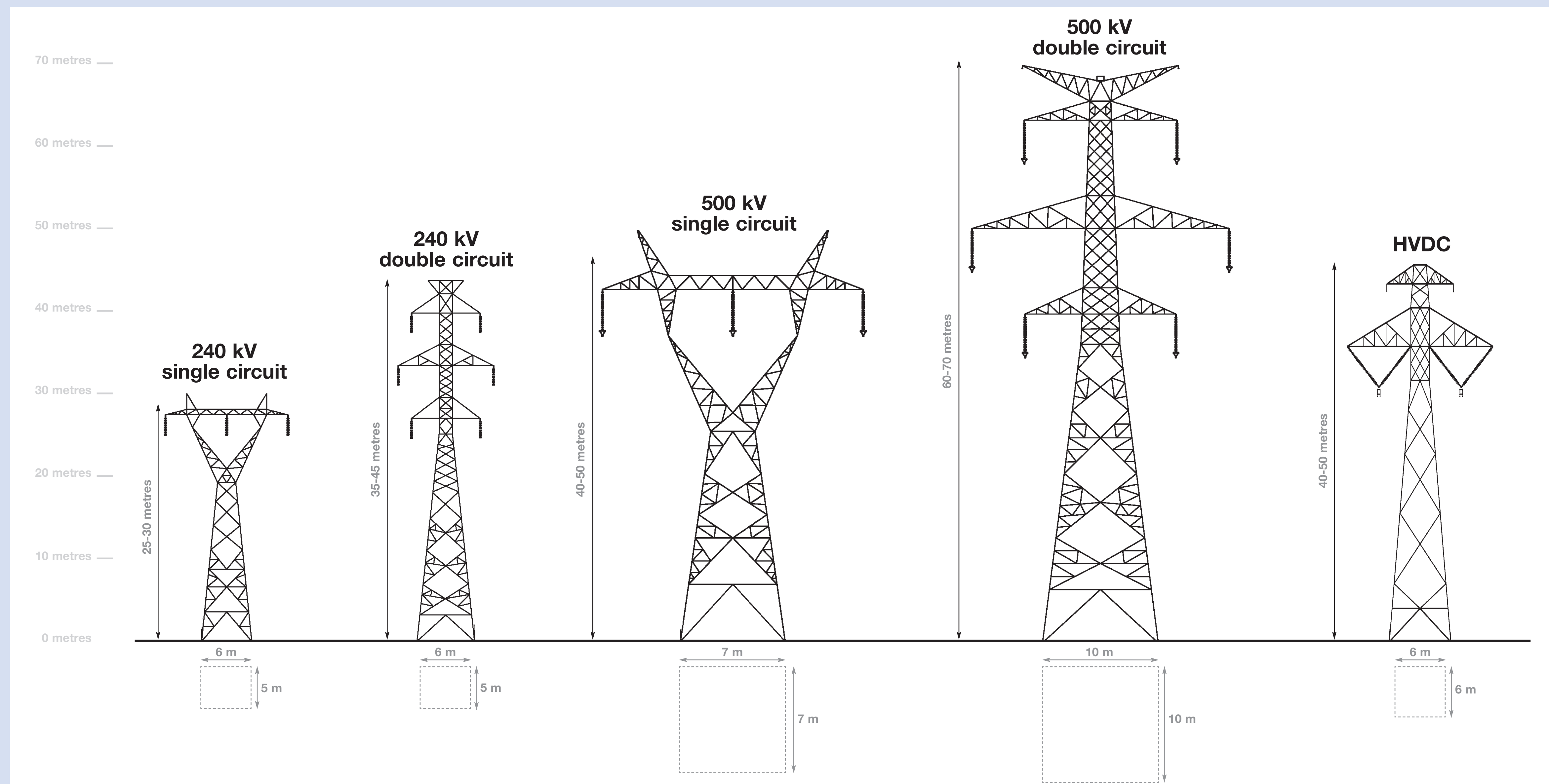
### Legend

- Existing Wind Farms
- Substations
- Existing 500 kV Transmission Lines
- Existing 240 kV Transmission Lines
- Existing 138 kV Transmission Lines
- Existing 69 kV Transmission Lines
- Cities
- Towns
- Provincial or National Parks
- First Nations
- Military Base

Southern Alberta System Reinforcement

# Southern Alberta Transmission System Alternatives

## Types of Possible Towers





## 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.



## Participant Involvement Program for Southern Alberta System Reinforcement

### Discussions with:

- Southern Alberta residents
- Area First Nations
- Industry stakeholders
- Southern Alberta Government representatives (municipal and provincial)
- Community interest groups and other parties

### Activities:

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

### Information on the AESO's Participant Involvement Program:

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

