

CGA Energy Nexus & Annual Technical Conference 2024

Fuelling the Future

2024 Western Canada Cold Snap: Gas and Electric Utilities' Response and Discussion of Future Resilience Planning

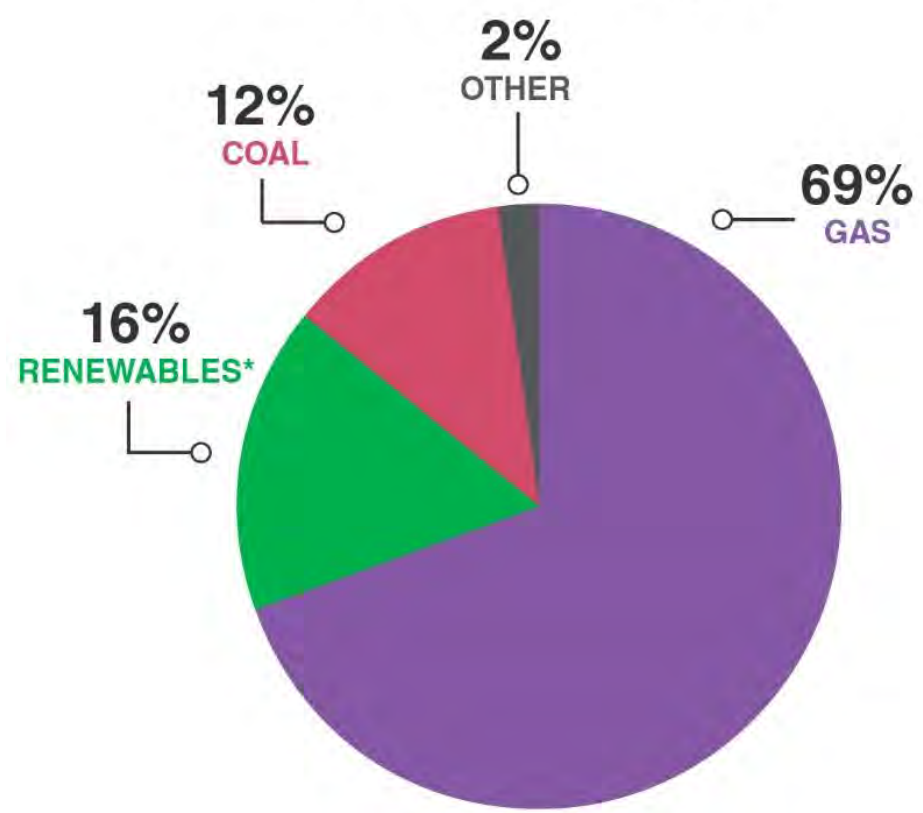
Marie-France Samaroden
Vice President, Grid Reliability – Operations
Alberta Electric System Operator (AESO)



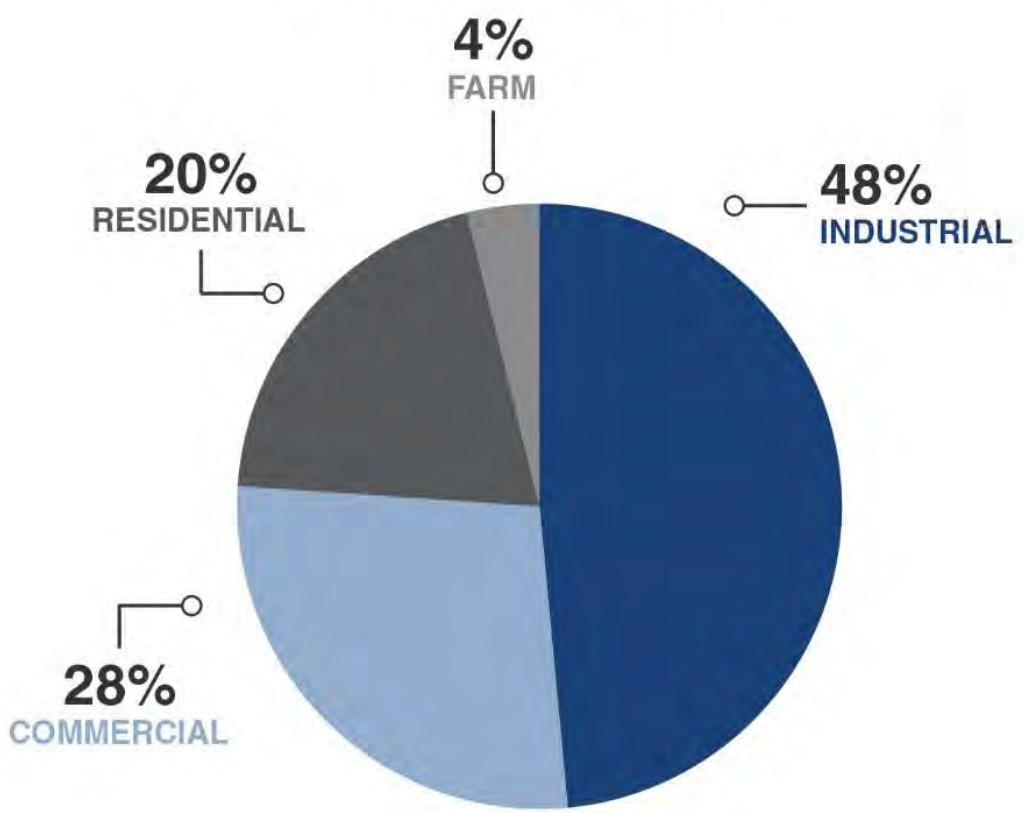
AESO – Reliability under Pressure

CGA Nexus Conference October 10th,
2024

Alberta Generation



Power Use in Alberta

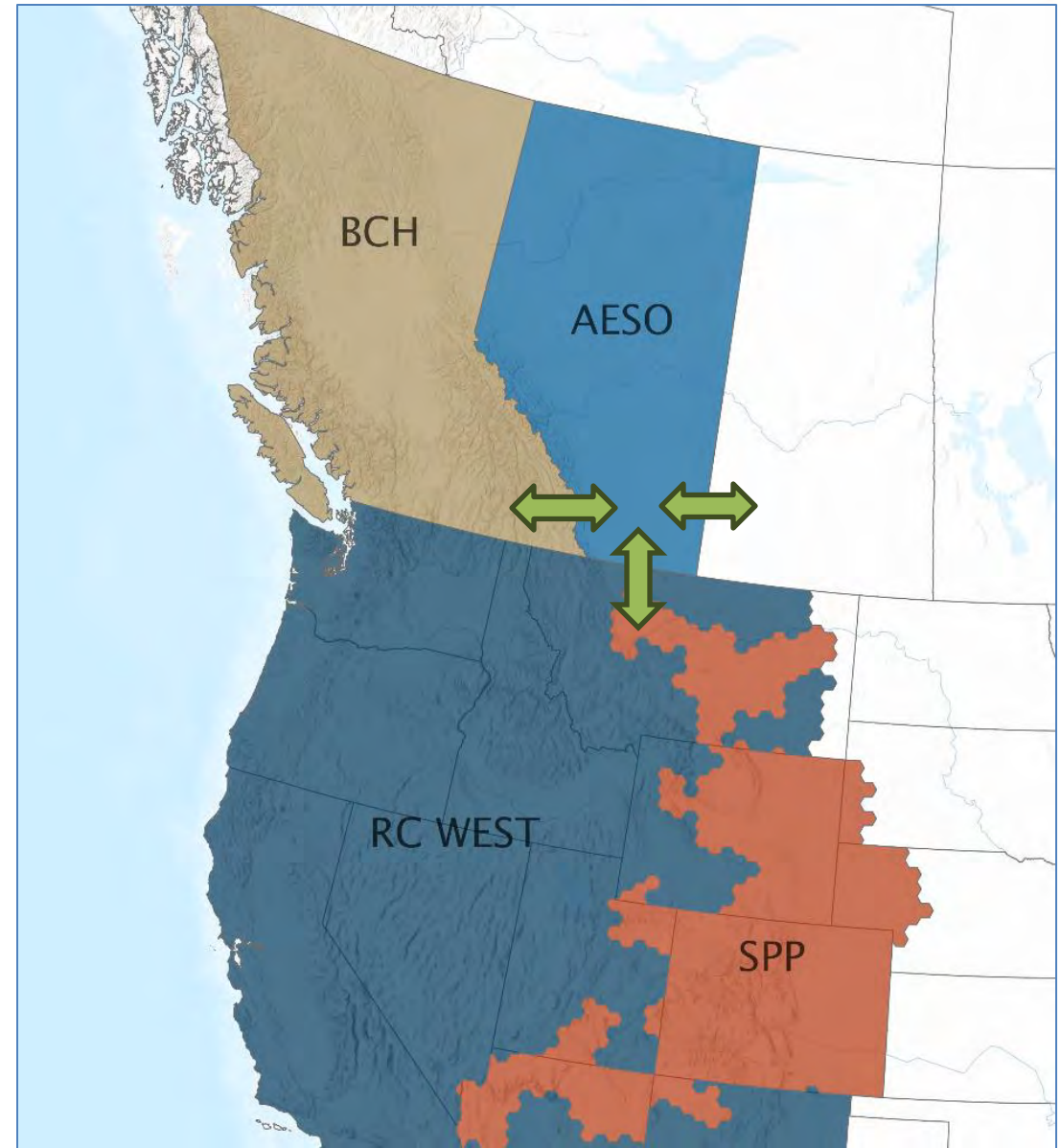


Source: AESO Annual Market Statistics Datafile (data as of Dec 31, 2023)
*Renewables include wind, solar and hydro.

Source: Monthly Sales History 2022 (www.auc.ab.ca/annual-electricity data/)

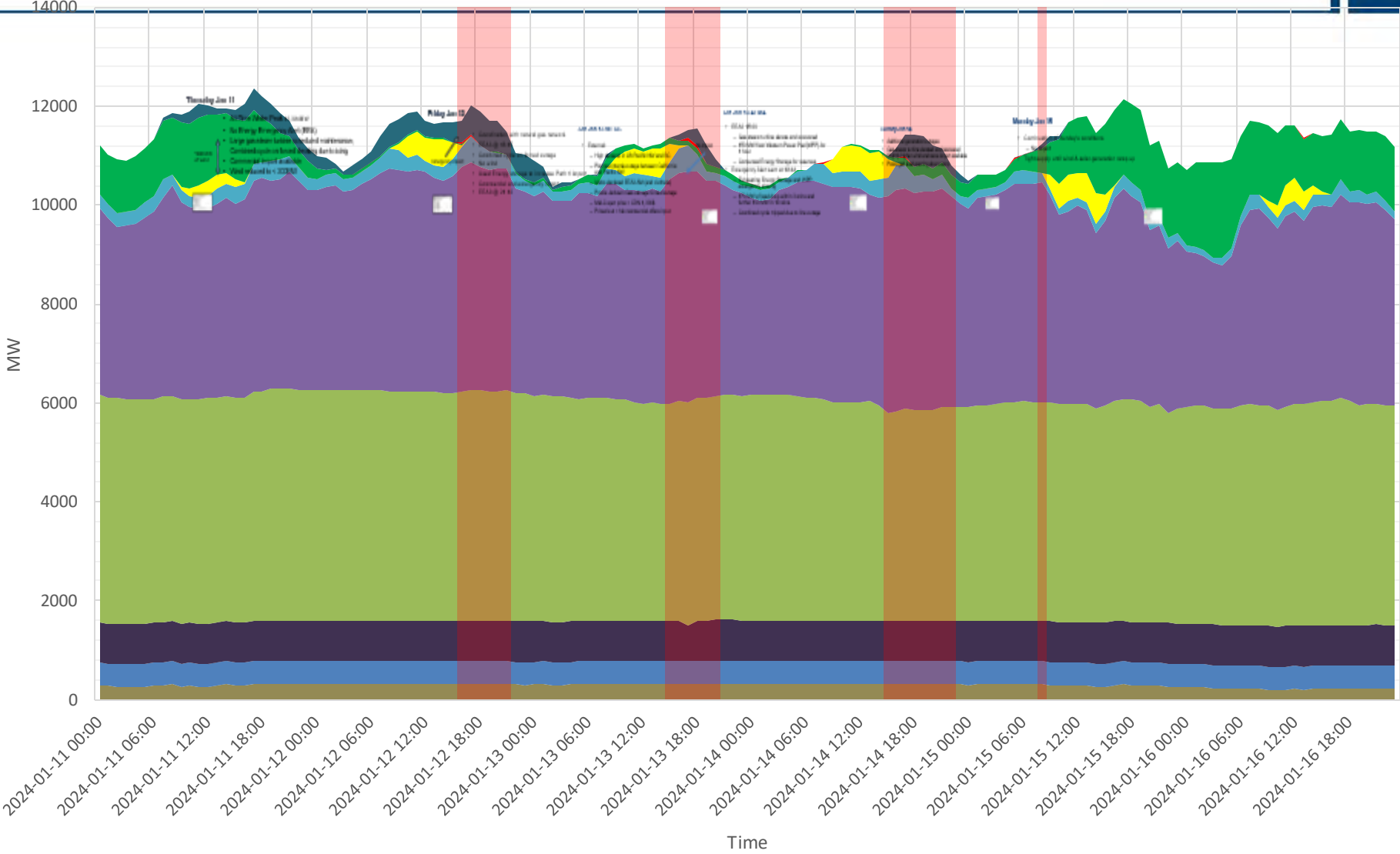
3 Interconnections

- 800 MW AC tie west to BC
- 300 MW AC tie south to Montana
- 153 MW DC tie east to Saskatchewan

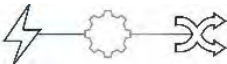


Timeline

Supply



Other Dual Fuel Coal Cogen Dispatchable Gas Hydro Solar Wind Storage Net Imports EEA3 Declared

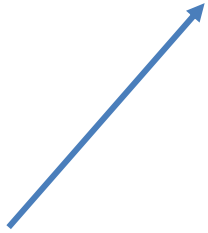


~800 MW
of wind



- All-Time Winter Peak 12,384MW
- No Energy Emergency Alert (EEA)
- Large gas-steam turbine scheduled maintenance; Combined-cycle on forced derating due to icing
- Commercial import available
- Wind reduced to < 200MW

■ Net Imports
■ Storage
■ Wind
■ Solar
■ Hydro
■ Dispatchable Gas



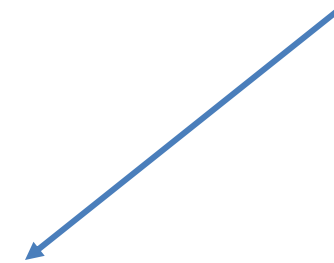
Emergency import

- Coordination with natural gas network
- EEA3 @ 16:15
- Combined cycle on forced outage
- No wind
- Used Energy storage to increase Path 1 import
- Commercial and emergency import
- EEA0 @ 21:12

■ Net Imports
■ Storage
■ Wind
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■ Dispatchable Gas

- External:
 - High demand in US Pacific NW and BC
 - Planned intertie outage between California and Pacific NW
 - Idaho declared EEA3 AM (and 4 others)
 - Prairie Jackson Gas storage forced outage
 - Mid-C spot price > CDN 1,300\$
 - Priced out = No commercial offers input

No import



- EEA3 15:30
 - Gas steam turbine derate and recovered
 - 150 MW from Western Power Pool(WPP) for 1 hour
 - Consumed Energy Storage for reserves
- Emergency Alert sent at 18:44
 - Exhausting Energy Storage and WPP emergency sharing
 - 170 MW of load drop within 3 mins and further 100 MW in 10 mins
 - Combined cycle tripped due to line outage

■ Net Imports
■ Storage
■ Wind
■ Solar
■ Hydro
■ Dispatchable Gas

- Additional generation outages
- Gas-steam turbine derated and recovered
- Slightly higher wind and more import available
- Prolonged load evening down-ramp

■ Net Imports
■ Storage
■ Wind
■ Solar
■ Hydro
■ Dispatchable Gas

- Continuation of Sunday's conditions
 - No import
- Tight supply until wind & solar generation ramp up

■ Net Imports
■ Storage
■ Wind
■ Solar
■ Hydro
■ Dispatchable Gas

Thank You