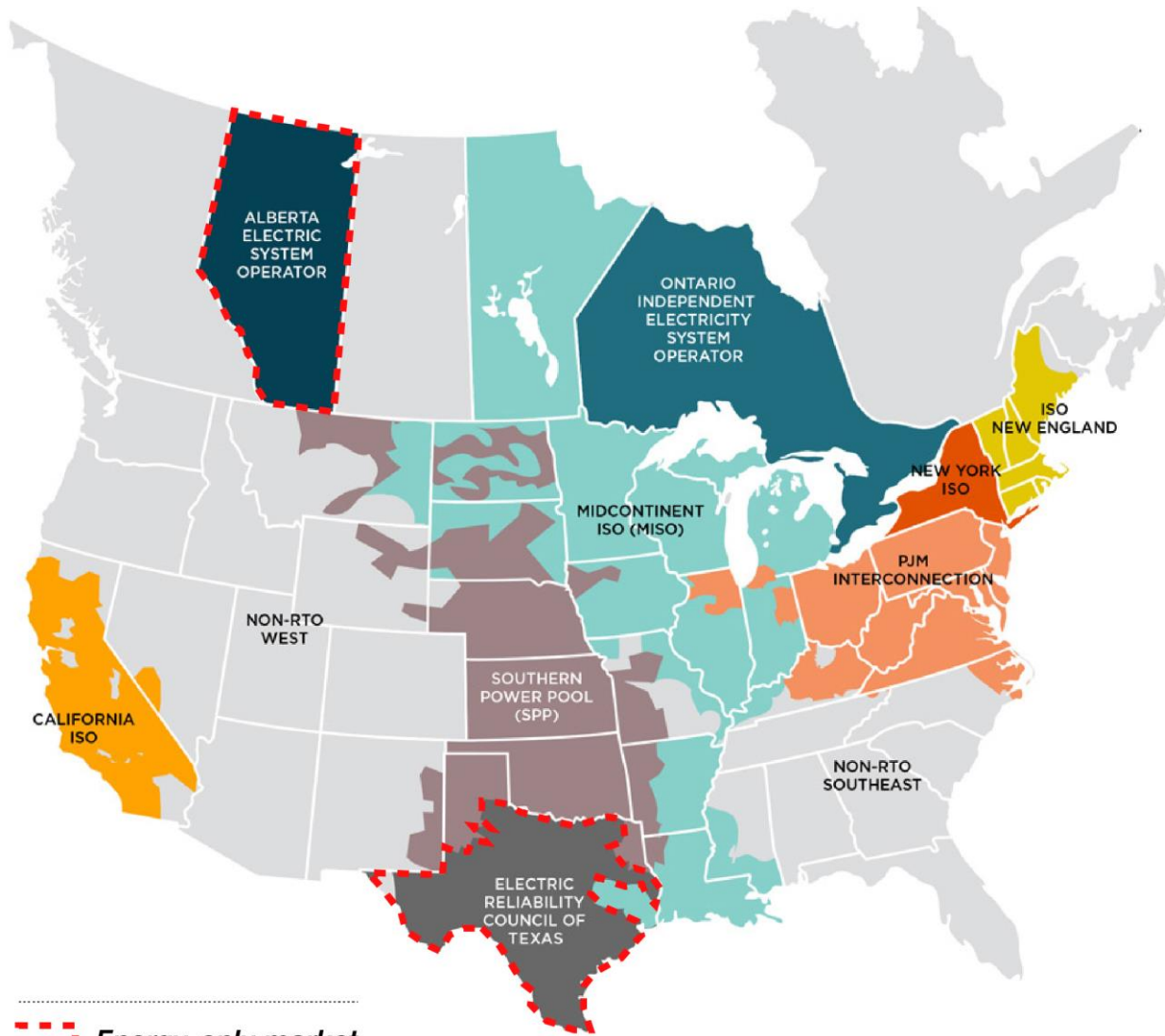


The AESO & Grid Security

December 10, 2022

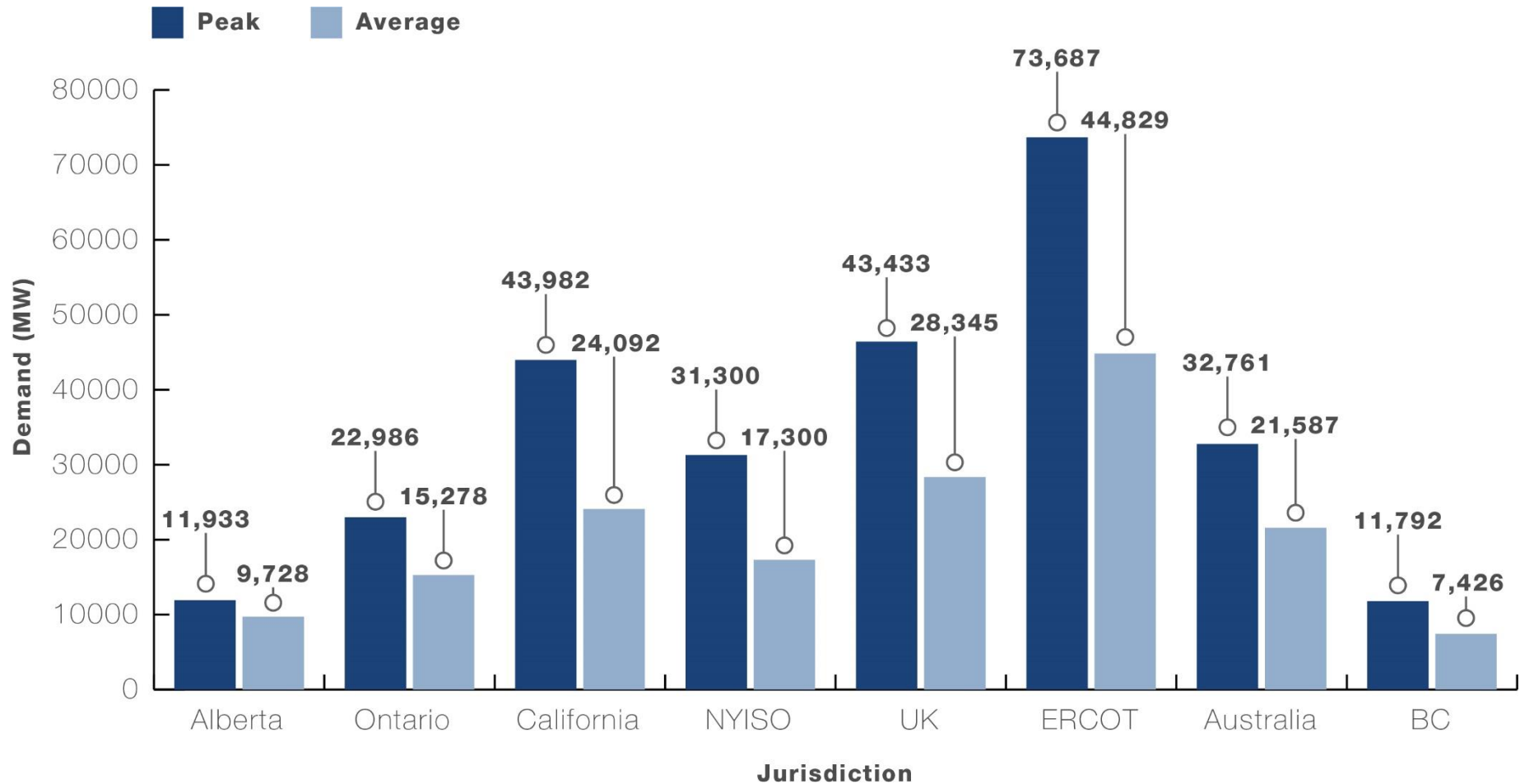
Independent System Operators (ISOs)



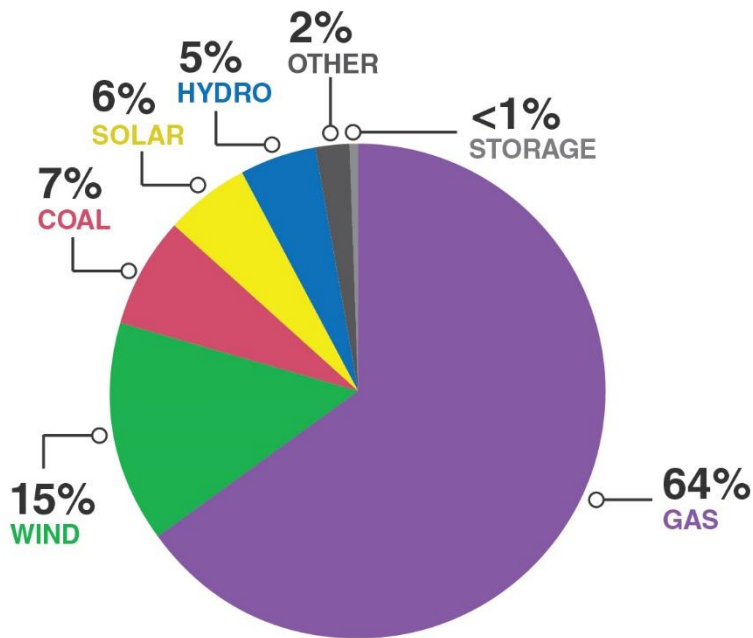
 **Energy-only market**

- AESO is one of nine ISOs in North America
- ISOs serve two-thirds of North America's electricity requirements
- Two energy-only markets (AB & Texas)

Comparing Jurisdictions



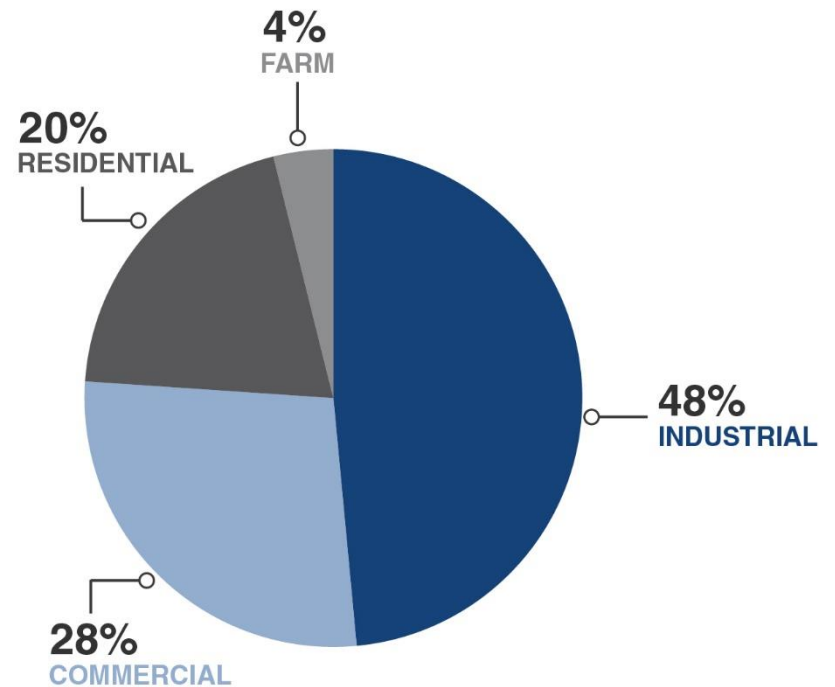
Net-to-Grid Generation



Source: AESO Annual Market Statistics Datafile

This data does not include electricity that is generated behind the fence.

Power Use in Alberta

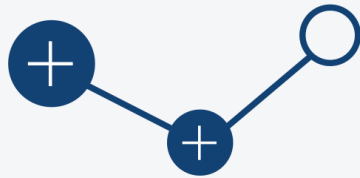


Source: Monthly Sales and Customers 2020.xlsx (www.auc.ab.ca)

This data does not include electricity that is consumed behind the fence.

- Responsible for safe, reliable, economic planning and operation of Alberta Interconnected Electric System (AIES)
- AESO is a not-for-profit, statutory corporation; independent of government and industry:
 - Governed by independent board appointed by Minister of Affordability and Utilities
 - Must operate in the public interest
 - No financial interest in any generation unit, transmission or distribution infrastructure
 - No government funding; costs recovered from Alberta ratepayers
- Highest visibility of Alberta electricity sector

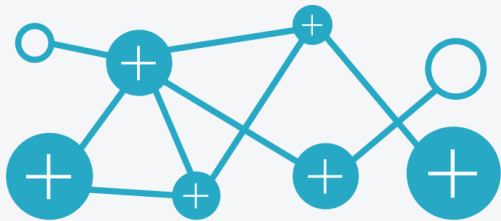




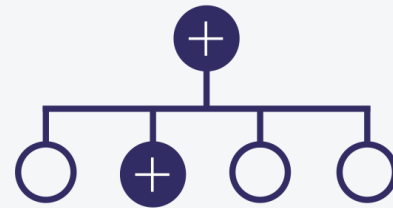
Connect
CUSTOMERS



PLAN
transmission



Operate the
GRID



Plan and Operate the
MARKET

SYSTEM COORDINATION CENTRE



**Model 1,000
contingencies
every minute**



**Operate grid 24/7
365 days/year**



**4+ million
Albertans rely
on us**



**World class
physical security
procedures and
equipment**



**Comprehensive
cyber security
program**

Alberta Coordinated Resilience Exercise (ACRE)

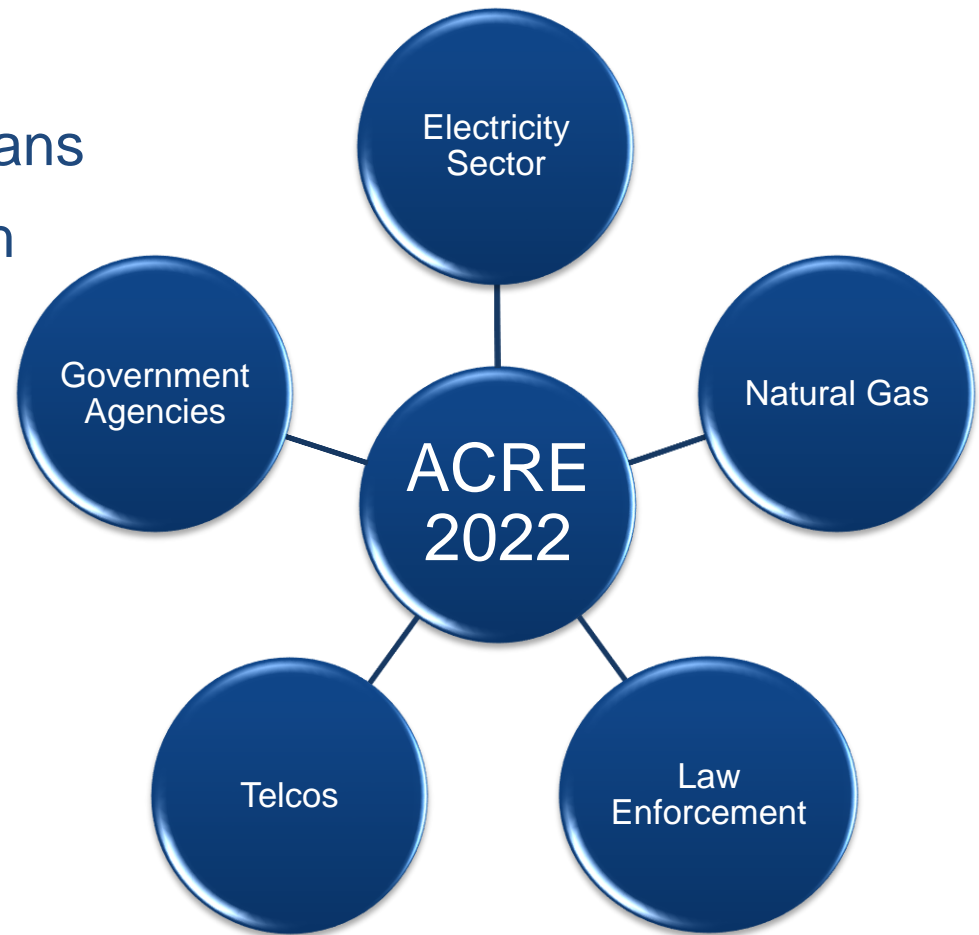


- Goal: Exercise the resilience of the Alberta electricity system in the face of a coordinated attack
 - Reliability is about keeping the lights on
 - Resilience is about planning for, operating through and recovering from a major electric system disruption
- Staggered Annual Exercise
 - NERC GridEx
 - ACRE



Definitions from: <https://www.pjm.com/-/media/about-pjm/newsroom/fact-sheets/20180920-reliability-and-resilience-working-toward-common-goals.ashx>

- ACRE 2022 objectives are to:
 - Activate and test incident, operating, and crisis management response plans
 - Enhance coordination with government and law enforcement agencies
 - Identify interdependency concerns with natural gas and telecommunications sectors



Strategic Outcomes (Review)

- ❖ Tested communication and coordination with external parties to ensure reliable grid operations under adverse conditions

- Scenario 1: Cyber Incident

- Significant loss of visibility of Alberta Interconnected Electric System (AIES)

- Scenario 2: Physical Incident

- Further disruption to the AIES while already under adverse circumstances

- ❖ Outcomes:

- Demonstrate how we could continue to effectively operate the AIES
- Identify gaps, collect lessons learned, document future topics to discuss and scenarios to explore





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- **Website:** www.aeso.ca
- Subscribe to our stakeholder newsletter

Thank you