#### The GHG and Air Policy Landscape for the Electricity Sector in Alberta

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### Powering a Sustainable Future for People and Planet

#### A growth-oriented North American power producer

- 29 operating facilities (~7,500 MW); highlycontracted, young and diversified portfolio
- Committed to being net zero by 2045
- Off coal in 2023
- Pursuing natural gas generation paired with CCS in Alberta
- Construct all new natural gas generation units to be carbon capture and/or hydrogen ready
- Invest in CCUS technology to help us achieve net zero by 2045
- Capital Power has been recognized by the Ethisphere Institute as one of the World's Most Ethical Companies for five years straight

### **Projects under development**

- 1 renewable project and Genesee 1&2 repowering project adding ~660 MW by 2024
- Robust renewable and natural gas pipeline





# **Our Strategy – Powering our Future**

### To acquire and/or optimize natural gas assets

- Public and investor sentiment evolving on natural gas for reliability and affordability
- Re-contracting proving out
- Excellent opportunities in Ontario, MISO<sup>(1)</sup>, Alberta

### **Renewables growth**

- Pipeline of 3.4 GW of near-term renewable opportunities
- Added ~820 MW in renewables since 2018 including 266 MW from 3 projects in the past 12 months
- Green financing framework and Green Hybrid bond issued in 2022 to support build out of renewables

### Decarbonization

- Net zero by 2045
- LNTP on Genesee CCS project
- Examining direct air capture

### **Consistent and Robust Strategy**

1) MISO - Midcontinent Independent System Operator covering Midwest U.S., Manitoba, Canada, and a southern U.S. region.



## **Changes in the Electricity Sector**



Source: AESO 2022 Annual Market Statistics

Source: NPRI Data





# **Environmental Regulations**

### **Government of Canada**

- Initiated the development of Federal GHG offset protocol for CCUS/DAC
- Released the Proposed Clean
  Electricity Framework
- Confirmed Alberta, Ontario and B.C. GHG programs

### **Alberta Government**

- Announced projects selected to proceed to evaluation phase in CCUS
- Confirmed details for TIER framework through 2030.
- Draft NO2 and SO2 AAAQOs.
- Review the "Using ambient air quality objectives in industrial dispersion modelling and individual industrial site monitoring" document



# **GHG Policies are Driving the Changes**

### **Draft Clean Electricity Regulation (CER)**

- Recognizes the role of natural gas generation
- Proposed definitions and treatment for existing generation vs. new generation
- Flexibility to choose the most cost-effective and technologically feasible.
- Proposed application of CER to cogeneration is necessary and addresses Alberta level playing field issues
- EOL End of life provisions for existing units must be "later of" 2035 or EOL, and prescribed life should be 35 years. EOL for converted coal units should remain as under current coal regulations.

#### **TIER Framework**

- Federal Pricing Schedule Alignment -\$65/tCO2eincreasingby\$15/tCO2ethru2030
- Opt-InThresholdLowered-reducedto2,000tCO2e/year
- The Electricity high-performance benchmarks drops to 0.3108 t/MWh in 2030.
- Credit Use Limit Raised increasing 10% per year from 60% in 2023 to 90% in 2026 and after
- Credit Expiry Reduced Emission Performance Credits (EPC) now 5years and Offsets now 6 years
- 2030 Extension TIER Regulation in effect through 2030;commitment to review by the end of 2026
- New CCS Asset Classes Sequestration Credits and Carbon Recognition Tonnes to incentivize CCS



# **Genesee Repowering of Units 1 and 2**







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# Simplified Post-Combustion Capture Flow Diagram



- 1. Flue gas from G1/G2 stack is circulated through downflowing amine solution
- 2. Proprietary amine solvent absorbs CO<sub>2</sub> from flue gas
- 3. Amine solvent returns to regenerator and uses heat from steam to release absorbed CO<sub>2</sub>
- 4. CO<sub>2</sub> is dehydrated and compressed to pipeline
- 5. Amine solvent returns to capture more CO<sub>2</sub> from flue gas

Adapted and simplified from Mitsubishi promotional materials and internal CP documents



# Thank you.

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