

Alberta's Electrical Grid Faces Growing Pressure Amid Winter Demand Surges

Alberta's grid faces winter strain and rising demand; ENER-G Group aids reliability with Indigenous-led infrastructure solutions.

CALGARY, AB, CANADA, October 16, 2025 /EINPresswire.com/ -- Alberta's electrical grid is under increasing stress as the province grapples with extreme weather events, aging infrastructure, and a surge in electricity demand driven by industrial growth and digital transformation. Since 2021, the Alberta Electric System Operator (AESO) has issued 17 grid alerts, a sharp rise from just four alerts between 2017 and 2020. These alerts reflect a growing concern over the province's ability to maintain reliable power supply, particularly during winter months when renewable generation drops and fossil fuel plants face operational challenges.



Alberta Electrical Grid

In January 2024, Alberta narrowly avoided rotating blackouts during a deep freeze that pushed temperatures below -40°C. Wind and solar output plummeted, and multiple natural gas plants went offline. The province was left with just 10 MW of reserve power, prompting AESO to issue an emergency alert through the provincial cellphone system. Within minutes, public conservation efforts reduced demand by 100 MW, stabilizing the grid. [globalnews.ca] Similar alerts occurred in October 2024 and January 2025, triggered by generator outages, low renewable output, and limited electricity imports from neighboring provinces. These incidents have exposed vulnerabilities in Alberta's grid, which operates as an "electricity island" with only three small interties to British Columbia, Saskatchewan, and Montana.

Data Centers and Electrification Drive Unprecedented Demand

Alberta's deregulated energy market has attracted significant investment, particularly from AI and data center developers. AESO reports 29 proposed large-load projects requesting over 16 GW of capacity—more than ten times the load of Edmonton. In response, AESO has capped new large-load connections at 1,200 MW until 2028, citing reliability concerns and the need for phased integration.

The AESO's 2025 Reliability Roadmap outlines urgent needs for system flexibility, frequency stability, and infrastructure upgrades to manage this demand. The grid cannot immediately serve all load requests without new generation, transmission reinforcements, and advanced planning tools. [aeso.ca]

ENER-G Group's Role in Alberta's Grid Development



ENER-G Alberta

The ENER-G Group, a Certified Indigenous Business headquartered in Calgary and Dallas, has emerged as a key contributor to Alberta's energy infrastructure. The company provides electrical EPC services, including:

“

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Britt Kulczycki

- Deployment of pad-mounted and substation transformers
- Installation of low, medium, and high-voltage distribution systems
- Delivery of custom-engineered power solutions for industrial and digital applications
- Consulting services for project management, permitting,

and compliance

ENER-G's infrastructure supports critical sectors such as oil & gas, renewables, crypto, and AI-driven data centers. The company's modularized systems and rapid deployment capabilities have helped clients meet aggressive energization timelines while maintaining reliability.

In recent years, ENER-G has expanded its global supply network to overcome delays caused by

tariffs and supply chain disruptions. CEO Britt Kulczycki has spoken publicly about the impact of trade policies on infrastructure delivery:

“Delays don’t just cost money—they damage reputations, delay energization, and erode the momentum of a project. That’s something we take seriously because we see ourselves as an extension of our clients’ teams.”

ENER-G’s consulting division, staffed by master electricians and safety codes officers, also plays a vital role in ensuring code compliance and quality assurance across Alberta’s most complex energy projects.

CEO Britt Kulczycki on Alberta’s Grid Challenges

Britt Kulczycki, CEO of ENER-G Group and a member of the Cold Lake First Nation, offered a candid assessment of Alberta’s grid:

“Alberta’s grid is at a crossroads. We’re seeing the effects of underinvestment, rising demand, and unpredictable weather converge in ways that strain even the best systems. At ENER-G, we believe the answer lies in speed, reliability, and community-driven innovation. We’re proud to support Alberta’s transition with infrastructure that energizes not just projects—but people.”

Kulczycki has also emphasized the importance of Indigenous participation in Alberta’s energy future, noting that ENER-G’s partnerships with Indigenous communities have accelerated site readiness and created local employment opportunities.

Looking Ahead: Planning, Policy, and Collaboration

Alberta’s grid challenges are not isolated. Across North America, utilities are revising demand forecasts and increasing capital expenditures to accommodate data center growth and electrification. AESO’s phased connection strategy and interim cap are part of a broader effort to balance investment with reliability.

As Alberta moves toward a restructured energy market by 2027, stakeholders are calling for greater transparency, inclusive procurement practices, and modernized regulations that recognize the role of energy storage, interties, and distributed energy resources.

ENER-G Group continues to advocate for infrastructure solutions that are scalable, resilient, and community-focused. The company remains committed to supporting Alberta’s energy transition



Renewable ENER-G

through engineering excellence and strategic collaboration.

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