# ENERGY INNOVATION CHALLENGE - PROGRAM BACKGROUNDER

*Prepared for the November 4, 2026 Press Event marking the conclusion of the demonstration phase*

Launched in September 2023, the three-year Energy Innovation Challenge was designed to help Canadian energy innovators move from technology development to commercial deployment while addressing grid congestion and other utility needs. Decentralised Energy Canada (DEC) managed the program in partnership with the City of Medicine Hat. Alongside utility demonstrations, it supported investor preparation and funding connections to strengthen company capabilities and attract government and private investment. The November 4 event marks the conclusion of the demonstration phase, with Aqua-Cell's system proceeding through commissioning as the fifth and final demonstration..

**Why the program matters**

Reliable energy systems support community needs and Canada's economic security. The City of Medicine Hat's municipally owned electricity utility combines generation and distribution, allowing innovators to test technologies at both building and network level and gain operating evidence and feedback from utility staff.

The City of Medicine Hat provided funding, facilities and staff expertise. Companies invested resources of their own, while funding partners shared demonstration costs and supported commercialisation. DEC coordinated the collaboration and helped companies connect with investors, funders and one another.

**What Medicine Hat residents gain**

The City's participation brought outside investment, equipment and expertise into work relevant to its utility. Equipment remaining in place includes nine Eguana batteries and associated controls across three City buildings and 178 Edgecom sensors across 11 buildings. Aqua-Cell's battery will remain for a year of operation and testing. The City will continue using the batteries, controls and monitoring equipment.

For residents, these capabilities can help the City identify opportunities to save energy in public facilities, plan reliable electricity service and assess future infrastructure needs. Staff gained hands-on experience with storage, monitoring and grid planning to assess how to manage demand and where investment is needed. Practical lessons about performance, costs and integration will inform future deployment.

**Five demonstrations**

Aqua-Cell Energy: Canada's first field deployment of a saltwater flow battery, being commissioned as the program's fifth and final demonstration, to assess long-duration storage in utility conditions.

Eguana Technologies: Nine coordinated batteries across three buildings; meter data confirmed approximately 13 kW less demand per building from 2 to 5 p.m.

Edgecom Energy: Equipment-level monitoring through 178 sensors across 11 buildings, supporting City staff in reviewing operating schedules.

Arcobi, formerly Arcus Power: Tested grid-planning software on the City's network model, assessing battery locations and identifying system-integration requirements.

TAKEnergy: Electricity generation from natural gas pressure reduction; 21.4 MWh generated during the trial, with 99.8% uptime in the final two months.

**Shared investment and continuing value**

The program shared the cost of testing among innovators, the City and funding partners. Together, they contributed $4.635 million: $2.2 million from the five innovators, nearly half of the total, and $2.435 million from other partners. The City of Medicine Hat committed $850,000, approximately 18 percent of the total.

| Contributor | Reported contribution |
|---|---|
| Five participating innovators – Aqua-Cell Energy, Eguana Technologies, TAKEnergy, Edgecom Energy, Arcobi | $2,200,000 |
| Prairies Economic Development Canada (PrairiesCan) – Regional Innovation Ecosystems program | $1,200,000 |
| City of Medicine Hat Utility Distribution Systems business | $850,000 |
| Emissions Reduction Alberta | $130,000 |
| Natural Resources Canada | $100,000 |
| Valhalla Private Capital | $90,000 |
| Decentralised Energy Canada | $50,000 |
| APEX Alberta | $15,000 |
| **Total** | $4,635,000 |

**Testing a systems approach**

The program tested how generation, storage, monitoring and controls could work together within a utility, alongside assessing individual products. Edgecom's meters supported TAKEnergy's measurement of generation, on-site consumption and exports. Eguana developed a coordinated battery fleet for demand response, with solar integration added later. These connections

broadened the work to integrated energy management and clarified requirements for data sharing, software compatibility and coordinated operation.

**Building business capability and wider benefits**

Operating evidence and customer feedback help innovators refine products, strengthen credibility and prepare for future sales and investment. Funding partners supported these activities with the intended benefits of stronger Canadian businesses, skilled employment, investment and economic diversification. Findings can also inform other utilities and communities.