

Full-time zero-carbon electricity for \$100 per megawatt hour

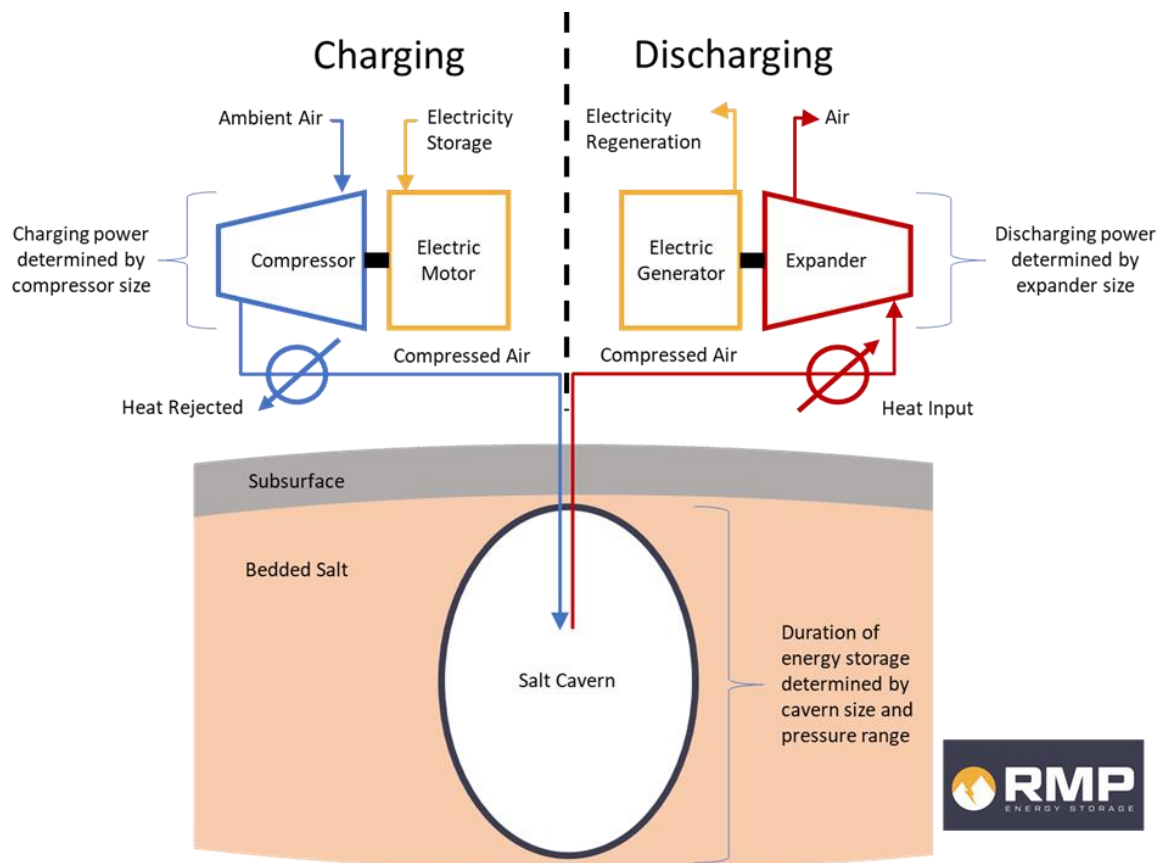
The generation of wind and solar electricity now costs less than all other new electricity. Its generation, however, depends entirely on the availability of adequate sunlight and wind. Our Compressed Air Energy Storage (CAES) solution can manage renewable power generation so emissions-free electricity can meet real-time demand, and it comes in at a combined price under CAD\$100 per megawatt-hour (MWh) (\$0.10/kWh).

Add a small supplement of natural gas to the equation and you will realize a combined price of CAD\$70 per MWh (\$0.07/kWh), plus it results in 80% fewer emissions per unit of delivered electricity, as compared to combined cycle natural gas power generation.

That's less costly than refurbished nuclear in Ontario, or new hydro in British Columbia.

The provinces of Alberta and Saskatchewan offer unparalleled technical expertise and prime geology necessary to build CAES. CAES assets will directly leverage our provinces' oil and gas expertise to build a low-carbon future. A single 150-megawatt CAES project provides 1,000 construction jobs and 30 direct full-time positions. Alberta and Saskatchewan geology offers ample capacity for thousands of megawatts of CAES—sufficient to replace all coal generation and offer opportunities for high-value load development.

Alberta and Saskatchewan, we are made for this.



For more details check out our white paper on our website

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What is CAES?

Compressed Air Energy Storage is a proven technology that employs the same type of equipment already used in natural gas and liquid hydrocarbon storage facilities throughout Alberta and Saskatchewan. CAES was initially developed and deployed to support large thermal and nuclear generation facilities where loads fluctuate beyond generator capability. When electricity is cheap, electricity is used to compress air into purpose-built underground salt caverns. When electricity is higher-priced, a controlled release of air from the cavern powers an electricity-generating turbine. Heat the air as it is released and you generate even more power. Heating can be done in two ways: diabatic CAES (DCAES), which uses natural gas to produce heat, or adiabatic CAES (ACAES), which uses captured heat generated as a bi-product of the compression process. The ACAES process produces no CO₂ emissions.

Why CAES?—Scalability

Wind and solar-generated energy require long duration energy storage to fully supply real time demand. No other energy storage technology has the scalability of CAES. Alberta and Saskatchewan's ideal salt geology make these provinces prime real estate for installing this next-generation technology. Increasing the number of hours a CAES facility can discharge for does not significantly increase facility costs. By contrast, when using enclosed-cell batteries (e.g., lithium ion), cost scales more or less linearly with the number of operational hours. For example, when you double the duration of a lithium ion battery from four to eight hours, you will almost double its cost. The scalability of CAES makes it cost effective to fully supply real time demand with renewable energy.

Why Alberta and Saskatchewan?

SKILLS

They're already here and ready: world-class geologists, engineers, equipment specialists, and skilled tradespeople.

DATA

A trove of well-logging data and core data collected over decades of oil and gas exploration and production is a real asset and available to the public.

GEOLOGY

Thanks to a geologic formation called the Prairie Evaporite, both provinces are rich with rock salt deposits ideal for cavern development.

RENEWABLE RESOURCES

Alberta and Saskatchewan have some of the best wind and solar generation resources in North America.

Why is no one else doing this?

There is an increasing global interest in the enormous potential of CAES, but these four primary reasons are what make Alberta and Saskatchewan key locations for CAES development. Rare are the jurisdictions distinguished by these primary assets. Lots of money is being spent on R&D for new technologies that can be more broadly applied but this takes time. Alberta and Saskatchewan can develop our existing assets today and become world leaders in the integration of wind- and solar-powered generation using long-duration energy storage.

THE TIME FOR LONG DURATION STORAGE IS NOW!

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