Tent Mountain Renewable Energy Complex (TM-REX)

Montem Resources

Investor Presentation

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Tent Mountain Renewable Energy Complex, Alberta, Canada

- Montem's portfolio of assets are exploratory in nature and has diversified potential. Based upon the changing regulatory landscape of the past few years, and considering these unprecedented times of changing energy, we re-evaluated the order of development for Tent Mountain.
- We undertook work in 2019 to investigate the potential for a Pump Hydro facility at Tent Mountain, with original planning to build this at the end of mine life.
- The work in 2019 flagged unique and undeniable potential for Pump Hydro Energy Storage at Tent Mountain.
- We have revisited this work with premier consultants including Entura Hydro Tasmania (Entura), Boost Energy Ventures (Boost), GHD and other independent experts in Alberta, to examine renewable energy opportunities at Tent Mountain.
- Results from these studies indicate strong potential to produce renewable energy and green hydrogen at Tent Mountain.
- The potential clearly exists to transition Tent Mountain from a mine to a new clean renewable energy complex.
- Montem is advancing to the next stage of developing the Tent Mountain Renewable Energy Complex, including completing a Feasibility study.
- To help fund the next stage, the Company is applying for C$5 million in Federal funding through Canada’s Clean Fuels Program.

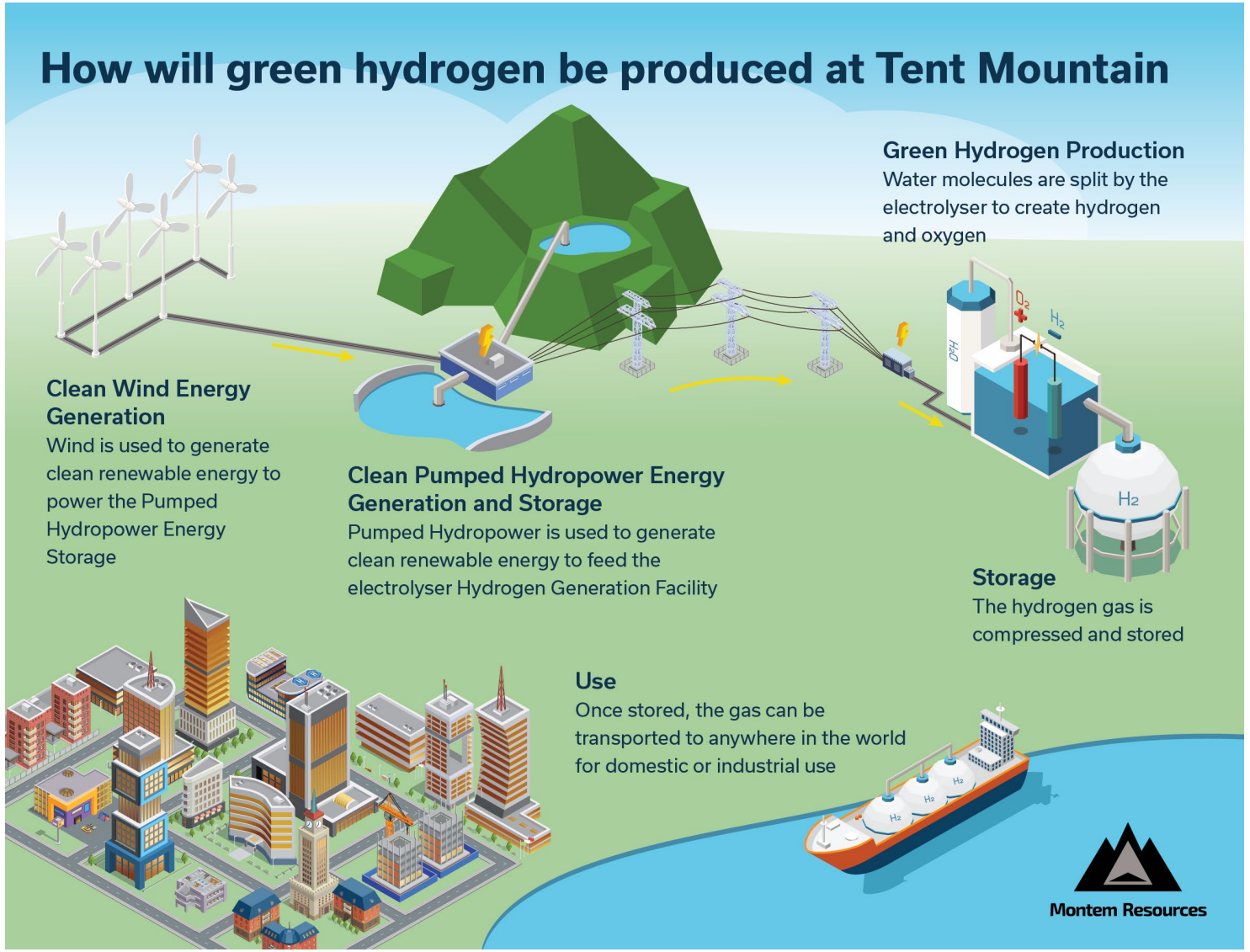
Tent Mountain Renewable Energy Complex: Overview

- The Tent Mountain Renewable Energy Complex (TM-REX) will have three primary elements:
  - **320MW Pumped Hydro Energy Storage (TM-PHES)**
  - **100MW green hydrogen electrolyser**
  - **100MW wind farm (offsite)**

- The special attribute of Montem owning land with reservoirs with 300m of head, enables Tent Mountain to act as a very big battery to service the unregulated Alberta power market.

- Wind power is inherently intermittent, only producing when the wind blows. By adding the TM-PHES we smooth out electricity supply, enabling continuous production of green hydrogen.

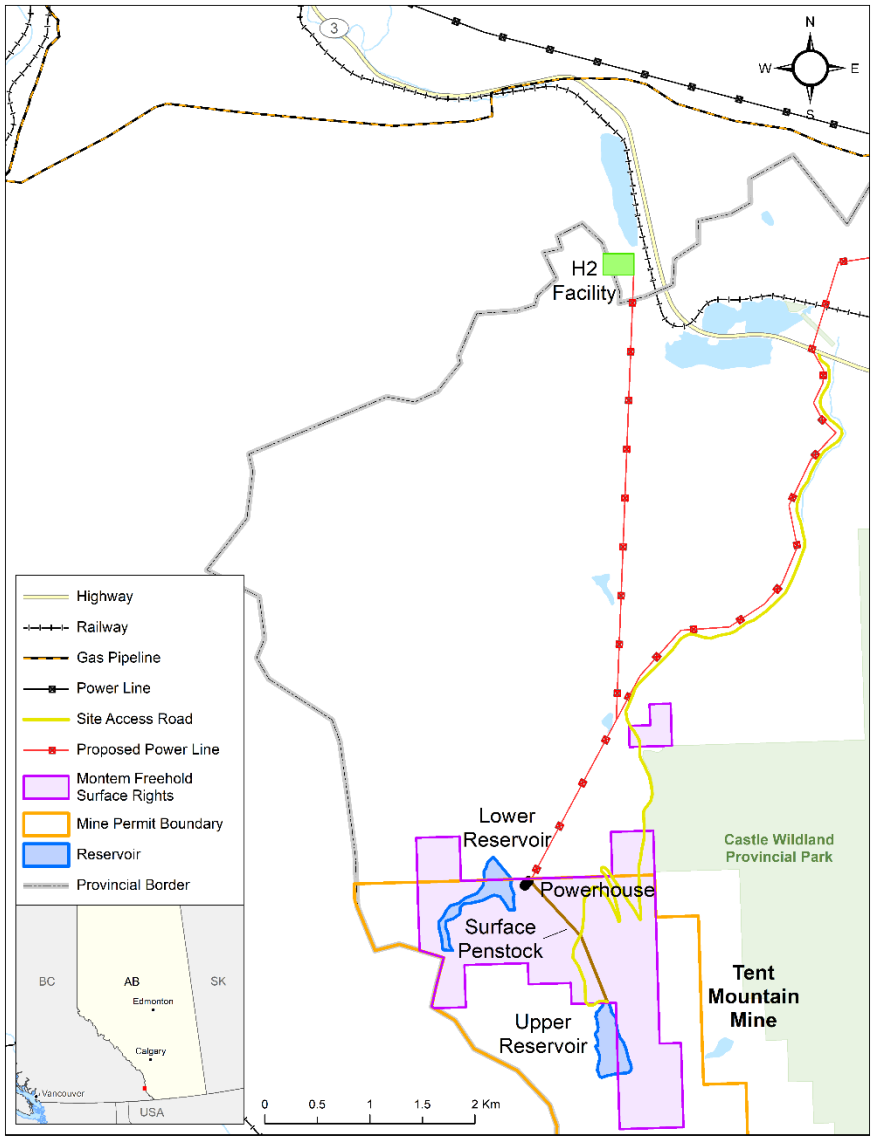
- The hydrogen will be produced by electrolysis, with the electrolyser powered by renewable energy (wind and hydropower) - producing green hydrogen.



Project components

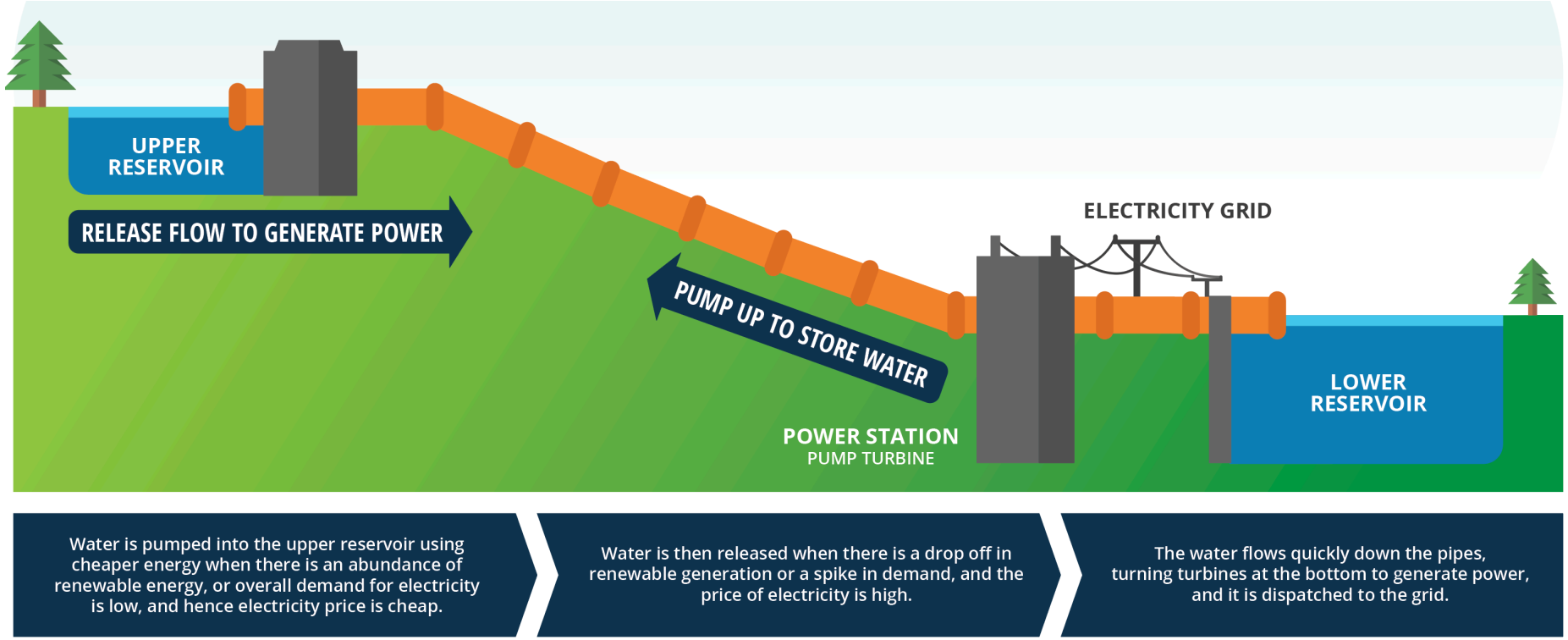
Key components:

- Hydropower is one of the oldest and largest sources of renewable energy.
- The hydropower system planned for Tent Mountain is known as Pumped Hydro Energy Storage (PHES).
- The PHES harnesses the energy generated as water flows from the top reservoir to the lower reservoir, a drop (or “head”) of over 300m, creating immense power.
- The existing large water reservoirs that will power TM-PHES are positioned on land owned by Montem.
- The upper reservoir is connected to the powerhouse by pipes, with the turbines located in the powerhouse below. The turbines can be reversed to pump the water back up the hill, using electricity generated by wind power.
- The electric interconnection with the Alberta grid provides power for when the turbines are reversed, and the ability to send power to the grid when generating electricity. Southern Alberta is densely populated with wind power facilities, many of which are located within 60km of Tent Mountain.
- The green hydrogen facility will be at Tent Mountain, near the CP rail line, the TC Energy gas pipeline, and interprovincial highway. This infrastructure provides ready access to growing hydrogen markets.



TM-REX Project Schematic Layout

Pumped Hydro Energy Storage: “A very big battery”



- Pumped hydro, like the Tent Mountain Project, is effective energy storage, like a large battery. It works by pumping and storing water to an upper reservoir when there is an excess of renewable energy, such as when the sun is shining, and wind is blowing. The water can then be released ‘on demand’ into the lower reservoir passing through turbines to generate electricity at the times of the day it is most needed.
- Pumped hydro typically operates in a daily cycle, pumping up when there is an excess of renewable energy and energy prices are low, such as in the middle of the day, and generating energy at the times of the day when energy demand and prices are high, typically around breakfast and dinner time. This energy is then sold into the Alberta power grid.
- Pumped hydro is becoming an important part of Alberta’s energy future, with the ‘on demand’ dispatchable nature of pumped hydro acting as a large battery helping to maintain a stable and reliable electricity grid. Pumped hydro will be an increasingly important part of the supply as all coal fired power plants in Alberta are slated for retirement by the end of this decade. Coal fired electricity has traditionally supplied upwards of 30%+ of the energy supply in Alberta.

Tent Mountain Pumped Hydro Energy Storage (TM-PHES)

The Tent Mountain site has several unique features that facilitate the PHES:

- The reservoirs are located on freehold land owned by Montem. The PHES infrastructure is also planned to be located on land owned by Montem.
- The topography at Tent Mountain provides a drop of over 300m for the water to fall and generate significant power. This is an unusual in Alberta where the landscape is dominated by flat prairies.
- TM-PHES design capacity will provide up to 8hrs of continuous supply of 320MW, which is currently unmatched by competitors.
- Alberta's electricity market operates as an open and competitive wholesale electricity market (unique in Canada), and has inherent price volatility, allowing TM-PHES to purchase power when it is cheap, and generate power when it is expensive.
- Connectivity to Alberta's electricity grid is via mainline power less than 10km from the powerhouse.
- Montem is partnering with the Piikani Nation to investigate opportunities for mutual benefit with wind power and the PHES.

Render of PHES system at Tent Mountain

Tent Mountain PHES assessment

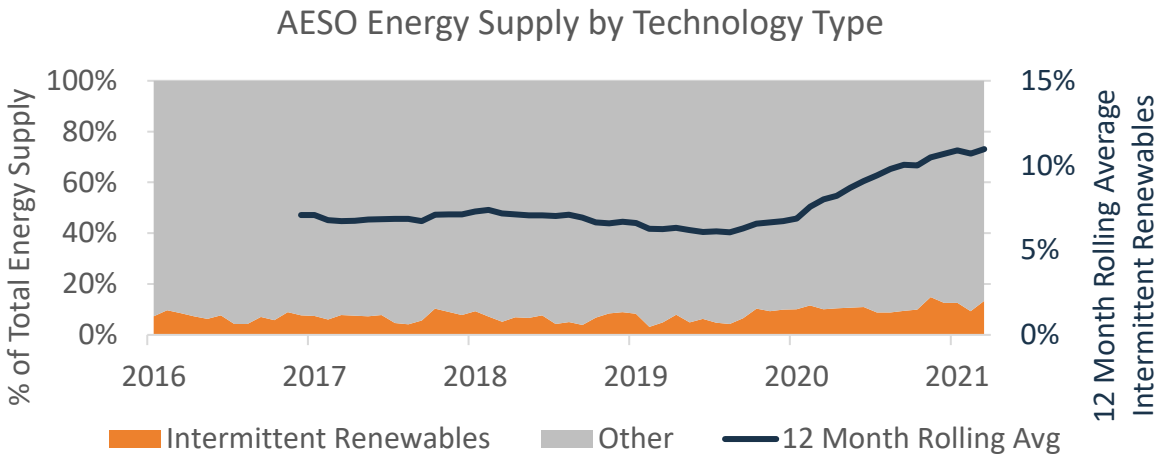
- 2019 Initial Site Assessment (ISA) showed strong potential for PHES at Tent Mountain.
- ISA indicated nearly 2.6 GWh of capacity, premised on 320 MW of output for 8 hours.
- ISA configuration indicates the site is suitable for a PHES system capable of targeting production of ~300 GWh of on-peak power production per year.
- Economic impact:
  - Potential to generate ~200 construction jobs (3-5 years)
  - ~30 full time operational jobs (50-100 years)

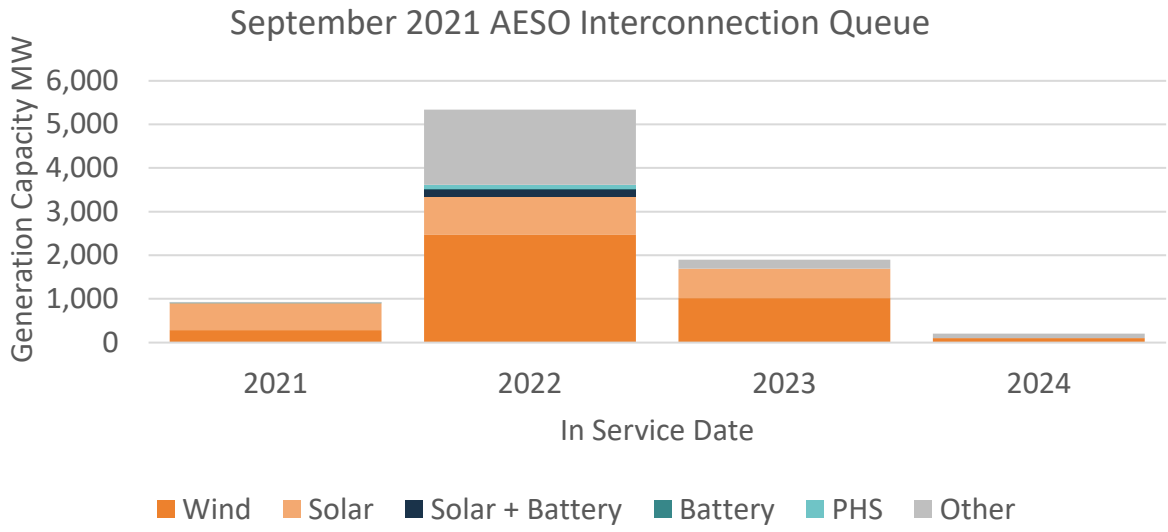
Parameters	Units	Value
Maximum gross head	m	320
Minimum gross head	m	285
Total Waterway Length	m	1450
Total Installed Capacity	MW	320
Continuous generation period	Hours	8
Energy in Storage	MWh	2,560
Estimated Cycle Efficiency	%	78%

Maximum gross head: when upper reservoir at max depth, lower reservoir at min depth
Minimum gross head: when upper reservoir at min depth, lower reservoir at max depth

Alberta needs dispatchable energy

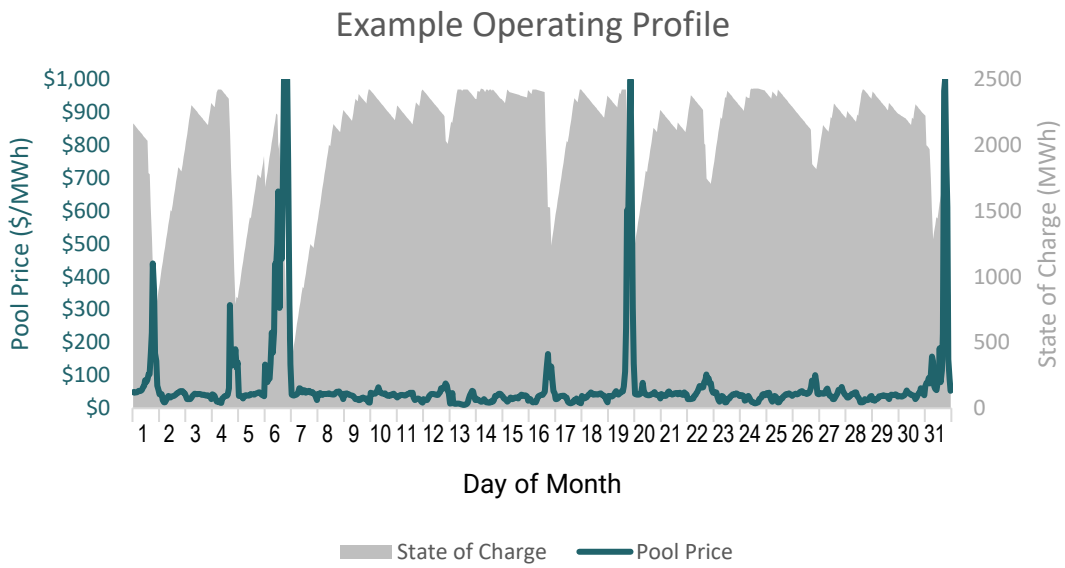
- Renewable energy is often intermittent. When the sun isn't shining or the wind isn't blowing, solar and wind power can't provide energy to the grid.
- The energy transition is accelerating in Alberta; most new capacity is wind and solar.
- Leading markets (e.g. UK, California) show the need for storage:
  - Firming intermittent energy supply
  - Providing ancillary services required to stabilize the grid
- Alberta's interconnection queue is long on intermittent generation, short on storage. There are significant Li-ion battery projects proposed but the issue is that they are short duration (generally <1hr) which doesn't always meet the reliability needs of the market. PHES is the most economical long duration storage option.
- Alberta doesn't have enough storage in the queue relative to the amount of wind/solar (*see Interconnection Queue chart*), and of the storage proposed the batteries won't adequately address system reliability for long periods of time.



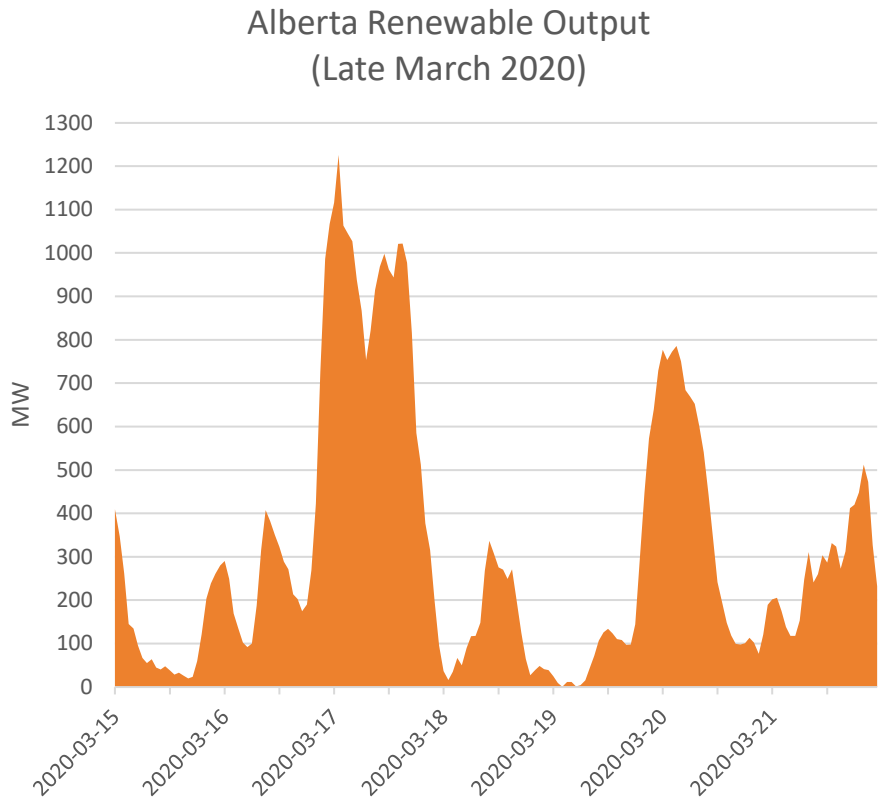


Why PHES?

- Alberta Electric System Operator (AESO) will need to address impacts of intermittent renewables.
- PHES is one of the most reliable technologies that can support renewable energy firming.
- PHES capitalizes on instability, selling into high margin events.

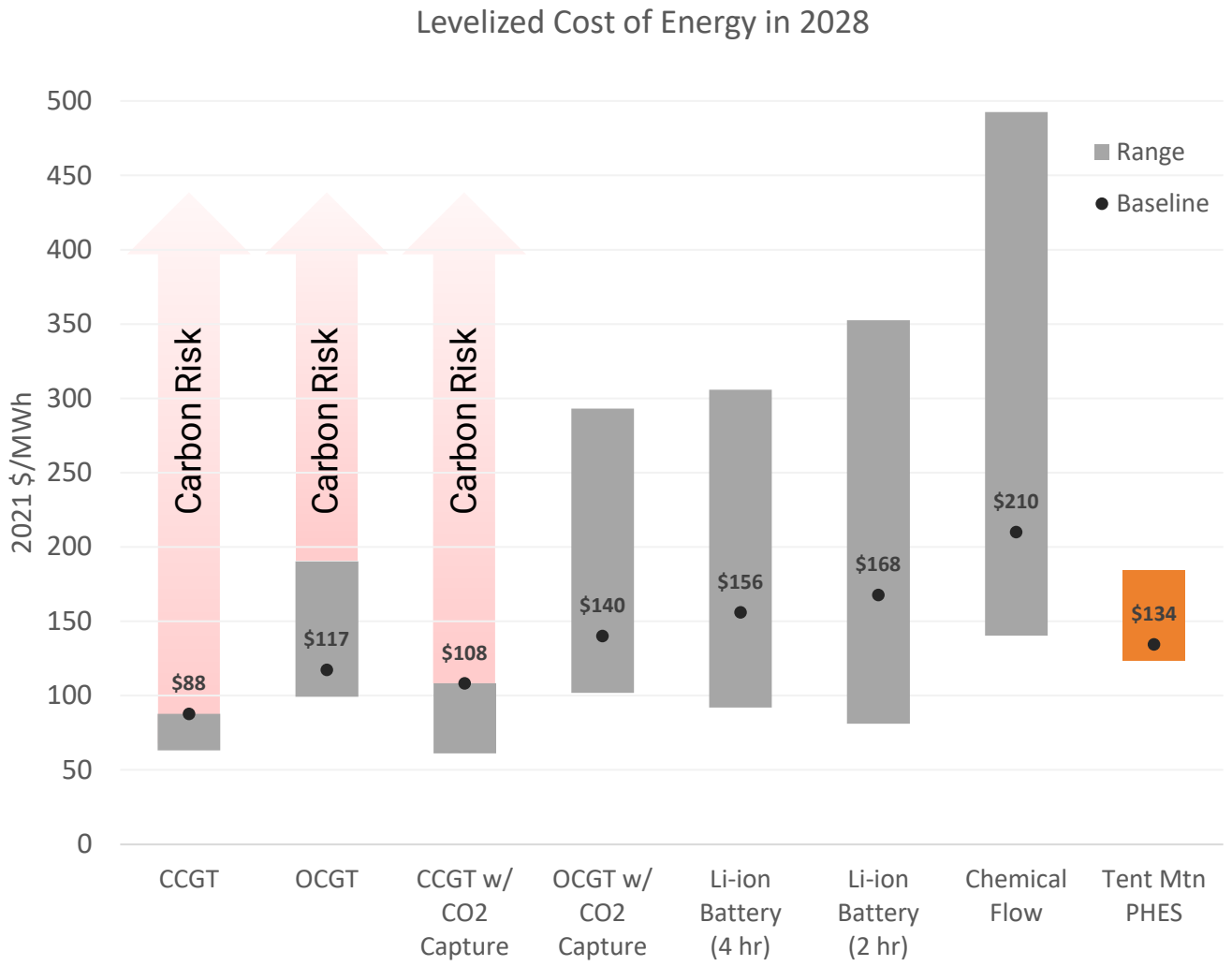


Intermittent renewable supply is often volatile



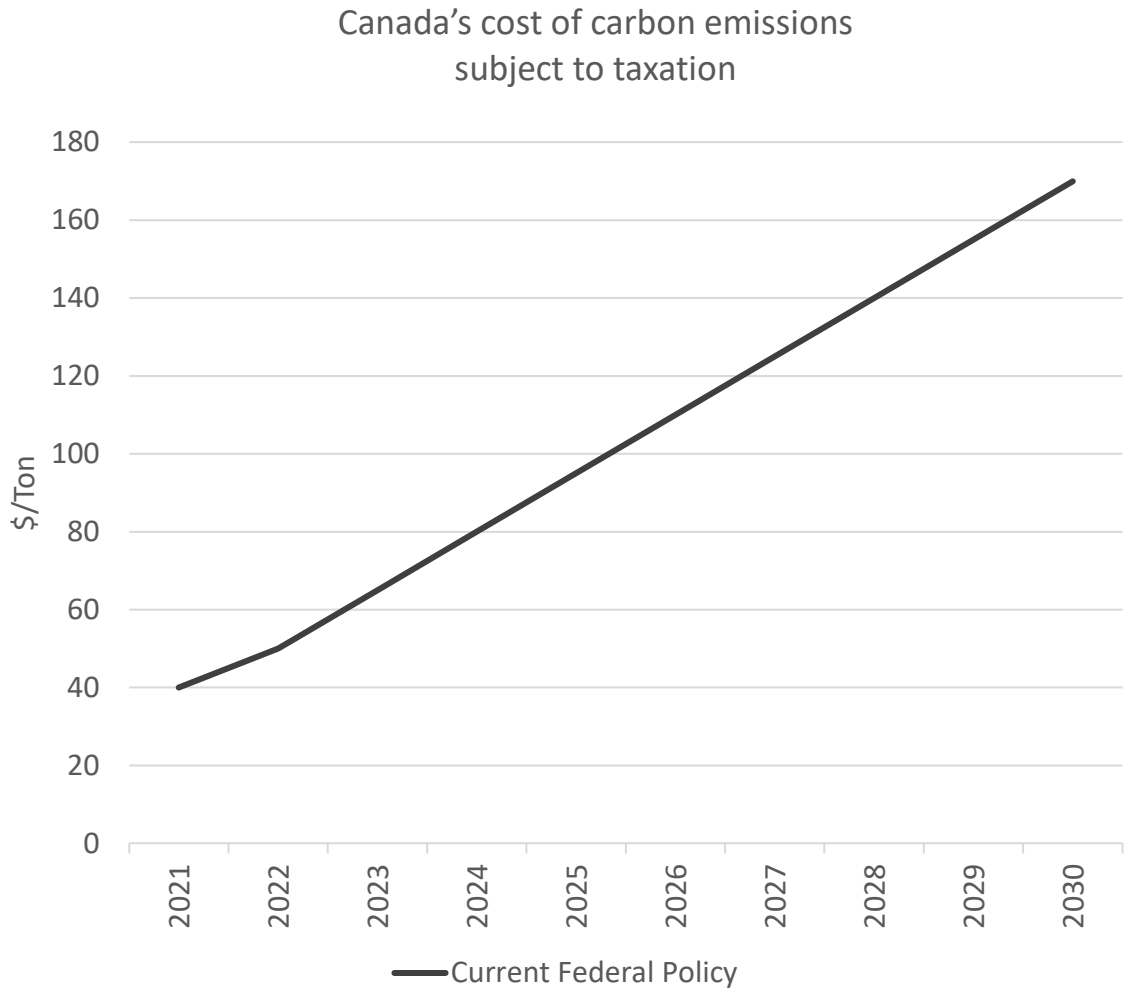
Tent Mountain PHES is competitive

- Gas-fired generation is vulnerable to rapidly increasing costs imposed by regulation.
  - As an example, the most recently proposed new Combined Cycle Gas Turbine (CCGT) powerplant for Alberta was cancelled in 2020.
  - Furthermore, in September 2021 TransAlta announced the closure of three existing gas-fired electricity plants in favour of focussing on renewable energy.
- Physical carbon capture materially increases capital costs.
- Battery technology improving rapidly but degradation remains a material issue.



Emissions costs pressuring Gas-Fired generation

- Lack of clarity between financial and physical mitigation of CO_2 combined with lack of clarity between federal and provincial involvement in policy is creating a negative investment climate for natural gas fired electricity generation.
- Federal policy establishes minimum stringency for provincial regulations, and those minimums are increasing rapidly (*see graph*).
- Output Based Pricing System (OBPS) establishes benchmarks for efficiency; excess emissions subject to compliance costs.
- Gas-fired generation facing cost pressure, especially the less efficient, more flexible assets best suited to firming intermittent renewable supply.
- Tent Mountain PHES is a physical option that capitalizes on the inherent volatility in the Alberta power market.



Wind power is concentrated in southern Alberta

- Alberta's installed wind energy is concentrated near Tent Mountain, enabling cheap inputs to TM-PHES.
  - Alberta has over 1,685 MW installed wind capacity, with over 400 MW of that capacity within 60km of Tent Mountain
- Wind energy is the lowest-cost source of new electricity in Alberta.
- New wind farms are typically financed via the security of long-term PPAs (Power Purchase Agreements).
- A suitable PPA for the PHES at Tent Mountain could secure the long-term economics for the project.
- Montem and the Piikani Nation have agreed to explore the mutual benefits of the Tent Mountain Renewable Energy Complex (TM-REX).
- The addition of a 100MW integrated wind farm to provide renewable power to the TM-PHES significantly increases returns and provides security to the electricity supply to the hydrogen facility at Tent Mountain.

Tent Mountain's Green Hydrogen (H2) Opportunity

- A Green H2 project (one with zero emissions, running on renewable energy and storage) would be a first-of-its-kind in Western Canada.
- There is strong institutional investment desire for clean hydrogen projects, vocal government and industry support and evidence of growth in Canada.
- Policy is creating the market, project economics are supported by policy credit schemes.
- TM-PHES to supplement wind power, supplying continuous, reliable, cheap renewable power for green H2 production.
- Montem has an option for flat industrial land near major logistics junctions (road, rail & gas pipeline), providing seamless, multiple market access.
- Potential for Tent Mountain/Montem to aide decarbonization of some key off-take users in the area, and potentially be an early mover and key part of a hydrogen economy build-out in Western Canada.

Render of 10MW pilot demonstration hydrogen electrolyser to produce green hydrogen

"Putting Alberta on the global hydrogen map now as this energy source is beginning to gain prominence and promise will be crucial."

Jason Kenny, Premier of Alberta

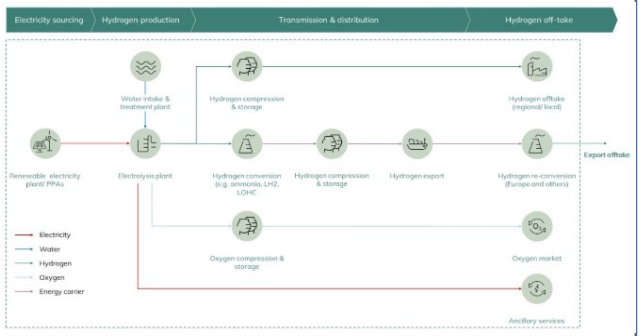
Tent Mountain advantages for Green H2 through the supply chain

Renewable energy	• Abundant and nearby renewable electricity (wind farms) within 60km of the site in Southern Alberta • Opportunities to reduce power cost (70-80% of H2 OPEX) through use of integrated wind farm for TM-PHES
Green H2 Production	• Advantaged to produce closest to identified potential off-takers (railways and mines) • Storage required on site, enough area to also create green ammonia if desired • Tent Mountain has several suitably flat areas under option • Oxygen byproduct may also benefit local farming & industry
Transport & logistics	• Ready access to major road, railway and pipelines within close vicinity • Transport will be determined based on volume production & offtaker requirements
End Users	• Location is close to higher potential H2 off-takers both for fuel and energy (prioritization underway) • Potentially others in Western Canada or export potential (via nearby piepeline)

Pathway to Green H2 implementation

1 Short term - Planning

- Further understand demand potential and product requirements of off-takers
- Undertake additional technical studies, further site investigations, and build the business case
- Engagement with suitable partners
- Risk and regulatory requirements
- Planning and approvals pathway



2 Medium term - Demonstration scale

- Demonstration scale to enable infrastructure and off-taker requirements to ramp-up
- Feasibility studies to explore technical and commercial viability for commercial scale
- Stakeholder and customer engagement to secure offtake & enable infrastructure requirements
- Technology assessment and techno-economic modelling
- Construct demonstration scale facility and commence supply of green hydrogen

Source: Reuters; 10MW hydrogen electrolysis plant, Germany

3 Long term - Commercial scale

- Tent Mountain as an integrated clean energy site with larger scale renewable integration to back green H2 production
- Multiple commercial pathways and potential for adoption in hydrogen fuel and decarbonized energy use over time
- Alternative commercial models such as JV, service agreements, with technology chosen based on demonstration scale

Project risks are being assessed

The PHES, and particularly Green Hydrogen as a new industry, each exhibit project risks and constraints inherent to the nature of the projects. One objective of subsequent feasibility work will be to improve Montem's understanding of the risks and developing effective mitigation.

PHES project exhibits risks that include:

- The geotechnical stability, particularly of the upper reservoir (although this has been acting as a dam since mining ceased in the early 1980's indicating its competency as a reservoir).
- The site requires environmental permits and other regulatory approvals
- Connection to the Alberta grid is essential including the associated regulatory approval

Green Hydrogen project exhibits risks that include:

- It relies on securing off-takers at economic pricing
- Environmental and other permits are required
- The hydrogen electrolysis process consumes water hence access to water is required

Next phases of work

- Feasibility work will begin with additional geotech analysis of reservoirs, proving the long-term suitability of these existing structures.
- As we advance, we will leverage the 3 years of environmental monitoring and reports recently prepared for the Tent Mountain Mine EIA to fast-track the regulatory process to transition Tent Mountain from a mine to a PHES.
- We will continue to work with Piikani Nation to investigate mutual benefits of the pump-hydro and wind generation.
- Discussions with potential industry partners for both power and hydrogen.

How is green hydrogen produced?

Clean Wind Energy Generation

Wind is used to generate clean renewable energy to power the Pumped Hydropower Energy Storage

Clean Pumped Hydropower Energy Generation and Storage

Pumped Hydropower is used to generate clean renewable energy to feed the electrolyser Hydrogen Generation Facility

Green Hydrogen Production

Water molecules are split by the electrolyser to create hydrogen and oxygen

Storage

The hydrogen gas is compressed and stored

Use

Once stored, the gas can be transported to anywhere in the world for domestic or industrial use

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Tent Mountain's Renewable Energy Complex (TM-REX)

- Tent Mountain has strong capability to establish a Pumped Hydro Energy Storage (PHES).
- Studies demonstrate strong economics for hydro energy to be converted to green hydrogen onsite at Tent Mountain.
- By powering the hydrogen plant with wind power, via the energy storage at Tent Mountain, it could become the first significant scale "green" hydrogen plant in Alberta.

Transitioning Tent Mountain

Tent Mountain Renewable Energy Complex (TM-REX)

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