



MAGNUM DEVELOPMENT

General Overview

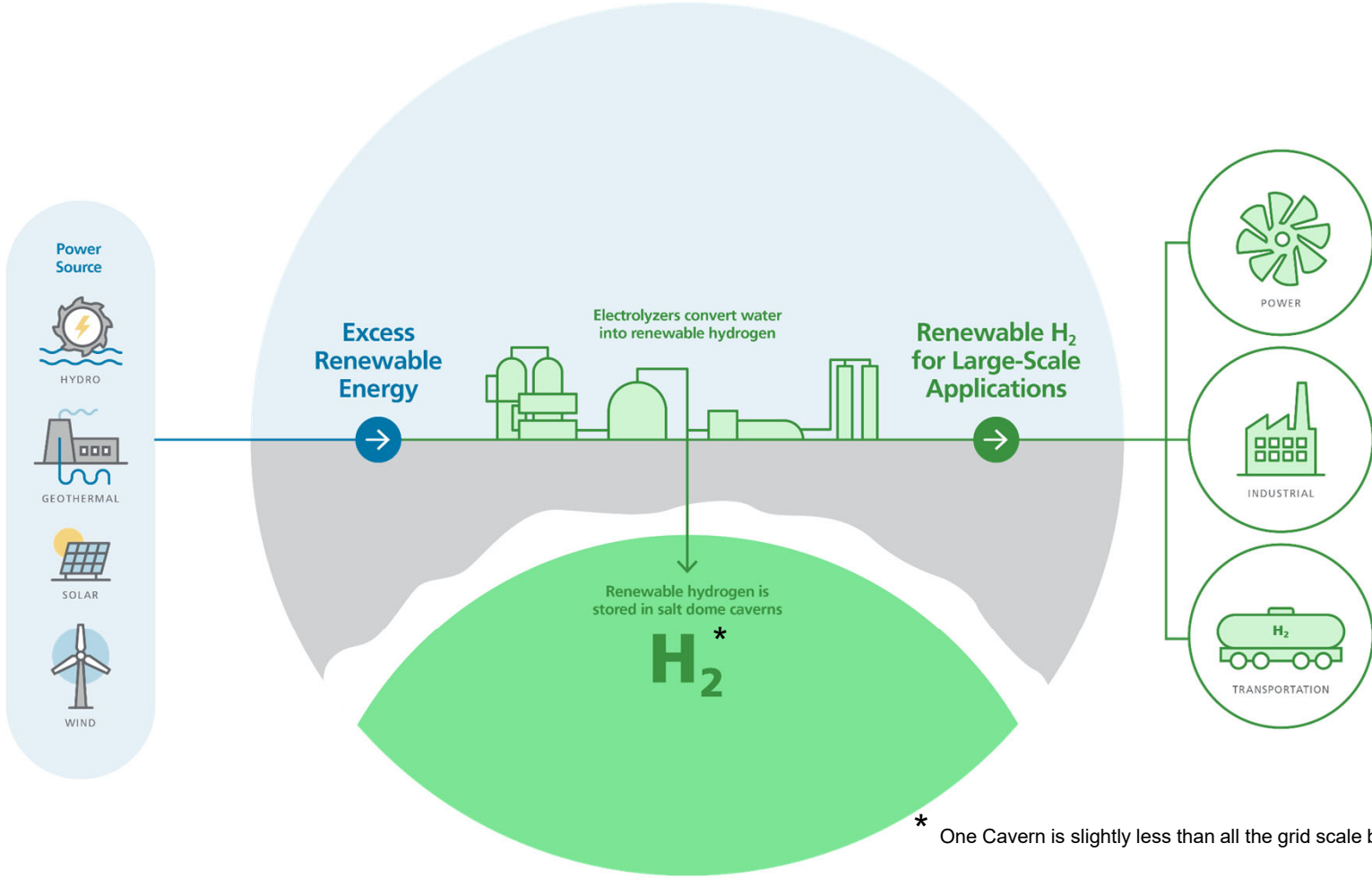
SITLA Board
April 20, 2022

Who is Magnum?



- Magnum is a Utah company, headquartered in Salt Lake City
- Founded in 2008, Magnum Development LLC ("Magnum") is a portfolio company of Haddington Ventures
- Magnum (**in partnership with SITLA**) owns and controls the only known "Gulf Coast" quality salt dome in the Western US - located in Delta, Utah about 130 miles SW of Salt Lake City
- Magnum's salt dome allows for ~100 caverns. Approximately 11,000 surface and mineral acres are under Magnum's control.
- Magnum developed and sold its investment in the largest NGL storage business in the Western U.S. to NGL Energy Partners (NYSE: NGL) in 2015. Magnum recently repurchased a 50% interest in the Sawtooth facility.
- Magnum is leveraging its unique salt assets by developing the "Western Energy Hub" to serve the Western U.S. with underground storage: green hydrogen, renewable energy, natural gas, refined products and storage for other products
- Magnum formed a joint venture with Mitsubishi (minority partner) to develop the worlds largest GH2 production and storage facility in 2019 – ACES Delta

Green Hydrogen Storage Using Salt Caverns



* One Cavern is slightly less than all the grid scale batteries in the world

Green Hydrogen: The Long Duration Energy Storage Solution for the U.S.



Commercially Deployed Technologies

Over
3.5 MILLION
hours of H₂ turbine operation

First H₂ pipelines
1930's

Large-scale electrolysis
systems since
1940's

Commercial Salt Caverns

First H₂ storage in salt caverns
1980's

~2000 salt caverns in
commercial use worldwide

5 NGL caverns in
Operation at the site

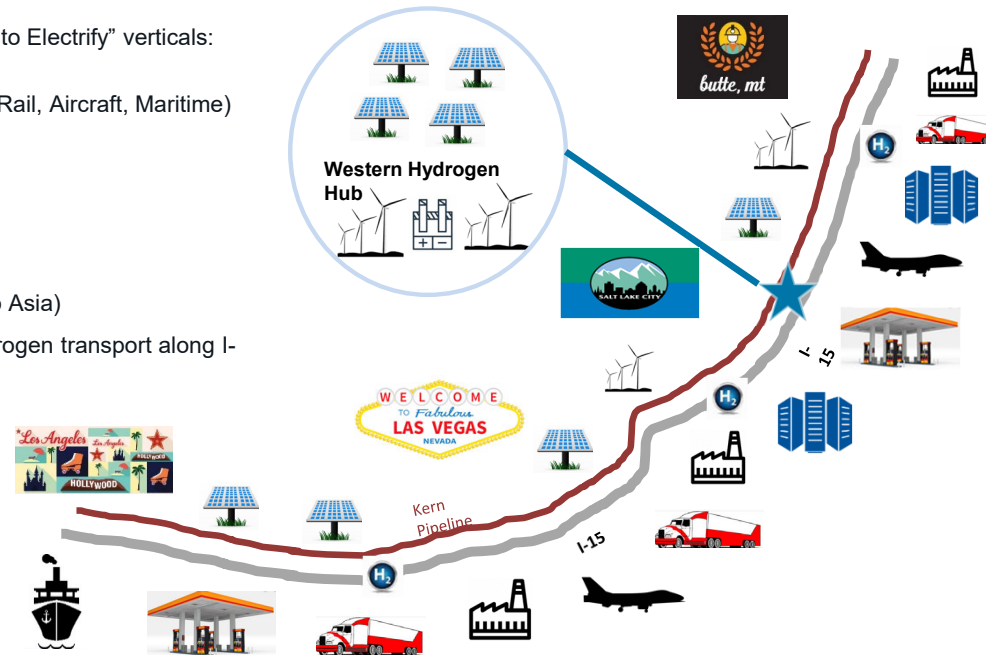
- Equivalent to 150,000MW of Lithium-Ion Battery Capacity per GH2 Cavern
- This number of batteries would require 100MWM ft3 shipping containers, or three Empire State Buildings
- Equivalent to six times the grid scale batteries in the US

Deep Decarbonization: Green Hydrogen Scaling Across Industries

From Butte, MT to Salt Lake City, UT to Las Vegas, NV to Los Angeles, CA to the coast

- Opportunity to decarbonize other “Hard to Electrify” verticals:
 - Transportation
(Heavy Duty/Long Haul Vehicles, Rail, Aircraft, Maritime)
 - Datacenters
 - Military
 - Industrial and Manufacturing
 - Ammonia and Derivatives
 - Pipeline Injection
 - Shipping and Exports (including to Asia)
- Kern pipeline an excellent route for hydrogen transport along I-15 Corridor

Connecting the West with clean renewable fuels



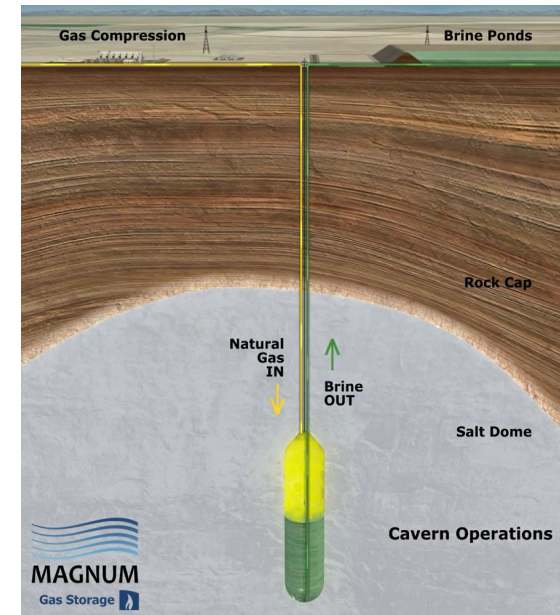
Salt Cavern Basics

How is a salt dome cavern created? See animation

- Get required permits (local, state & federal)
- Drill, install casing and hanging string
- Inject water through drilling string of pipe
- The water injected dissolves the salt and creates a brine which is then forced into a brine pond
- This process is known as leaching – (five caverns have been created at the Magnum site ~6mb of capacity)
- Interconnection (piping, rail & truck)

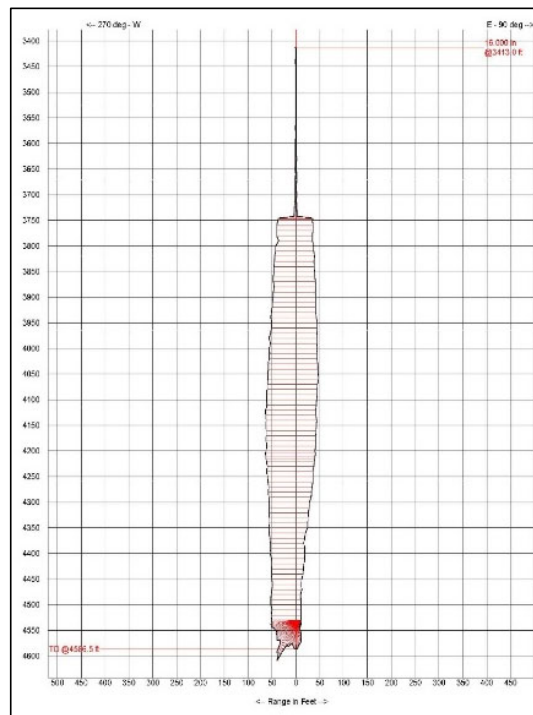
How are products stored and retrieved from a salt dome cavern?

- Once delivered to the site via pipeline, rail car or truck, the product is then pumped into the cavern using the inner hanging string which displaces the brine out the outer hanging string. Brine is then stored in a highly engineered brine pond. To remove the product from the cavern the process is reversed with brine pumped from the pond into the cavern using the inner hanging string and displacing the product out the outer hanging string into a pipeline, rail car or truck.

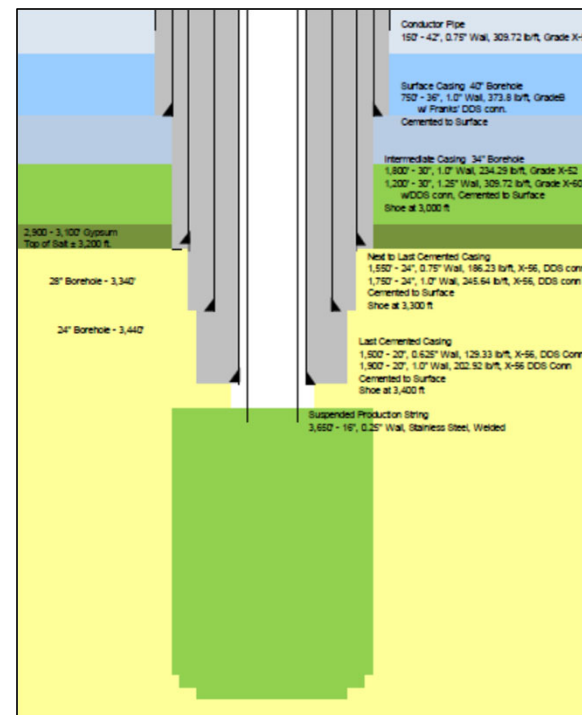


Typical Cavern Design

- 1 to 10 million barrel capacity
- Operating range: 800 psia to 2,800 psia
- 150 to 300' diameter, 1,000 to 1,500 tall
- 250 to 750 days for complete cavern development



Sonar of Existing Cavern



Wellhead Casing



Thank You

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