
StormFisher
HYDROGEN
East River Electric Energize Forum
February 2024

Hydrogen 101

What is Hydrogen?

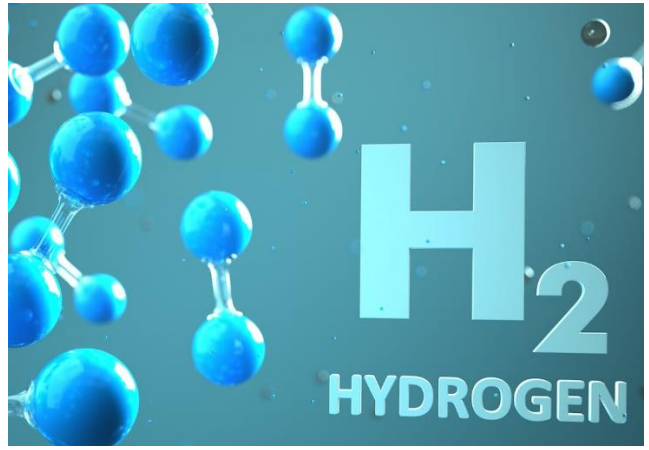
Hydrogen is a simple, colorless, odorless gas that burns clean with no harmful emissions.

Where is hydrogen used and how is it made today?

Hydrogen is used widely today in oil refineries, ammonia plants, chemical plants and food plants. The majority of hydrogen today is made by "cracking" methane (CH4). This is no considered a clean way of making it as the carbon portion of the methane is released into the atmosphere.

What is Green Hydrogen?

Green hydrogen is hydrogen that is made by "cracking" water (H2O) – a process call electrolysiss, by using renewable electricity. No carbon emissions are created both in the generation of renewable electricity, and/or the electrolysis process.



Why am I reading all about hydrogen all of a sudden?

Green hydrogen has always been considered a very good clean fuel, but its has had its challenges with regards to production and use. In August 2022, the Inflation Reduction Act ("IRA") laid out incentives for green hydrogen production which many believe will help the widespread adoption.

Hydrogen: The Good and the Bad

Hydrogen has certain benefits and certain drawbacks, however once widespread adoption picks up, the good far outweighs the bad.

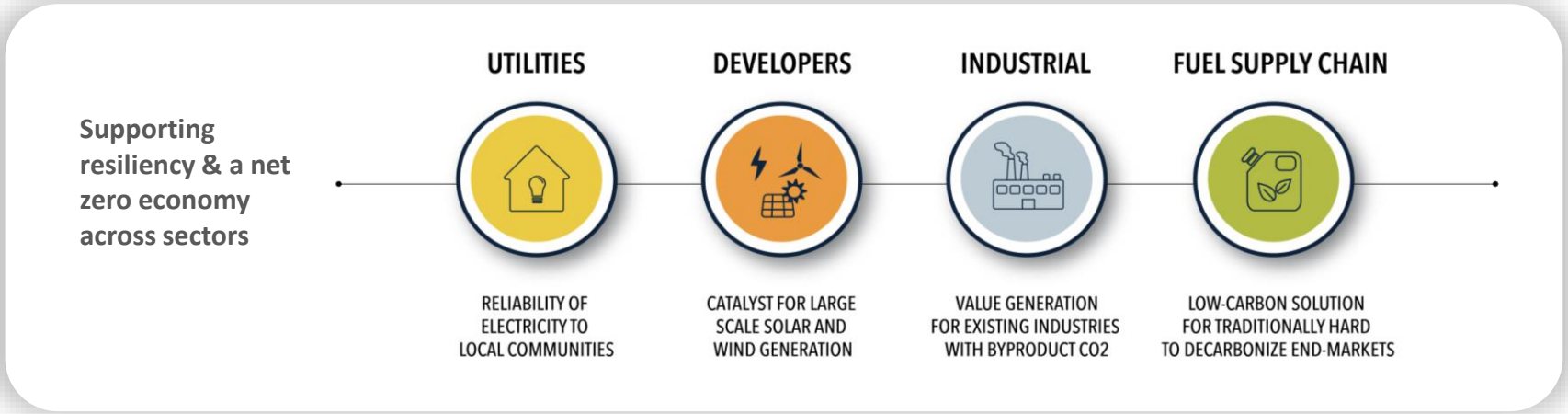
THE GOOD:

- ✓ It is a clean burning fuel
- ✓ Can be made with water + electricity (two widely available resources)
- ✓ It is an efficient and light weight energy carrier
- ✓ It is a building block for many other fuels (methane, ammonia, methanol, etc…) as H2 is the energy building block

THE BAD

- × It is difficult to transport (its very light, and only liquifies at -423 C)
- × Conventional fuel use infrastructure (i.e. engines/turbines) need to be modified for its use
- × Current production costs are high due to lack of infrastructure and equipment

Producing Low Carbon Fuels Through Electrolysis



$ 1bn
Allocated Capital

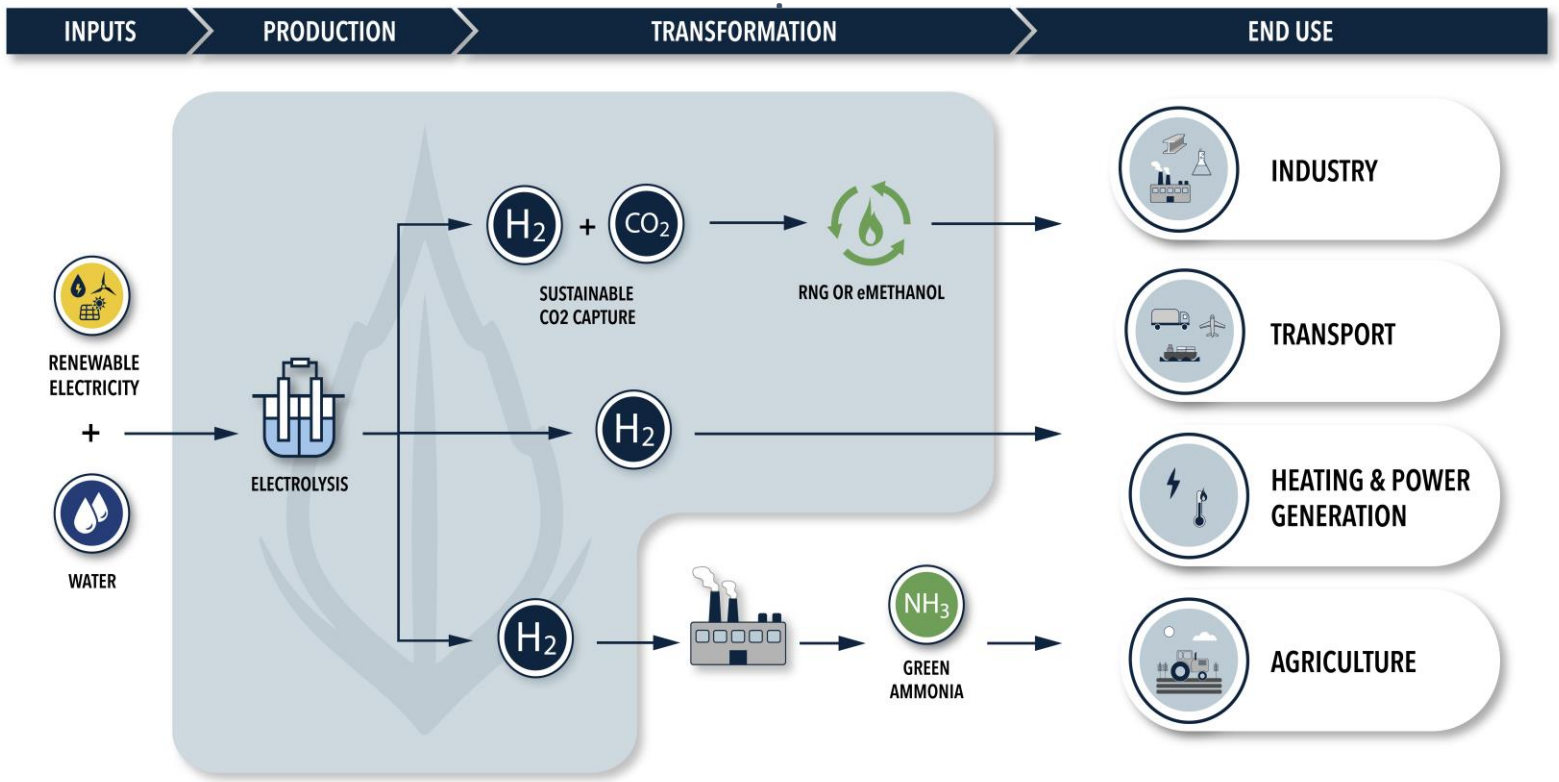
15+ Years
Operating Experience

We develop, own, and operate renewable hydrogen-based clean fuel production facilities

- Leveraging our decades of experience in renewable energy, we help corporations, utilities, and governments achieve net zero emissions through the production of low carbon fuels for hard to decarbonize sectors.
  - Electrolysis represents a replicable approach to producing low carbon fuels at scale
- We support a low-carbon future through the production of economical clean hydrogen underpinned by renewable electricity and an offtake strategy that spans a variety of end markets including marine, transport, industrial, and utility.
  - These sectors provide a stable existing market without the need for the build out of a supply chain infrastructure.

eFuels – H2 Derived End Products

Electrolysis represents a replicable approach to producing low carbon fuels at scale



StormFisher has evaluated various decarbonization pathways for hydrogen, matching low carbon hydrogen-based fuels with hard-to-abate applications

- Traditional biofuel approaches result in feedstock constraints limiting scale and replicability
- Completed a FEED and commercial feasibility study for a 25 MW P2G facility in Aylmer, Ontario
- Developing electrolysis-based projects across North America including Canada; Texas, Mid-West US, and Eastern US
- Engaged with electrolysis, methanation, and methanol synthesis technology vendors to understand the capability and cost of rapidly developing technologies

Our Team

- Extensive experience in the development, commercialization, and operations of utility scale clean fuel production facilities.
  - Led development of a large utility scale solar structures company - supported & installed over 1.7GWs of deployment throughout North America.
  - Originated and developed $500M in utility-scale infrastructure with $250M completed through to operations.
  - Engineering and operations experience for clean energy and blue hydrogen facilities.
- Board members of Ontario Environment Industry Association and Canadian Biogas Association.

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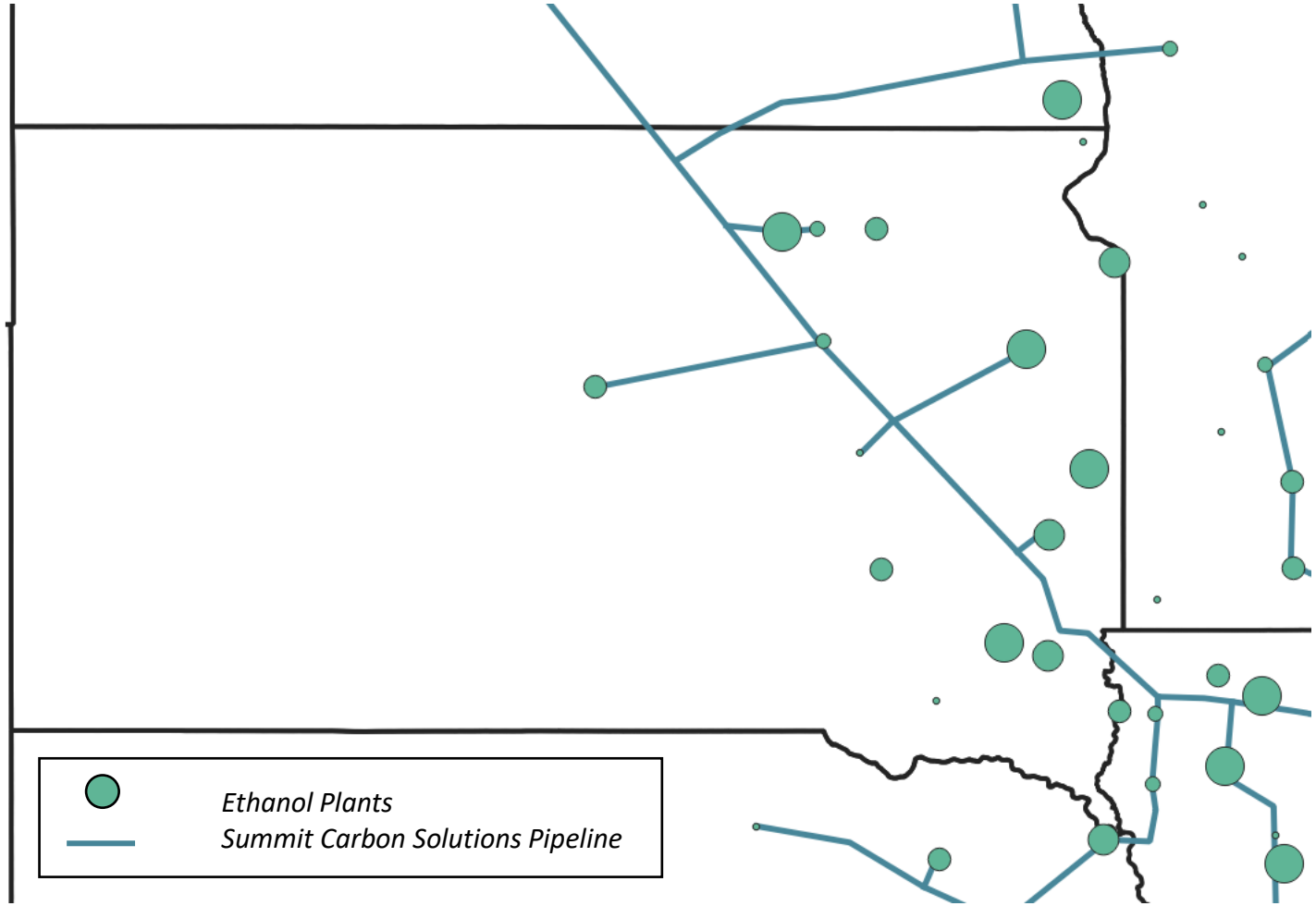
Project Development

Founded in 2006, StormFisher develops and operates facilities that recycle energy and water to enable the transition to a low-carbon future

- **Successfully oversaw** the permitting, design, construction management, and operations of multiple organics and renewable natural gas facilities in Canada and the US
- **Recruited and trained** a team of 50 across development, operation of renewable fuel and product facilities including commercialization and marketing
- **Access to Capital**: Partnered with, and raised capital from ARC Financial
    - Divested anaerobic digestion business to Generate Capital in 2022

Why South Dakota?

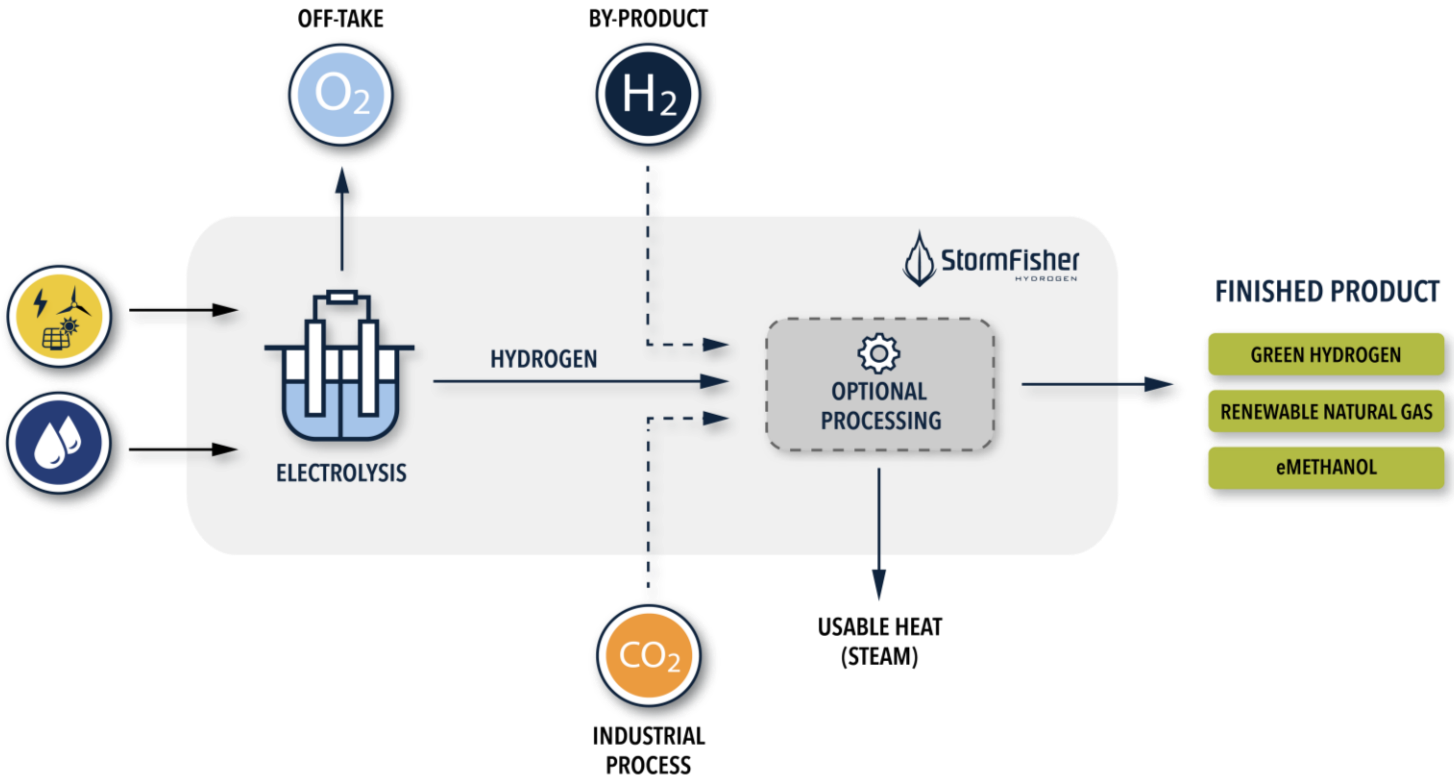


Strong agricultural sector: Various potential sources of biogenic Carbon Dioxide to marketable make eFuels

High Wind Speed: In 2022, wind provided 55% of South Dakota's net generation (EIA). High wind potential increases electrolyzer capacity factor

Potential for flexible power contracting structures: StormFisher Hydrogen has been collaborating with East River Electric to creatively develop IRA-eligible power contracting structures

Project Development Model



Benefits of Clean Hydrogen-Based P2G

Utility scale grid resiliency: Operational flexibility to draw or curb power consumption

Energy transition: Pairs with solar and wind generation as an outlet for stranded or low-priced electricity coupled with energy storage applications

Net zero economy: Low-carbon fuel that can supply traditionally hard to decarbonize end markets

Carbon Dioxide: Maximize value of existing sources of carbon dioxide through utilization to make marketable clean end-products

Draft IRS Guidance & Impact on Power Procurement

1

Incrementality

- EAC's must be sourced from new sources of clean power (began operations within three years of a hydrogen facility being placed into service)
- 5% of power could be procured from existing renewable generation facilities

2

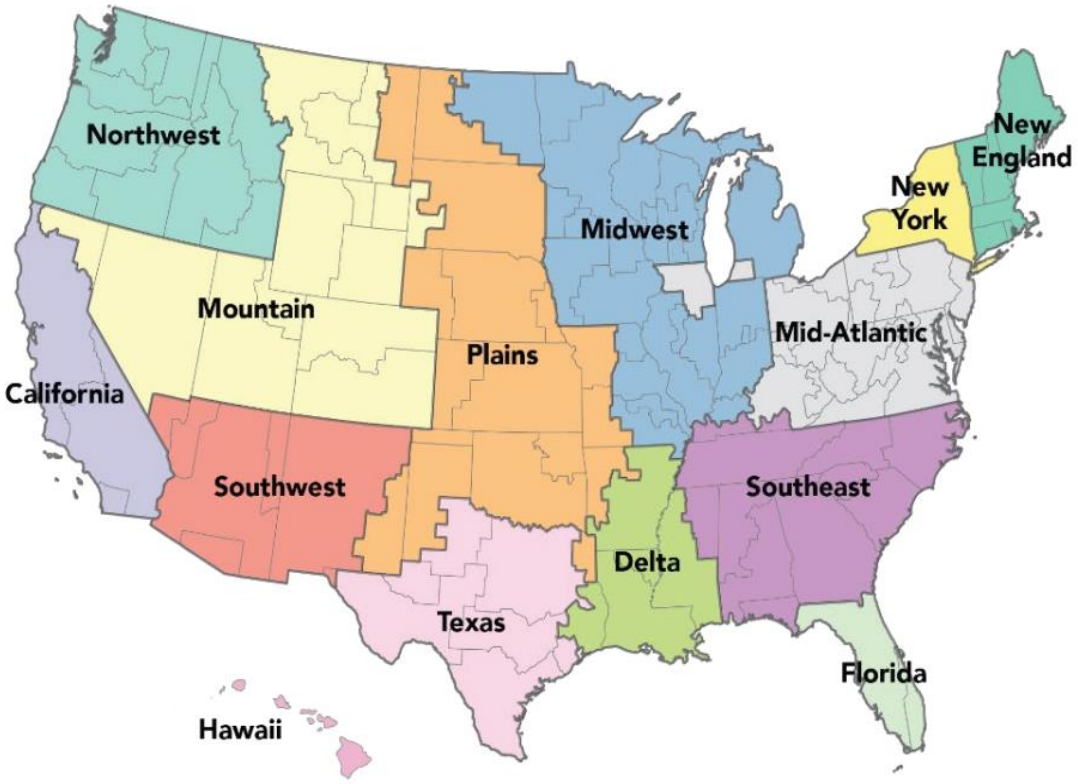
Transmission

- Power must be sourced from the same region as the hydrogen producer, as derived from DOE's 2023 National Transmission Needs Study.
- Proposed IRA regions do not match FERC power market boundaries exactly

3

Time Matching

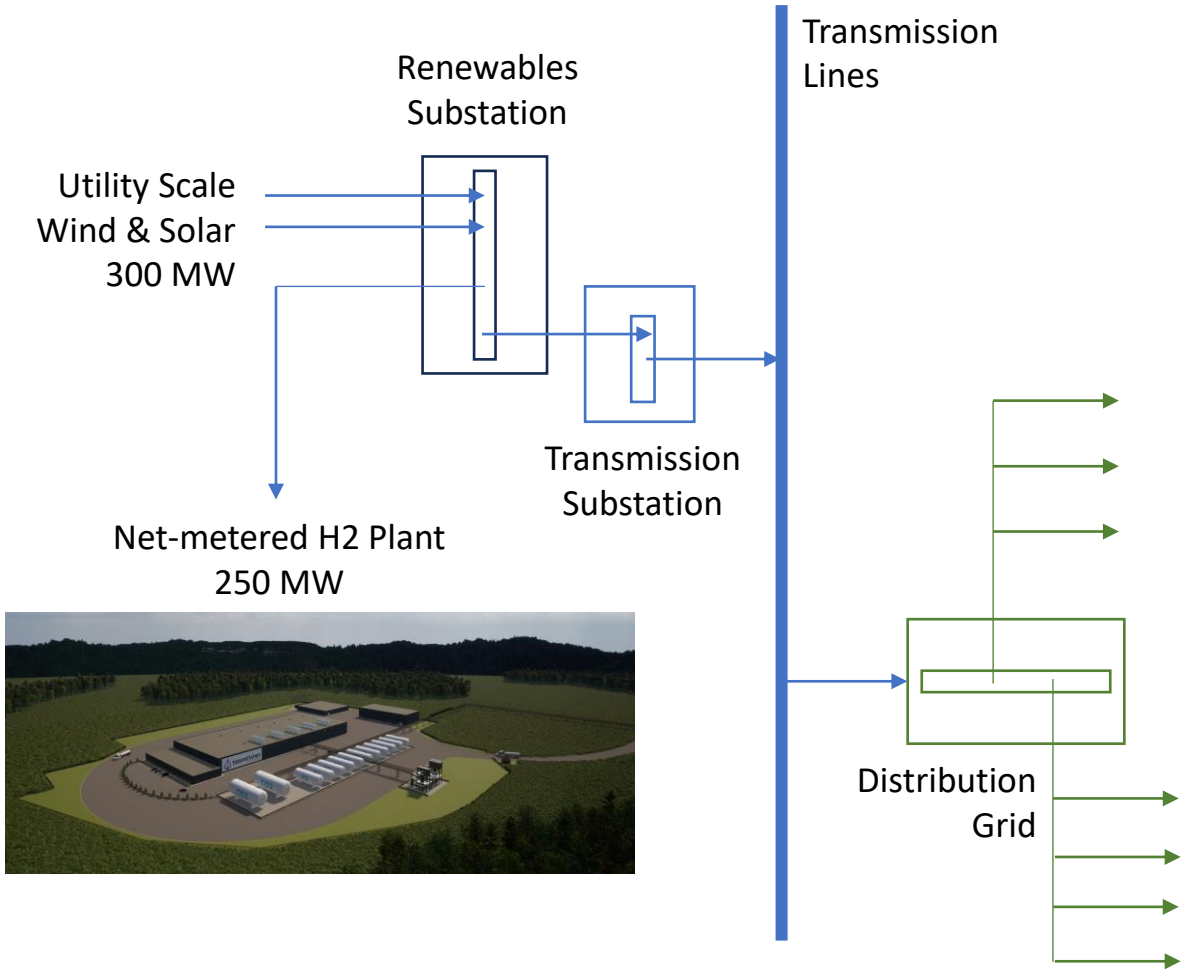
- The claimed generation must occur within the same hour that the electrolyzer claiming the credit is operating.
- Proposed phase-in approach will allow annual matching until 2028



Source: DOE Regional Transmission Needs

*EAC = Energy Attribute Certificate

How do you integrate such a large load into smaller grids?



Benefits of Structure:

- ✓ Very limited upgrades for the utility (and H2 plant to connect)
- ✓ Allows local utility to capture value through use of renewable electrons in service territory
- ✓ H2 plant can reduce load during peak times to allow local utility to use electrons
- ✓ H2 plant receives modified (i.e. reduced) demand charges
- ✓ Direct PPA or sleeved PPA (with utility) depending on regulatory requirements

Start with Wind: South Dakota has great wind resources, providing opportunity to locate with a wind farm and build capacity from there.

Partner with Utilities: Large loads require thought on how to integrate to be beneficial for both the load user, and the utility. Creativity and willingness to work together is required for success.

Don't Burden the Grid: By connecting at an existing transmission substation with intermittent load, H2 Plant can be a grid stabilizer, not disruptor.

Energy. Water. Power

We repurpose the world's scarcest commodities

Thank you. For more information, please contact:

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