

Cyrq Energy, Inc

Geothermal to Hydrogen: A Developer's Perspective

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Hydrogen vs. Electricity Sales

Opportunities

The IRA tax credits along with the potential for high priced off-take agreements for green hydrogen offer a potentially higher margin alternative to selling electricity.

Hydrogen electrolysis behind the fence obviates the need for costly and time consuming grid interconnection processes. Hydrogen presents a compelling opportunity for grid-constrained geothermal resources.

Economies of scale can help drive future costs down. Expansion opportunities at existing sites lets us de-risk the resource and leverage balance of plant equipment to scale-up projects.

Risks

High priced off-take agreements tend to be in nascent market segments and are seen as high risk. The contracts tend to be much shorter duration than standard power purchase agreements which can provide challenges to deploying capital.

Foregoing an interconnection is a force multiplier on other risks. If something goes wrong with the Hydrogen project, it leaves the resource stranded with few or no alternatives.

Economies of scale work both ways. Early on, high balance of plant costs make pilot-scale projects uneconomical.

Where H2 Needs to Go for Green to Pencil

Today:

Dirty, but low cost supply - ~95% of hydrogen today is produced using fossil fuels.

Primary uses are for industrial processes and ammonia production for fertilizer. These industries have come to expect very cheap hydrogen on the order of \$1/kg.

The production tax credit under the Inflation Reduction Act provides up to a \$3/kg tax credit for green hydrogen – 300% the going market price vs. the electricity PTC which is 30-90% of the market price.

Potential Future:

Build stable markets and demand for 0 carbon or low carbon sources of hydrogen around new sectors such as transportation.

Impose a slight premium on existing uses to decarbonize those sectors.

Improve technology for transportation, chemicals production, and other related systems.

What Nevada Can Do

- Work closely with California to develop interstate incentive programs, infrastructure support, and take advantage of Federal dollars from the California Hydrogen Hub. California is shaping up to be a significant market for green hydrogen and Nevada has an opportunity to be a major supplier to that market.
- Build local demand through programs like Washoe County's Hydrogen Bus program.
- Continue conversations like this to educate lawmakers and the public and build support and interest in developing a hydrogen economy