Paralleled Self-Excited Induction Generators (SEIG's) for Optimized Hydrogen Fuel Production from Stranded, Multi-turbine Windplants: R&D&Demo at Operating 13-turbine Windplant, Palm Springs, CA

1261-1555

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ARPA-E funds: $2.85M
Cost share: 28%

Technology Summary

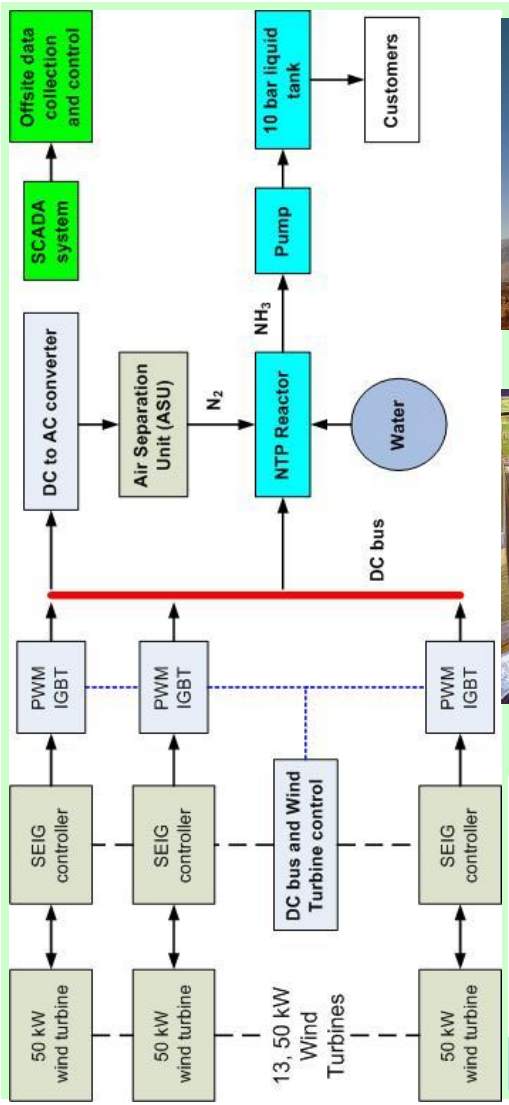
- Self-Excited Induction Generators (SEIG) on operating multi-turbine windplant , without connection to electricity grid
- Dedicated Hydrogen fuel production via novel, optimized controllers & power electronics, reducing Capex and O&M

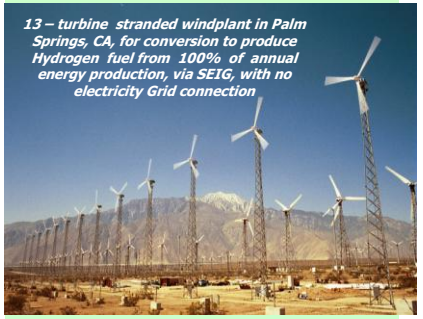
Technology Impact

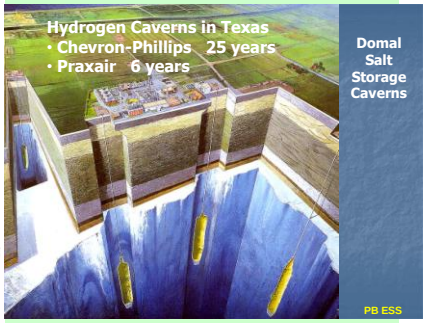
- Reduce cost of Hydrogen fuel by 20% by eliminating costly connection to electricity grid, allowing low-cost induction motor for generator, delivering Hydrogen fuel, not MWh
- Greatly increase geographic availability of wind energy, as Hydrogen fuel for transport, CHP, and all other markets
- Enable renewable energy systems using Hydrogen (H2) or Anhydrous Ammonia (NH3) for transmission, storage, and integration of diverse resources via underground pipelines, with storage for < $1 / kWh in salt caverns (H2), tanks (NH3)
- Double market size for renewables-generated energy

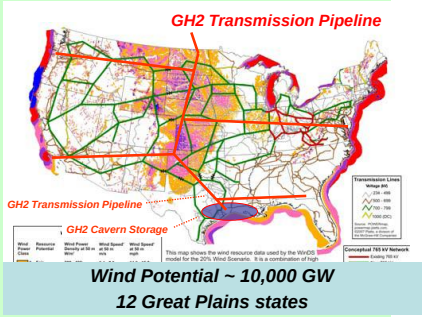
Proposed Targets

Metric	State of Art	Proposed
Cost of Hydrogen fuel : Plant Gate Point Of Use	 $ 5.00 $ 9.00	 $ 4.00 $ 6.00
Geographic availability Energy market size	1 1	100 2
Energy storage cost	$ 1,000	$ 1









Lower Wind-source Hydrogen Fuel Cost, Greater Geographic Area