



Wind Electrolysis

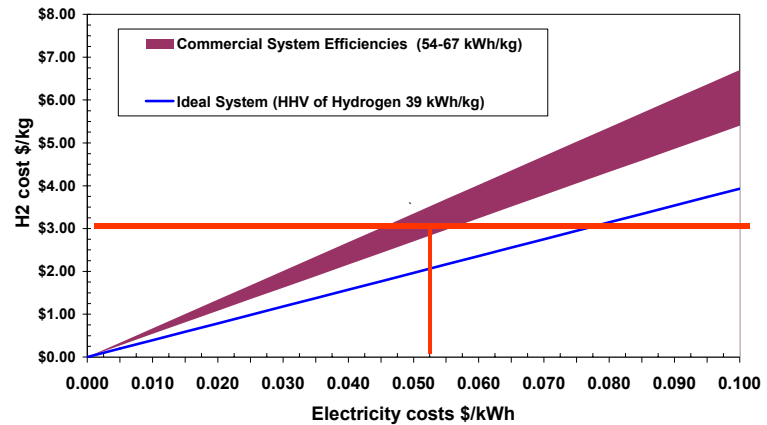
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Laboratory

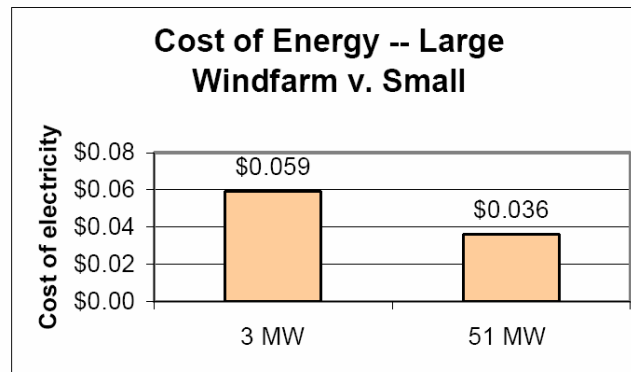
Economics of Wind Electrolysis

- Electricity prices need to be under \$0.055/kWh to meet DOE targets using current efficiencies
- Wind is the fastest growing renewable energy source (2,500MW installed in 2005 in US)
- Wind is a cost effective renewable energy source (\$0.03-\$0.05/kWh)

Hydrogen costs via electrolysis with electricity costs only



Cost figures include the current wind production tax credit.

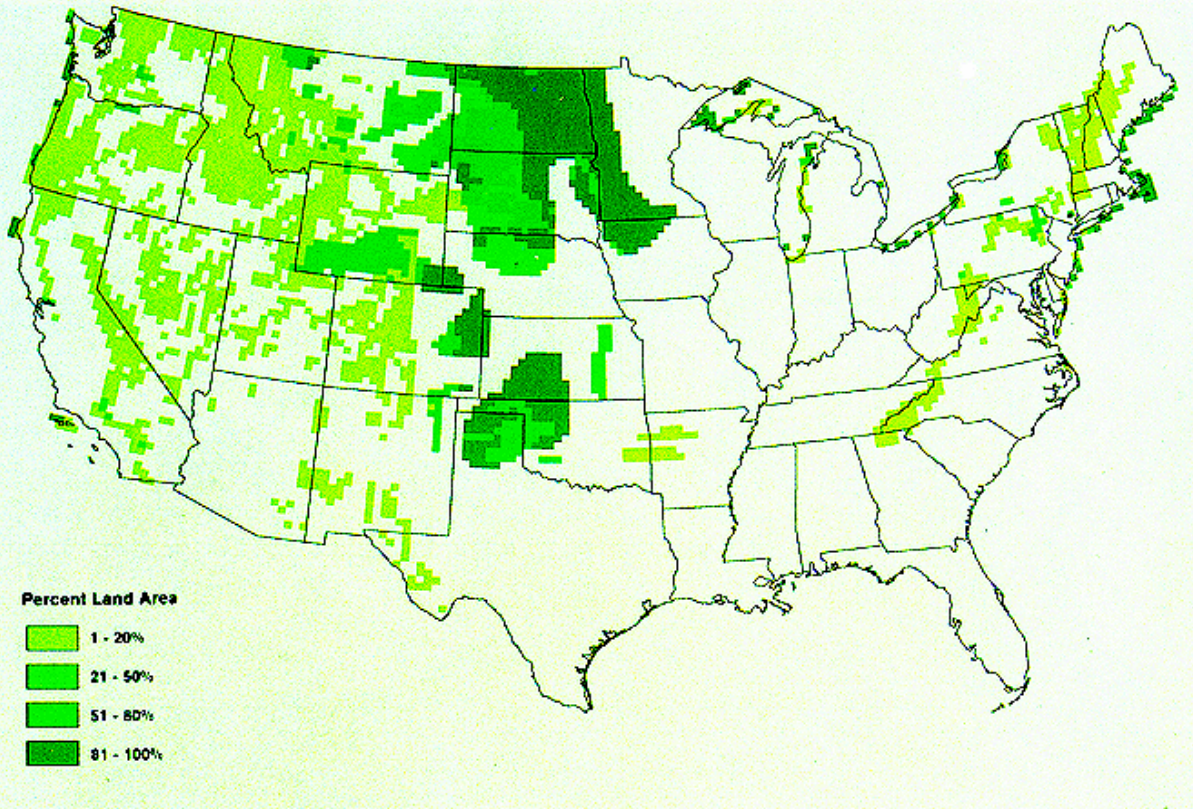


Economics of Wind – www.awea.org



Is there enough wind?

Yes



Percent of the land area in the contiguous united states estimated to have class 4 or higher wind power

After standard exclusions, there is 568,944 km² of land area

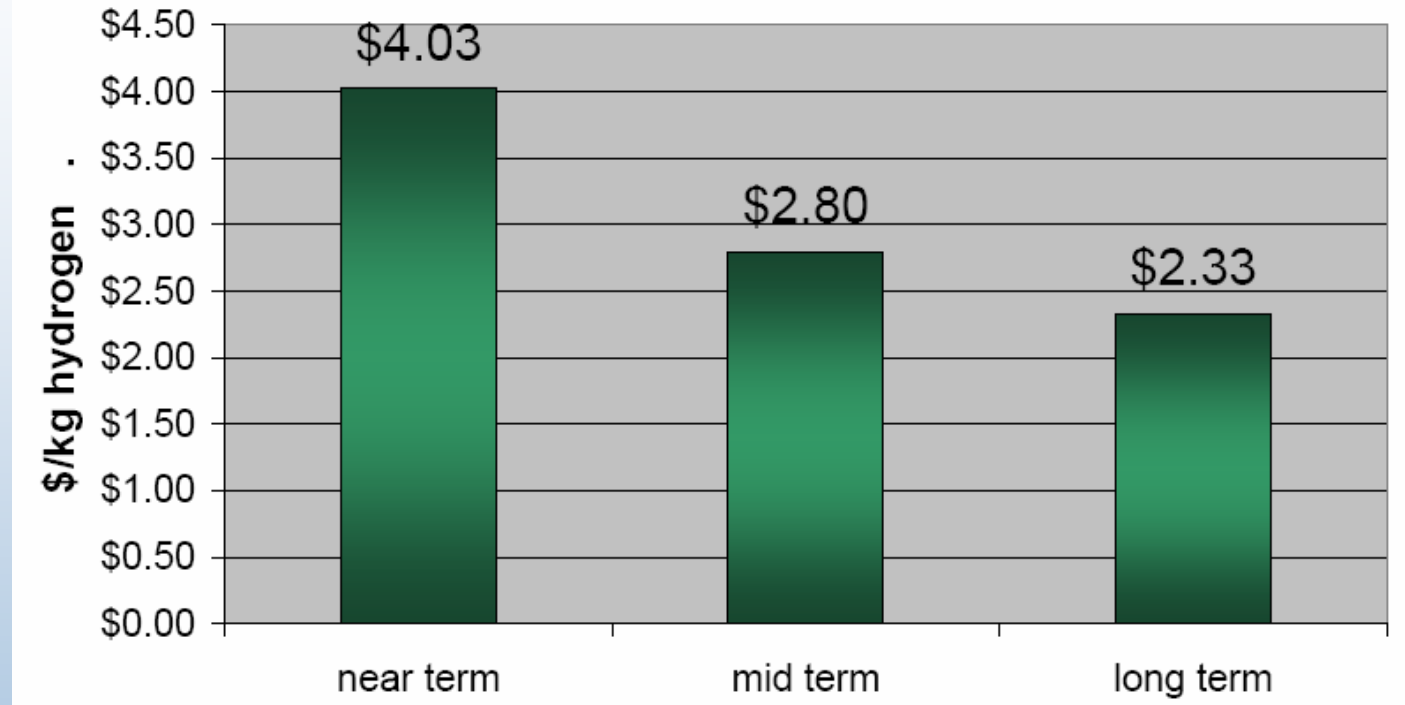
At 5MW/km²

Calculates to 2,844,719 MW

Could produce 154 billion kg/yr from Class 4 and higher wind in the United States

Current use is 140 billion gal/yr

Economics of Pure-Wind Electrolysis for Xcel Energy



- **Cost of hydrogen for distributed H2 production from aggregated wind**
- **High capacity factor**
- **Wind electricity price (\$0.038/kWh)**

Central vs. Distributed Wind Electrolysis

