“There are few things as toxic as a bad metaphor”

--Mary Catherine Bateson
Challenge is Surplus not Shortage
Power to Gas: 200 Year Old Technology

Glomfjord, Norway 135 MW electrolyzer plant. 1953-1991
Technology Costs Plummeting
Reserve Slides
Gas Storage Costs Far Less for Bulk Energy Storage

Future expected cost of batteries cost 250 times today’s cost of power-to-gas for storing 3 weeks of energy now provided by NW fossil units.
Storage Cost

100 MW Plant at Various Storage Levels (hours of storage)

- $2 billion cost of 100 X 1 MW Electrolysis Plants
- $60 million cost of 100 MW Electrolysis Plant Today
- Battery cost target of $100/kWh

Project Cost (millions) vs. Hours of Storage

- Battery ($100/kWh)
- Electrolyzer ($2000/kW)
- Electrolyzer ($600/kW)