

Hydrogen Production Potential Impacts to Utilities

Hydrogen & Fuel Cell Technical Advisory Committee Meeting

October 30, 2013

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Production Methods Considered

- ❑ Electrolysis (Central & Distributed)
- ❑ Natural Gas Reformation (Central & Distributed)

Types of Utilities

Electric

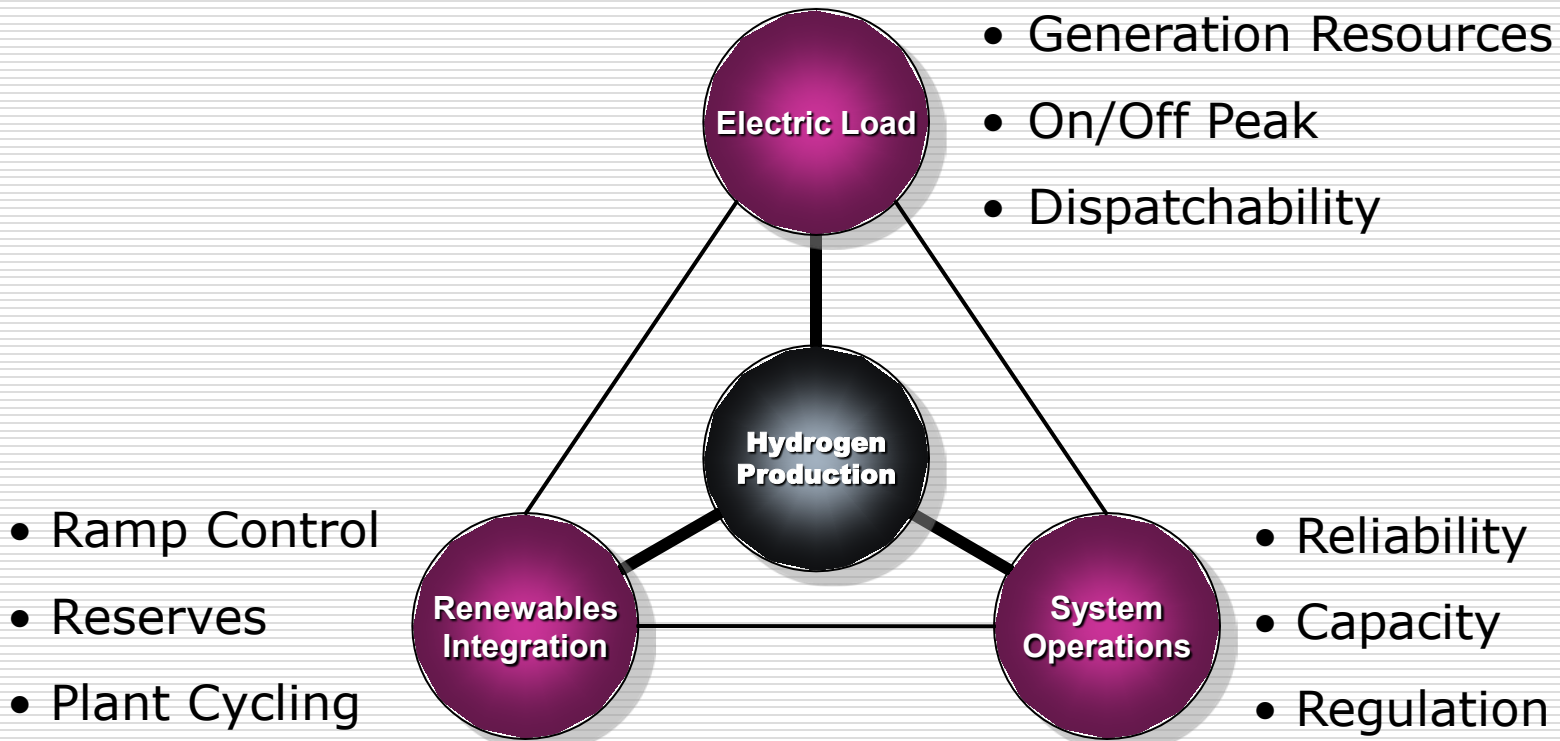
- Generation
- Transmission
- Distribution

Gas

- Transmission
- Distribution

Combined Gas & Electric

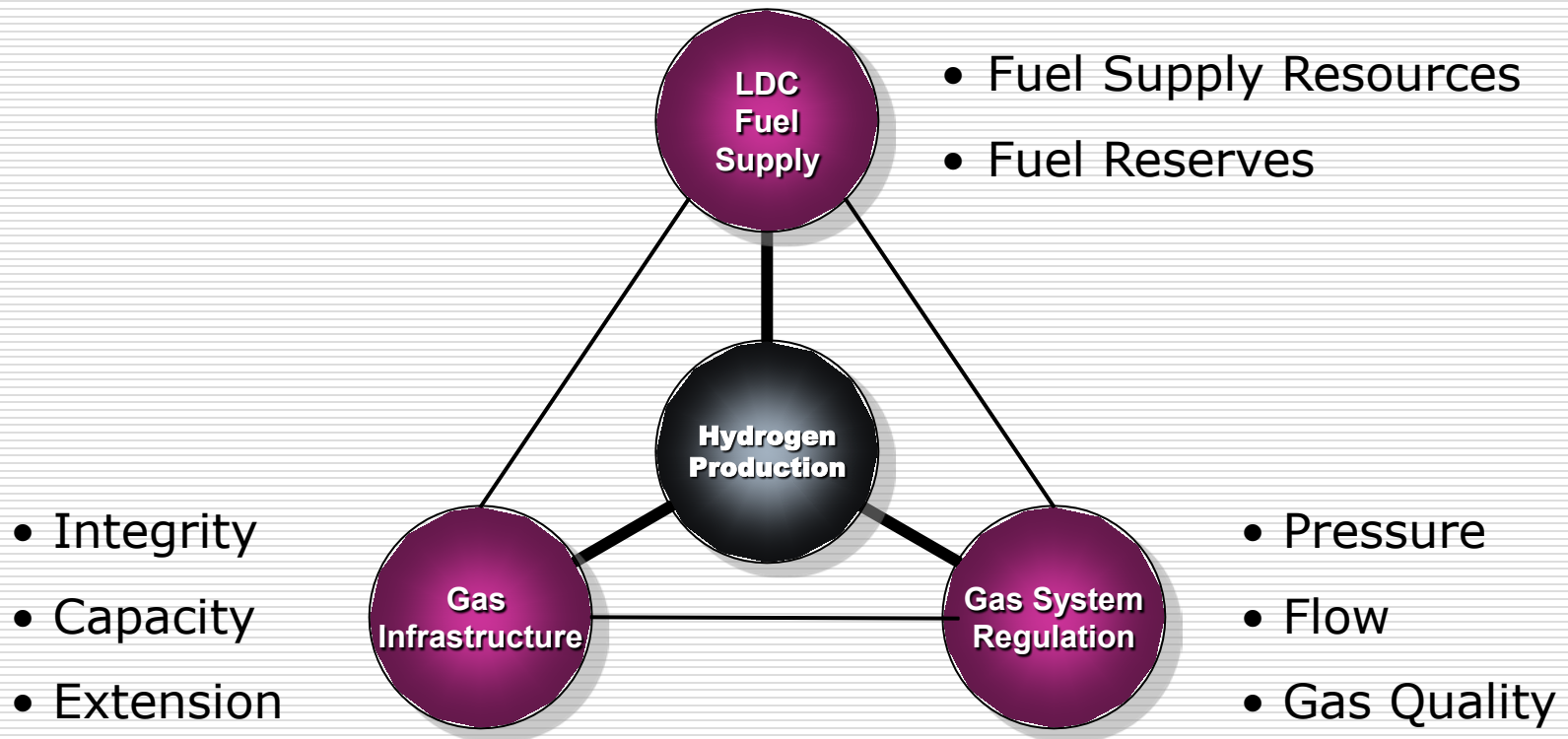
Potential Impacts - Electric System



Unique Opportunities - Electric

- Increased Load (Including Compression):
 - Electrolysis: 43 – 63 kWh/kg H₂
 - Reformation: 4 – 5 kWh/kg H₂
- System Regulation
 - Electrolysis can deliver regulation services
- Renewables Integration
 - Increased off-peak load reduces wind curtailment
 - Dispatchability can support variability mitigation
 - Enables high penetrations of renewables (if more than three weeks of energy storage is required)

Potential Impacts - Gas System



Unique Opportunities - Gas

- Increased Throughput
 - System capacity
 - Fuel Purchases & Reserves
- Possible Custom Pressure and Gas Quality Requirements



Questions