

Technology Assessment - Hawaii Hydrogen Power Park

SAND2008-2207C



- Kahua Ranch
- PGV/VNP
- Bishop Museum

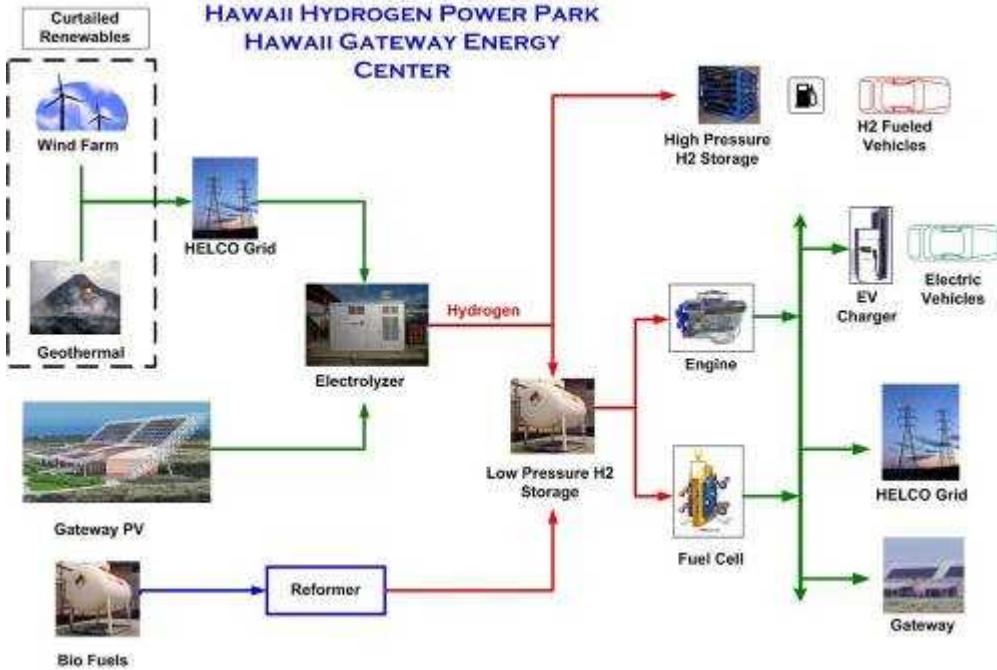
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Hydrogen Power Park Overview



- Test bed for integration and validation of hydrogen generation, storage, and use in a real world environment
- One-to-one cost share by partners including DBEDT, PGV, Hydrogenics, HECO, HELCO, Gas Company
- Education and outreach opportunities

Phase 1 Integrated electrolyzer-storage-fuel cell system operated at HFCTF
Phase 2 Integrated Wind-PV-electrolysis system at Kahua Ranch
Phase 3 Renewable hydrogen fueling infrastructure to provide hydrogen fuel for vehicles at Volcanoes National Park.

Big Island Hydrogen Sites

1. Kahua Ranch –

PV-Wind-Hydrogen Test Bed

10 kW wind turbine + 10 kW PV;

Load-following, pressurized PEM electrolyzer.

5 kW PEM Fuel Cell

2. Hawaii Gateway Energy Center

(HGEC)

Rented lab + 4,000 sf pad area

Micro-grid component testing

Energy storage testing

3. Hawaii Volcanoes National Park

(HAVO)

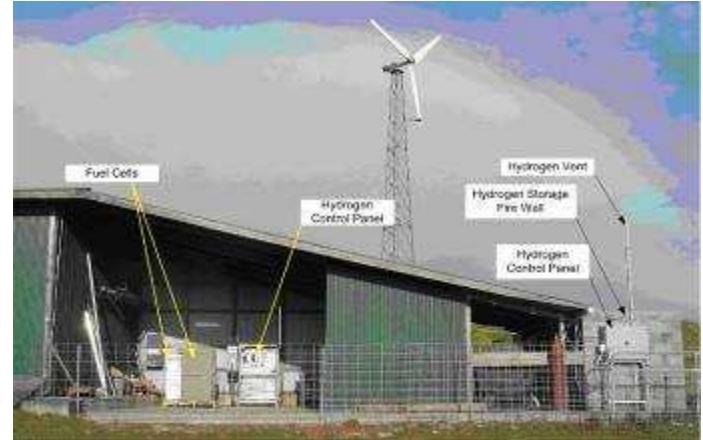
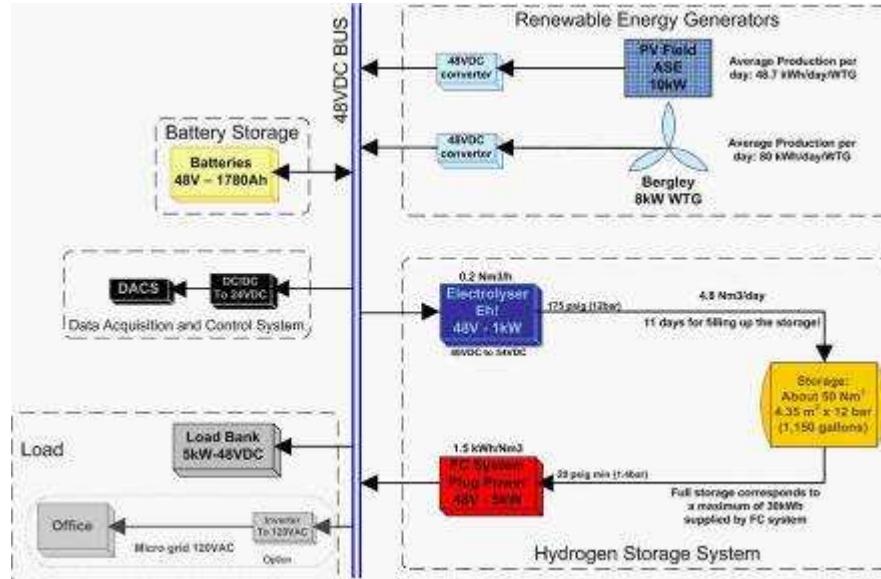
5 hydrogen shuttle buses

Geothermal hydrogen

Hydrogen fueling



Kahua Ranch PV-Wind-Hydrogen System



- Integrates PV, wind, batteries, electrolyzer, and fuel cell with remote operation via internet
- Validates emerging hydrogen and renewable technologies
- Partners include Kahua Ranch, PICHTR, Plug Power, and EH!