Pacific Gas and Electric Company’s Delta Infrastructure

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Overview

Linear Infrastructure

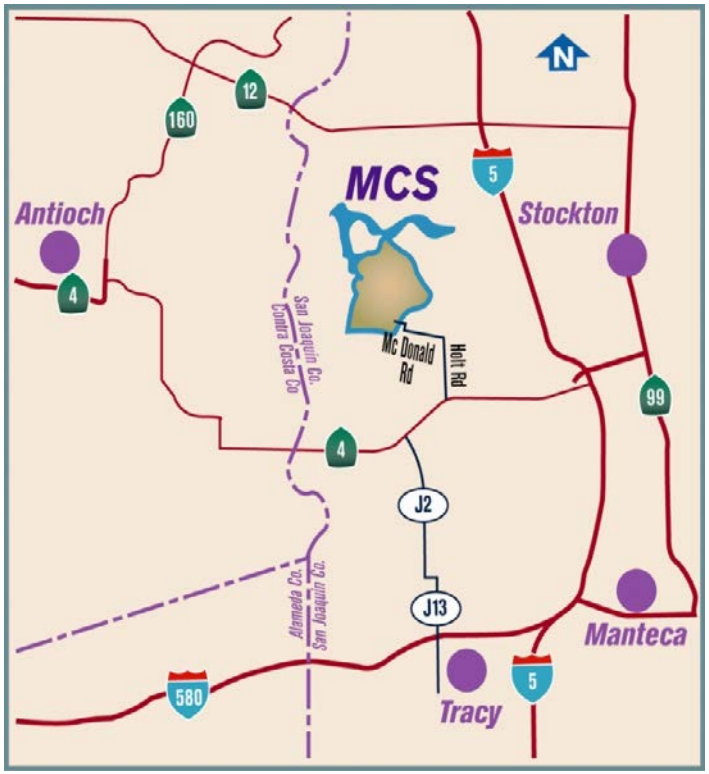
- 600 miles of electric transmission
- 3,500 of electric distribution
- 440 miles of gas transmission

Major PG&E Facilities in the Delta

- McDonald Island Gas Storage Facility
- Gateway Generation Station

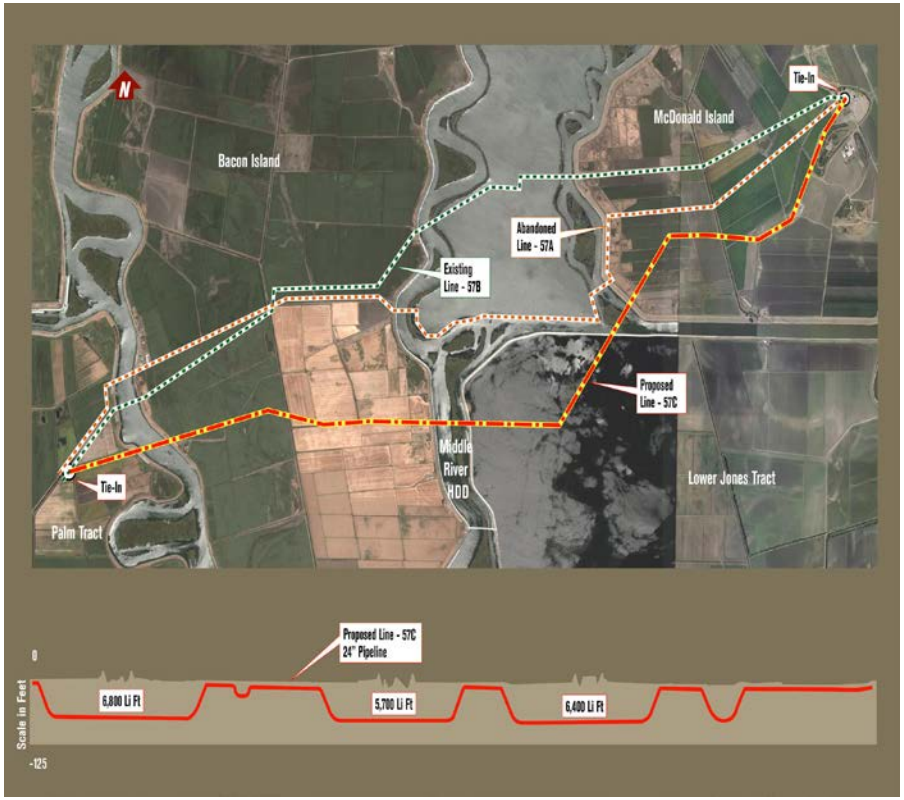
McDonald Island Storage Field

- Natural Gas Reservoir located 10 miles west of Stockton, CA
- Field was discovered in June 1936 & constructed in early 1960s; fully developed in 1970s
- Man-made island surrounded by approximately 16 miles of levees
- Largest of PG&E's three underground storage fields in PG&E's portfolio; a fourth (Gill Ranch) is jointly owned
- Seasonal injection and withdrawal depending on natural gas demand; used for gas hedging, reliability



Site Map

- Typically annual storage cycle is about 43 BCF (max cycle is ~58 BCF)
- McDonald Island is capable of providing 25% of Northern California's winter peak-day gas demand
- Gas enters or leaves facility through 22" pipeline L57B
- Ground level of the field is ~16 feet below sea level, so injection and withdrawal equipment is on 20-ft-high platforms



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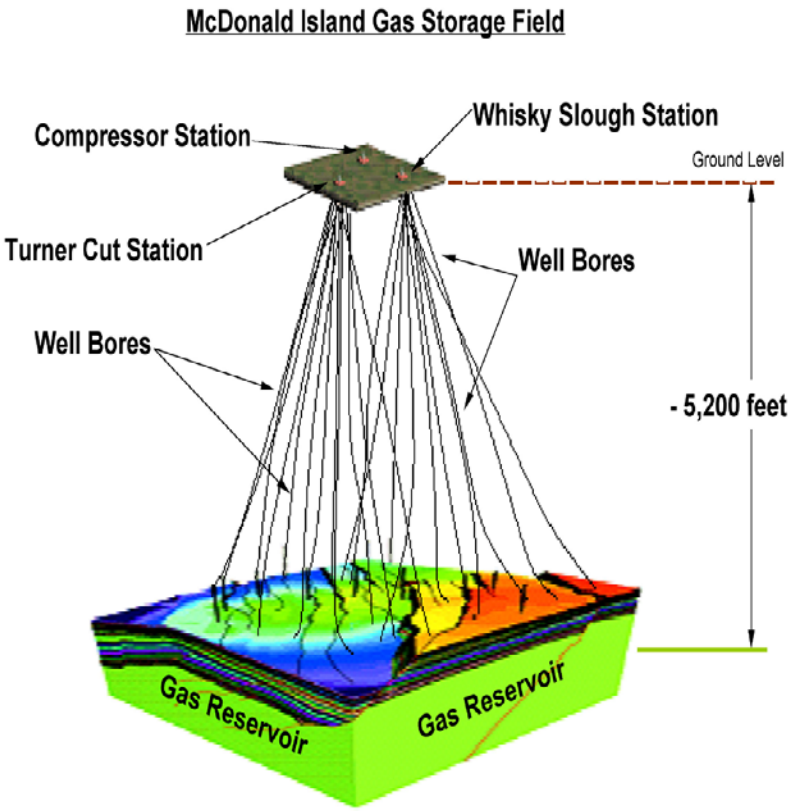
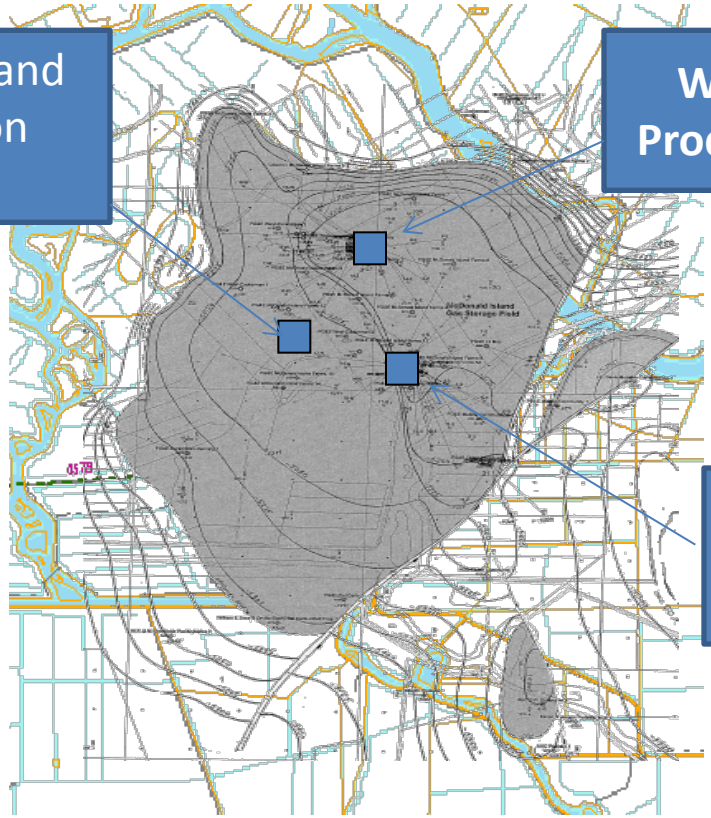
McDonald Island Reservoir Geology

- Average depth of the storage reservoir is 5,250 feet below sea level with an average net sand thickness of 45 feet
- McDonald Island reservoir is at the top of the Mokelumne River formation with Capay shale as its cap rock
- Geologic age of the formation is Late Cretaceous



McDonald Island Facilities and Underlying Reservoir



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McDonald Island
Gas Storage Facilities

McDonald Island Compressor Station

Whisky Slough Production Station

Turner Cut Production Station

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Turner Cut Platform/Whisky Slough Platform

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MDI Leak Detection/Response

- June 16—Identified minor bubbling in a well cellar; notified DOGGR and CPUC and isolated that well
- June 17—Identified bubbling at additional wells; began Noise and Temperature logging to determine source/cause
- June 20—Provided DOGGR initial Integrity Assessment and Gas Tracing Plan; initiated additional tests/detection methods
- June 21-28—Additional wells isolated, bubbling continues
- June 30—DOGGR requested plan by July 5
- July 5—PG&E submitted Monitoring and Integrity Assessment Plan to DOGGR
- July 9—Completed logging on all wells

Integrity Assessment

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Well Isolation

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Gateway Generating Station

Gateway History & Facts

- "CC 8" siting began in 2000 during energy crisis—Mirant was the applicant/owner
- In 2006, the plant was transferred to PG&E from Mirant as part of a settlement from energy-crisis-related litigation
- PG&E changed name to Gateway; amended license to use dry cooling instead of OTC
- Groundbreaking in January 2007
- Commenced commercial operation in January 2009

- 600 Megawatts
- 23 employees
- Powers ~600,000 homes

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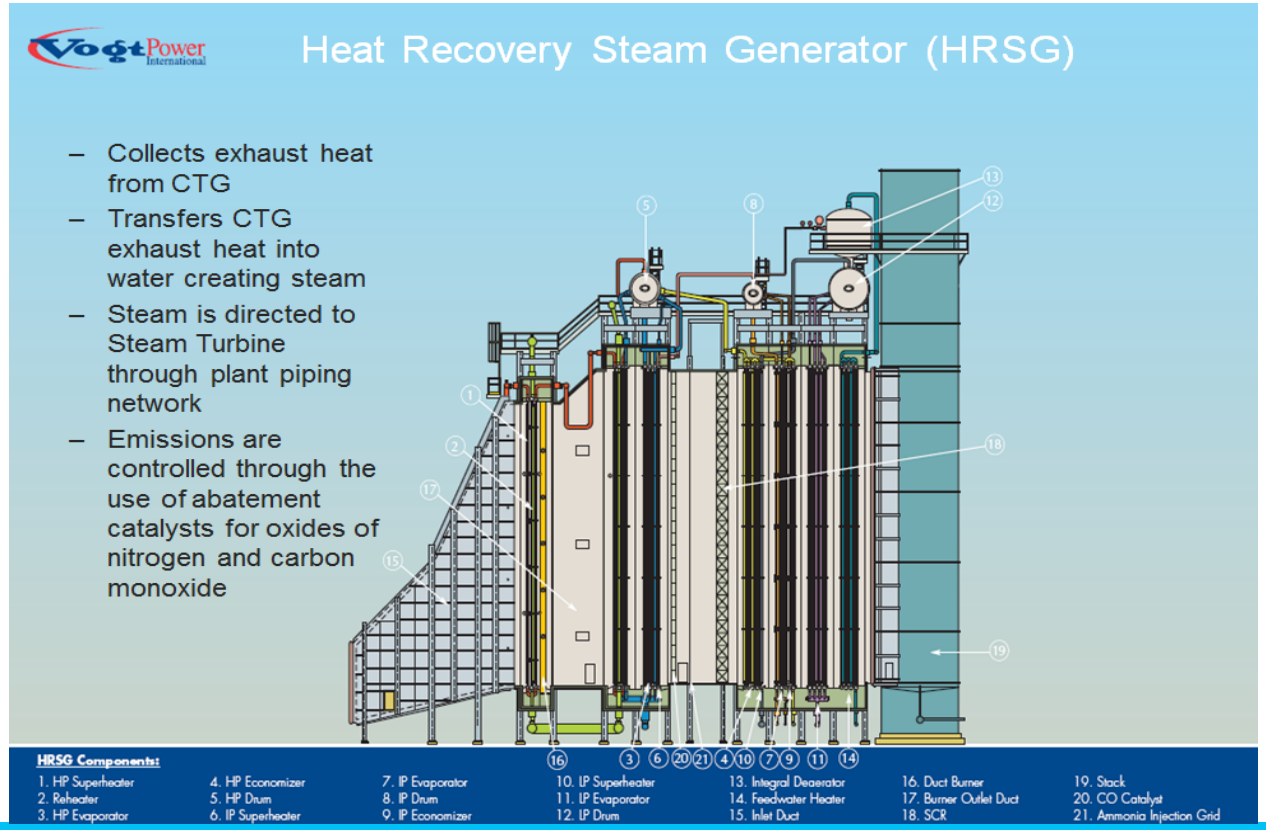
Gateway Generation System Efficiency



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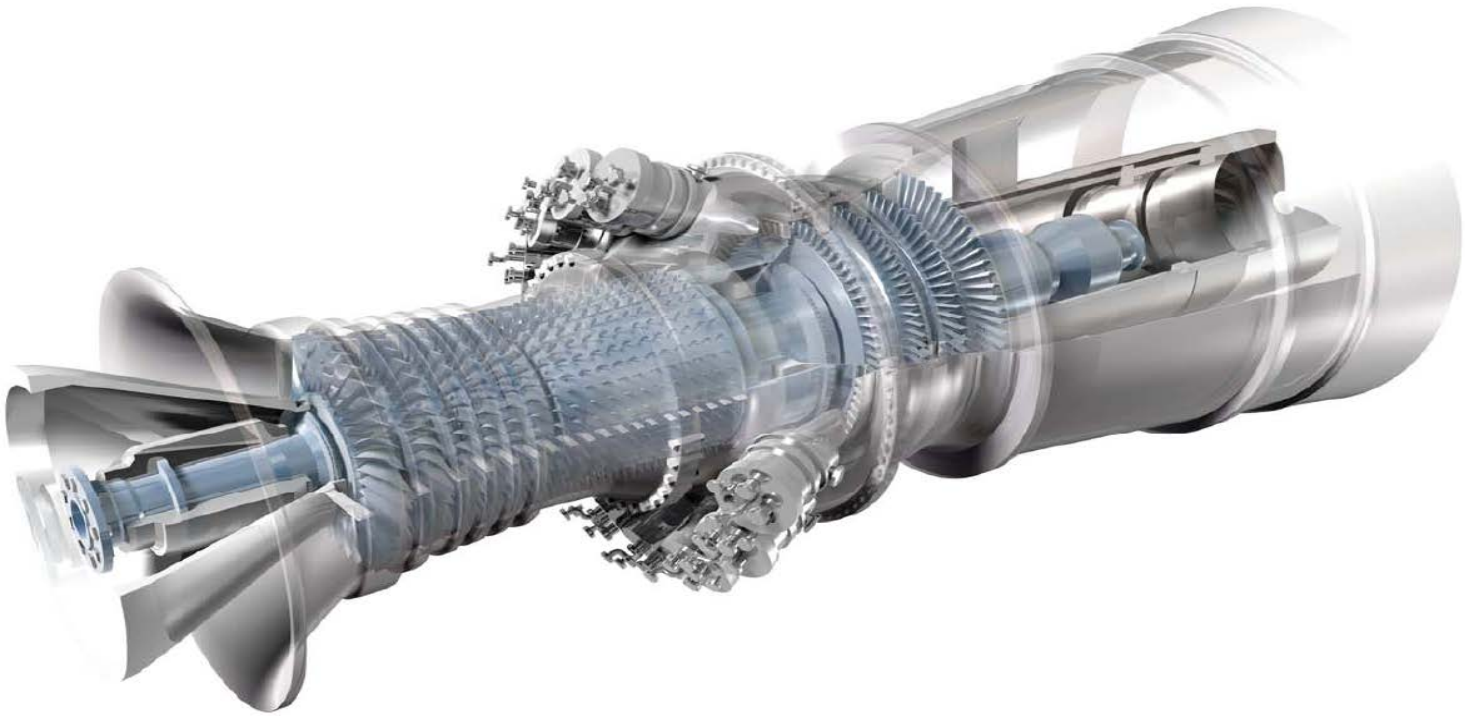
Combustion Turbine Cut-Away View



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Gateway Environmental Features - Emission

- Emissions
  - NOx 2.0 Parts Per Million
  - CO 4.0 Parts Per Million
- Gateway uses Best Available Control Technology (BACT)

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Thank you

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