

*Alameda County Santa Rita Jail*

# FUEL CELL PROJECT



- One-megawatt, molten carbonate fuel cell power plant
- First megawatt-class fuel cell in California
- Associated heat recovery cogeneration equipment used to pre-heat hot water system
- UtilityVision® Control System for measurement and verification of system performance
- Plant generates 8,000,000 kWh of electricity and 1.4 MMBtu of waste heat (50% and 18% of Jail's needs, respectively)
- Saves county taxpayers more than \$260,000 per year
- \$6.4 million total project cost
  - \$1.3 million from State of California
  - \$1 million from the U.S. Department of Defense Climate Change Fuel Cell Program
  - \$4.1 million funded by energy cost savings
- Received California Air Resources Board certification as an ultra-clean distributed generator
- Project developed and constructed by Chevron Energy Solutions
- DFC1500 fuel cell manufactured by FuelCell Energy



FuelCell Energy

*Santa Rita Jail Fuel Cell*

# ENVIRONMENTAL BENEFITS

- Ultra-clean, ultra-low emissions, quiet operation
- Reduces strain on power grid during peak-demand summer months
- Exhaust heat captured by cogeneration equipment used to pre-heat hot water system
- 98.5% reduction in NO<sub>x</sub> emissions compared to standard power plants
- When combined with previous energy efficiency improvements at the Jail:
  - Reduces power purchases by 80% during peak summer months
  - Offsets 3,200 tons of greenhouse gas emissions annually
  - Avoided emissions equivalent to planting approximately 900 acres of trees



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# HOW A FUEL CELL WORKS

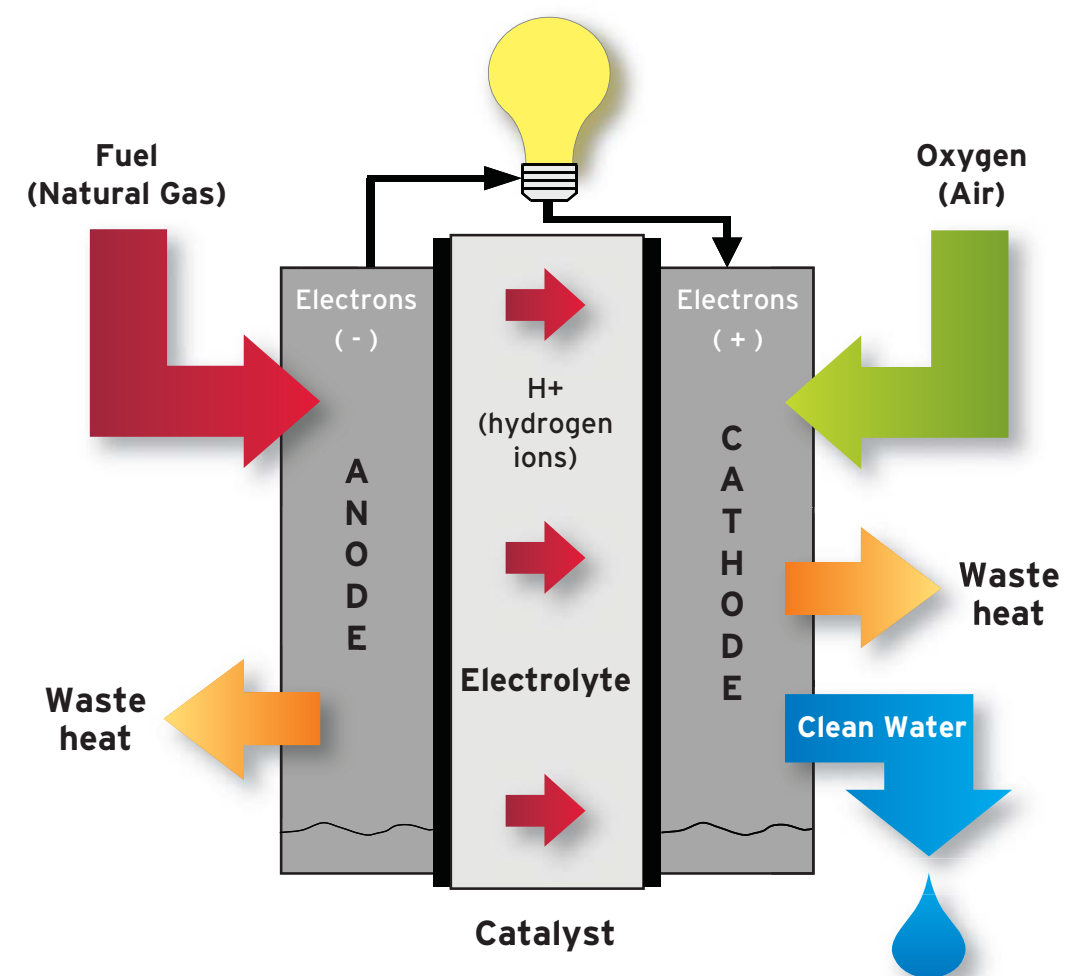


Fuel cells use the chemical energy of hydrogen to generate electricity, without combustion or harmful emissions.

Through an electrochemical process, the fuel cell separates hydrogen into its basic elements and combines it with oxygen from the air to produce electricity, clean water, and usable heat.

The Direct FuelCell<sup>®</sup>, manufactured by FuelCell Energy, uses hydrocarbon fuels directly without the need to first create hydrogen in an external fuel processor.

A fuel cell power plant is virtually pollution-free, operates quietly, and uses less fuel to produce high-quality electricity.



*Fuel Cell Module*



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*Santa Rita Jail  
1-megawatt Fuel Cell Power Plant*



*Alameda County Santa Rita Jail  
Dublin, CA*

