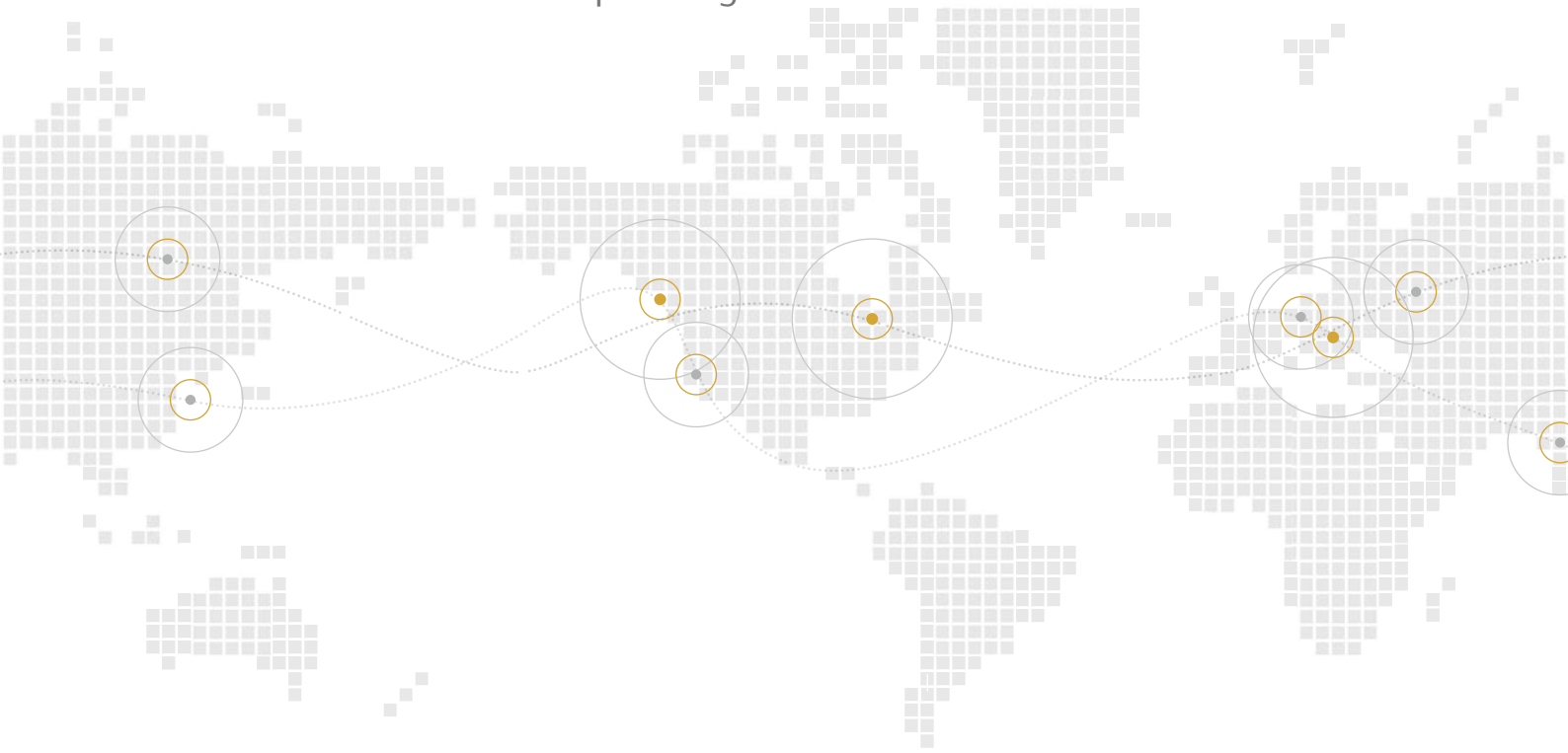
HYDROGENICS
CORPORATION

DELIVERED HySTAT™ HYDROGEN STATIONS

empowering customers **worldwide**



2000 2001 2002 2003 2004 2005 **2006**

Changing power
...Powering change

Chevron Technology Ventures – Oakland Station

2004 2005 **2006**

In March 2006 Chevron Technology Ventures and their project partner, AC Transit, opened a hydrogen fueling station for AC Transit's fleet of fuel cell buses. Hydrogenics provided the hydrogen generation system capable of generating 150 kg of hydrogen fuel per day. The hydrogen generation units are based on steam methane reforming (SMR) technology, a process that converts natural gas to pure hydrogen. The balance of the station modules include compression, storage, and dispensers were also supplied by Hydrogenics. The station supports several Hyundai Fuel Cell Vehicles and three Fuel Cell Buses in regular revenue service as part of AC Transit's bus fleet in the Bay area.

Chevron Technology Ventures – Chino Station

2003 2004 **2005** 2006

Hydrogenics was selected to provide engineering services to design a small scale on-site hydrogen generator in conjunction with Chevron's technical team. The hydrogen generator is based on Chevron's autothermal reformer (ATR) technology and produces up to 12 kg of hydrogen per day. The balance of the station modules; compression, storage, and dispenser, were also provided by Hydrogenics. The station was opened at Hyundai's facilities in Chino, California in February 2005, and is part of the DOE's fuel cell vehicle and fueling infrastructure demonstration program.

2003 2004 **2005** 2006

Toyota and the National Fuel Cell Centre

Hydrogenics provided a small scale HySTAT Refueling system for vehicle fueling in June 2005. The HySTAT Refueler is comprised of a pressurized alkaline electrolyzer, compression system, storage, and dispenser – all in a single packaged unit to enable "fast fills" of fuel cell vehicles.

This HySTAT Refueler was installed at the National Fuel Cell Research Center (NFCRC) located at the University of California, Irvine. The HySTAT Refueler provides clean hydrogen fuel to the Toyota Fuel Cell Hybrid Vehicles (FCHV) managed by the NFCRC.

2003 **2004** 2005 2006

Exhibition Place – Toronto

In cooperation with Exhibition Place and the City of Toronto, Hydrogenics supplied a HySTAT-30 Refueling station, based on Hydrogenics proprietary proton exchange membrane (PEM) electrolyzer technology. The station, which operates in the shadow of a 750 kW wind turbine, demonstrates the potential linkage between renewable energy sources such as wind power and zero emission fuel. The station operates unattended in support of a fleet of four John Deere Gators powered by Hydrogenics fuel cell power modules. The station has been in operation since August 2004.

BP/PRAXAIR - LAX

2003 **2004** 2005 2006

In October 2004, California Governor Schwarzenegger dedicated a retail-designed hydrogen fueling station at the LAX airport in California. Hydrogenics was chosen by Praxair to supply a HySTAT-12 Hydrogen Generator which produces 24 kg of hydrogen per day. BP was responsible for the overall station concept design to demonstrate a retail hydrogen fueling station application. This is one of several Hydrogen Highway projects that Hydrogenics has been involved in. The Hydrogen Highway program aims to ensure that by the end of the decade every Californian has access to hydrogen fuel along the State's major highways, with a significant and increasing percentage of that hydrogen produced from clean, renewable sources such as electrolysis linked to green sources of energy.

DTE Energy

2003 **2004** 2005 2006

October 2004, DTE Energy officially opened a hydrogen fueling station in Southfield, Michigan as part of the Hydrogen Technology Park. The HySTAT Refueling Station provides high-purity hydrogen fuel to vehicles as well as fuel cells that utilize hydrogen to generate electricity. The project is providing critical insight into the role of hydrogen in the world's energy system and illustrates the environmental and energy security benefits derived from using hydrogen as a fuel. The system allows hydrogen to be safely produced, stored and delivered on-site, all using local resources.

2003 **2004** 2005 2006

Cheung Kong Infrastructure

In 2004, along with project partner Cheung Kong Infrastructure Holdings Limited, Hydrogenics installed and commissioned a HySTAT-12 Energy Station for both, vehicle fueling and power generation, at a building in Hong Kong. This HySTAT-12 Energy Station provides the back-up power needs of the building in the event of a grid power disruption, ensuring that the building's safety and other critical systems are operational. The system is designed to supply 240 kW of power for a minimum of 6 hours using hydrogen. The HySTAT Energy Station will also supply clean hydrogen fuel for a bus to be operated in Hong Kong.

2003 **2004** 2005 2006

South Coast Air Quality Management

Advancing the cause for cleaner air, the South Coast Air Quality Management District (SCAQMD) opened a HySTAT-12 Refueling Station at its headquarters in Diamond Bar, California in August 2004. The HySTAT-12 Refueling Station supplies hydrogen fuel to a fleet of hydrogen vehicles and is one of the first hydrogen fueling stations in the state that is accessible to the public. This station is a major cornerstone in California's emerging Hydrogen Highway because of its proximity to one of the state's most heavily traveled transportation corridors. Hydrogenics has also installed a HyPM® Power Module to evaluate and demonstrate power applications by using the stored hydrogen to operate a Genset and provide power to the SCAQMD's building.

CUTE Project – Europe

2002 **2003** 2004 2005 2006

Hydrogenics delivered a complete HySTAT-60 hydrogen fueling system to Fortum AB in the City of Stockholm in late 2003 for the fueling of their fleet of fuel cell buses. The HySTAT-60 generates 120 kg/day of hydrogen fuel that is dispensed to the buses on a daily basis. The Clean Urban Transport Europe (CUTE) fuel cell bus and hydrogen infrastructure project has been operating three fuel cell powered buses in nine cities. This station was one of four HySTAT-60 electrolyzer systems that Hydrogenics provided as part of this prestigious project. The other cities that Hydrogenics supplied HySTAT-60 systems to are Barcelona, Spain; Amsterdam, The Netherlands; and Porto, Portugal. Due to the success of the project several of the cities have decided to extend project beyond the scheduled end date of 2005.

Sydkraft

2002 **2003** 2004 2005 2006

Hydrogenics delivered a HySTAT-36 Refueler for vehicle fueling to Sydkraft in the city of Malmo, Sweden. Sydkraft is a major European utility that also supplies natural gas to the city of Malmo's bus fleet. This HySTAT Refueler is capable of generating 36 Nm^3/h of hydrogen (80 kg of hydrogen per day). In addition to dual pressure dispensing, the dispenser incorporates a hydrogen and natural gas mixing system, which can be set to supply a range of hydrogen-natural gas fuel blends. Sydkraft intends to use the HySTAT Refueler to evaluate the technical, environmental and economic benefits of using hydrogen and natural gas blended fuel.

2002 2003 2004 2005 2006

Toyota Headquarters

Hydrogenics was chosen by Toyota to provide hydrogen infrastructure at its headquarters in Torrance, California. The HySTAT-12 Refueling Station provides hydrogen fuel, using only electricity and water, for Toyota's fuel cell vehicle fleet in support of Toyota's fuel-cell vehile community program. This program is significant because it involves the real-world demonstration of hydrogen fueling infrastructure in conjunction with hydrogen-powered vehicles. Like all HySTAT products, the HySTAT Refueler is versatile enough to add power generation capabilities in the future.

2002 2003 2004 2005 2006

California Fuel Cell Partnership

The California Fuel Cell Partnership chose Hydrogenics to provide the first satellite Hydrogen Refueling Station for vehicle fueling. In cooperation with AC Transit in Richmond, California, this station provides vehicles of the Partnership with high-purity hydrogen fuel dispensed at 3,600 and 5,000 psi. The HySTAT-12 Refueler is capable of generating 25 kg of hydrogen per day, which is sufficient to supply the fueling needs of a small fleet of hydrogen-powered vehicles. Like all HySTAT products, the HySTAT Refueler is versatile enough to add power generation capabilities in the future.

Upcoming Projects

Hydrogenics has been selected by **Chevron Technology Ventures** to provide a HySTAT-20 system for a station to be operated at Southern California Edison's (SCE) headquarters in Rosemead, California. The station will provide fuel for a fleet of Hyundai fuel cell vehicles as part the of the DOE's Fleet and Infrastructure Demonstration Project.

Basin Electric Power Cooperative, in partnership with the DOE and EERC, will operate a HySTAT-30 fueling station as part of a wind hydrogen demonstration and learning project in Minott, North Dakota. Various wind-hydrogen generation scenarios will be evaluated as part of the three year project.

Hydrogenics is part of an international consortium of companies that are delivering an advanced fuel cell bus and zero-emission hydrogen fueling station to **Sao Paulo, Brazil** as part of a **UNDP/GEF** sponsored project. Hydrogenics is working closely with **Petrobras** to supply the 120 kg/day station based on the HySTAT-60 product line. This station will be the first hydrogen fueling station in South America.

A History in Hydrogen

2000 2001 2002 2003 2004 2005 **2006**

- **The City of Chula Vista**, California has been operating a portable HySTAT-36 fueling station since early 2003. This portable hydrogen fueling station enables the City of Chula Vista to test and demonstrate hydrogen powered buses and vehicles.

- From 2002 to 2005 **Ford Motor Company** operated a portable HySTAT-12 fueling station at its hot weather test site at Ford's Arizona Proving Grounds. The HySTAT-12 system supplied fuel in support of Ford's Focus FCV cell and internal combustion hydrogen powered test vehicles.

- **Powertech Labs**, a subsidiary of BC Hydro, has been using its HySTAT Refueler since 2001 to deliver hydrogen to vehicles at pressures up to 700 bar (10,000 psi). They also provide a blend of hydrogen and natural gas to Compressed Natural Gas (CNG) vehicles.

- **Hydrogenics, Coast Mountain Transit, B.C. Hydro, Ballard Power Systems**, and **Natural Resources Canada** undertook one of the first cooperative hydrogen fuel projects in Canada. A HySTAT Refueler fueled three Ballard fuel cell buses in regular revenue service from 1998 to 2000.

- Between 1995 and 1997 Hydrogenics fueled a fleet of hydrogen vehicles at **Xerox**'s site in El Segundo, California, using hydrogen produced from solar power. This was a zero-emission project where the full energy cycle was carbon free and renewable.

- In 1994, Hydrogenics provided the hydrogen fuel and gas mixing system for a refueling station at **STCUM** (Montreal Transit Company), which used a blend of hydrogen and natural gas. The station supported two buses in revenue service and operated at 100% reliability for the duration of the project.

- In 1993, Hydrogenics commissioned the first solar powered hydrogen refueling station at the **University of California Riverside**. The station supported a number of hydrogen powered developmental vehicles.

- Hydrogenics fueled its first prototype hydrogen vehicle in 1980 at the **University of Toronto**, Department of Physics.

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