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***** PRESS RELEASE *****

**MAYOR NEWSOM AND THE PORT OF SAN FRANCISCO
INAUGURATE CRUISE SHIP USING SHORESIDE POWER**

San Francisco is first California city where cruise ships can plug in for clean power

San Francisco, CA— Mayor Gavin Newsom and the Port of San Francisco today joined Princess Cruises and state and federal agency partners to officially inaugurate shoreside power at Pier 27, allowing *Island Princess* to shut down her engines and receive clean power from the City's electrical grid. The Port of San Francisco became the first California port, and one of only a handful of ports in the world, to provide shoreside electrical power for cruise ships while at berth.

"Once again we are demonstrating that doing right by the environment doesn't come at the expense of jobs and economic growth," said Mayor Newsom. "With shoreside power, we can welcome a growing number of cruise ships and the tourist dollars they bring to San Francisco while protecting the Bay and our local air quality."

Shoreside power results in zero air emissions while a ship is connected in port. This new system is not only the first in the state, but just the fourth in the world. The other cruise ports with shoreside power are Juneau (Alaska), Seattle (Washington), and Vancouver (Canada). The ports of Los Angeles and San Diego also plan to implement this system.

Island Princess is operated by Princess Cruises, who developed the shore power technology in Juneau in 2001. It expanded to Seattle in 2005 and Vancouver in 2009. Currently nine of the line's ships are outfitted to plug into a shoreside power source.

"We know that local air quality is an important issue in the Bay Area, so we're pleased to join with the port to debut this important environmental initiative," said Dean Brown, Princess Cruises executive vice president. "Our commitment to shore power technology has been nearly a 10-year effort, and we're very pleased we can now 'plug in' our ships in San Francisco."

The quest for shoreside power in San Francisco began in 2005, when the Port's Cruise Terminal Environmental Advisory Committee recommended this technology for any future cruise terminal development.

"The Port explored a number of funding options for shoreside power," explained Port Executive Director Monique Moyer, "and found initial success with the Bay Area Air Quality Management District's Carl Moyer Program, and later with the Environmental Protection Agency and San Francisco's Public Utilities Commission. We couldn't have done this without them."



“The zero-emission, greenhouse gas free shoreside power is generated by the gravity-based Hetch Hetchy Water System,” said SFPUC General Manager Ed Harrington. “This is the same clean energy that each day powers our San Francisco municipal facilities, buses, and streetlights.”

The EPA, through the West Coast Collaborative, helped fund the electrification of the Port of San Francisco’s Pier 27, by awarding \$1 million to the Port to build the infrastructure to electrify the cruise ships that berth at the Pier – a technology known as “cold ironing” or shorepower permits refrigeration, cooling, heating, lighting, emergency equipment, and other electrical equipment to receive continuous electrical power (with design capacity of at least 16 megawatts for berthed cruise ships) while the ships load or unload its passengers or cargo.

“There are 9,000 premature deaths in California every year from air pollution. This innovative green technology is an exciting step forward in the fight against climate change and will take aim at serious health problems facing Bay Area residents,” said Jared Blumenfeld, U.S. EPA’s Administrator for the Pacific Southwest region. “The significant diesel emission reductions from this electric shorepower connection will result in fewer incidences of asthma, cardiopulmonary diseases, lost school and work days, and premature deaths directly linked to diesel pollution.”

Princess Cruises

One of the best-known names in cruising, Princess Cruises is a global cruise and tour company operating a fleet of 17 modern ships renowned for their innovative design and wide array of choices in dining, entertainment and amenities, all provided in an environment of exceptional customer service. A recognized leader in worldwide cruising, Princess offers its passengers the opportunity to escape to the top destinations around the globe, ranging in length from seven to 107 days. The company is part of Carnival Corporation & plc (NYSE/LSE:CCL; NYSE:CUK).

Bay Area Air Quality Management District

The Bay Area Air Quality Management District is the public agency entrusted with regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties.

United States Environmental Protection Agency

The mission of EPA is to protect human health and to safeguard the natural environment – air, water and land. EPA’s Region 9 office works to protect public health and the environment in the southwestern United States (Arizona, California, Nevada, and Hawaii). EPA Region 9 also works with 147 federally recognized tribes in the Pacific Southwest.

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Shoreside Power Fact Sheet

Benefits of Shoreside Power

Cruise ships require large amounts of electricity to power their onboard systems, such as lighting, heating, air conditioning, and kitchen facilities. While at sea and typically while at the pier, the ships generate their own electricity by running one or more large diesel generators. A ship that has been retrofitted to use shoreside power can connect to the city's electrical grid and shutdown its diesel generators, and thereby eliminate diesel emissions.

The Port estimates that the reductions in emissions for a 10-hour ship call are approximately:

- 140 pounds of diesel particulate material (PM)
- 1.3 tons of nitrogen oxides (NO_x)
- 0.87 tons of sulfur oxides (SO_x)
- 19.7 tons of carbon dioxide (CO₂)

About the Port's Shoreside Power system

The Port's shoreside power system consists of a complicated system of transformers, power control gear, redundant safety systems, and a computerized control system. The two jib cranes on the edge of Pier 27, which support the cables that connect the shore energy supply to the ship, are the most visible part of the system. There are two cranes to allow for the fact that some ships have their connection point on the starboard (right) side, and some have it on the port (left) side; only one crane would be used at a time.

In addition to power cables, there is a control cable that connects the system to the ship. The control cable allows the ship's computer to communicate with the shoreside power system's computer. During the connection process, the two computers work together to synchronize the electricity as to frequency and voltage prior to gradually transferring the electrical load from ship to shore. The timing in this process needs to be within milliseconds, so computerized control is mandatory.

The Port's shoreside power system was designed to accommodate today's fleet of vessels, which use between 6 and 12 megawatts (MW) of power, as well as larger ships potentially deployed in the future (up to 20 MW). For comparison, the typical electricity usage of the entire City of San Francisco is generally in the range of 900 to 1,000 MW.

The system at Pier 27 was designed and built by Cochran, Inc., an electrical engineering contractor based in Seattle. Cochran installed cruise ship shore power systems in Seattle and Vancouver and is working similar projects at number of other ports as well.

Funding for the System

The budget for the project is \$5.2 million. The Port partnered with other agencies to fully fund the project as follows:

- \$1.9 million – Bay Area Air Quality Management District (Carl Moyer Program)
- \$1.3 million – San Francisco Public Utilities Commission (capital funds)
- \$1.0 million – US Environmental Protection Agency (Diesel Emission Reduction Act Program) - DERA is set to expire in 2011, unless it is reauthorized by Congress.
- \$1.0 million – Port of San Francisco (capital funds)

In addition, the San Francisco Public Utilities Commission budgeted \$500,000 for "upstream" improvements to its electrical infrastructure. Pacific Gas and Electric (PG&E) also upgraded some of its infrastructure in order to accommodate the system.