

## Shoreside Power and Charleston Cruise Ships – The Facts

### What is Shoreside Power?

Shoreside Power (also called “Cold Ironing” or “Alternative Marine Power/AMP”) allows a ship to plug in to a permanent power supply while docked. This allows the ship to shut off auxiliary engines instead of burning diesel fuel to power equipment while in port.

### Where could Charleston use Shoreside Power?

The SC State Ports Authority has proposed a new \$35 million cruise terminal in downtown Charleston as a home base for the Carnival *Fantasy*. The *Fantasy* makes over two months of home base day visits to Charleston per year. Shore power could significantly reduce the diesel pollution produced by the *Fantasy* while it sits idling by nearby neighborhoods.

### What are the benefits of Shoreside Power?

#### ▪ **HEALTH**

Idling cruise ships produce large amounts of air pollution, including nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM), and carbon monoxide (CO). These pollutants contribute to health problems such as asthma, cancer, heart attacks, heart disease, chronic bronchitis, and premature death. Because thousands of people are aboard, cruise ships burn far more diesel than cargo ships while docked, and plugging in a Charleston-based cruise ship would have a large impact. Health concerns have prompted shore power installations at cruise terminals across the globe, including the Red Hook terminal in Brooklyn, New York – used by Carnival Cruise Lines.

#### ▪ **ENVIRONMENT**

Diesel soot from idling cruise ships causes smog and other damage to the environment. A recent study found cruise ships have an impact on black carbon concentrations that are warming even remote areas of the Arctic and other environmentally-sensitive locations.<sup>1</sup>

A detailed analysis conducted for Charleston’s cruise operation concluded that shorepower would significantly reduce harmful air pollution here, even as cruise ships switch to “less dirty” fuel as required by law.<sup>2</sup> Plugging in to the SCE&G grid would:

- Lower harmful nitrogen oxide (NO<sub>x</sub>) emissions by 97%
- Lower carbon monoxide (CO) emissions by 92%
- Lower fine particulate soot (PM<sub>2.5</sub>) emissions by 34%
- Lower PM<sub>10</sub> emissions by 19%
- Lower CO<sub>2</sub> emissions by 26%

#### ▪ **ECONOMIC FEASIBILITY**

Ports across the nation have concluded that shorepower is a feasible, best-practice investment for their ports. Shoreside power has been installed in Juneau, San Diego, San Francisco, LA/Long Beach, Seattle, and Brooklyn. Carnival Corporation has invested in the technology at most of these ports. SPA estimated that installing shoreside power at a proposed new cruise terminal – located next to residential neighborhoods – would cost \$5 million, or a 14% increment to the terminal’s

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<sup>1</sup> Eckhardt, S., Hermansen, O., Grythe, H., Fiebig, M., Stebel, K., Cassiani, M., Baecklund, A., and Stohl, A.: The influence of cruise ship emissions on air pollution in Svalbard – a harbinger of a more polluted Arctic?, *Atmos. Chem. Phys. Discuss.*, 13, 3071-3093, doi:10.5194/acpd-13-3071-2013, 2013.

<sup>2</sup> Corbett, J. and Comer, B.: Clearing the Air: Would Shoreside Power Reduce Air Pollution Emissions from Cruise Ships calling on the Port of Charleston, SC?, 9 September 2013. <http://coastalconservationleague.org/wp-content/uploads/2010/01/EERA-Charleston-Shoreside-Power-Report-.pdf>

\$35 million price tag.

▪ **SHOREPOWER IS GROWING**

Shoreside power is being adopted in ports across the globe. In addition to the US ports listed above, shorepower is used for cruise in Vancouver (British Columbia) and planned for Halifax (Nova Scotia) and Kai Tak (Hong Kong). Ports in Rotterdam (Netherlands), Gothenburg (Sweden), Luebeck (Germany), Kemi (Finland), Oulu (Finland), Zeebrugge (Belgium), Antwerp (Belgium), and Waigaoqiao (Shanghai) use shorepower for container ships. For decades, shorepower has been used by the US Navy to save fuel and reduce wear on ships.

▪ **FEASIBLE IN CHARLESTON**

SPA's own documents show that shoreside power is feasible at its proposed new cruise terminal. Yet while SPA has completed engineering drawings for shorepower using SCE&G service, SPA has so far decided not to pursue it, citing new fuel requirements that its own client, Carnival, is fighting. SPA and Carnival could bring Charleston into the ranks of competing ports by installing shoreside power here.

**Myths and the Truth About Shoreside Power**

- **Myth:** Shoreside power will just shift the pollution from the cruise ship's smokestack to a power plant.

**Truth:** An in-depth study of shorepower at the Charleston cruise terminal conducted in 2013 assessed the air pollution impacts of shifting cruise ships from diesel to SCE&G's system.<sup>3</sup> That study concluded that due to the air pollution controls on SCE&G's system – and the use of nuclear power – use of shore power would dramatically and significantly reduce air pollution attributable to cruise ships. Among other things, shore power would reduce carbon monoxide by 97%, nitrogen oxides by nearly 99%, harmful small particulate soot by 58-71%, sulfur dioxide by 30% and global warming gas emissions by 32%.

These reductions are magnified by the reality that SCE&G's power generation occurs over a much larger and less densely populated area than downtown Charleston, where tourists, families and workers are densely situated.

- **Myth:** New "less dirty" fuel standards will clean emissions as much as shorepower.

**Truth:** The significant reductions in harmful air pollution cited above are a comparison assuming the new, "less-dirty" fuel. Plus, cruise lines are lobbying to weaken the new fuel standards, making a local solution even more important.

- **Myth:** Carnival is retrofitting ships with scrubbers that make shorepower unnecessary.

**Truth:** Carnival is experimentally retrofitting certain ships with scrubbers, but the EPA anticipates that these measures will have no impact on nitrogen oxides and are uncertain if there would be any reductions in harmful particulate soot or global warming gas emissions.<sup>4</sup> Right now, the Carnival *Fantasy* is not on the list of ships to receive the experimental filters, and it continues to pollute in Charleston today. Available evidence indicates that shorepower would reduce more pollution than filters or fuel switching.

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<sup>3</sup> Corbett, J. and Comer, B.: Clearing the Air: Would Shoreside Power Reduce Air Pollution Emissions from Cruise Ships calling on the Port of Charleston, SC?, 9 September 2013. <http://coastalconservationleague.org/wp-content/uploads/2010/01/EERA-Charleston-Shoreside-Power-Report-.pdf>

<sup>4</sup> Samulski, M., phone call, 10 January 2014.

