Lowering Ship Emissions

AAPA Cruise Seminar, Miami, February 11, 2009

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Deputy Director, Maritime Alliance of the Ports of Canada, the Caribbean, Latin America and the United States
Shoreside Power: the West Coast Experience
An Industry Initiative

Princess Developed . . .

- In Juneau — 2001
- Seattle — 2005
- Vancouver — 2009
- San Francisco — 2010
- San Diego — 2010
- Long Beach — 2011(?)
- Los Angeles — 2010
What is the compliance schedule?

<table>
<thead>
<tr>
<th>Date</th>
<th>Reduced Onboard Power Generation Option</th>
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<tbody>
<tr>
<td>Jan. 1, 2010</td>
<td>Shore-power equipped ships must use shore power if available at berth</td>
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<tr>
<td>Jan. 1, 2014</td>
<td>50% of all cruise ship calls on shore-power</td>
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<tr>
<td>Jan. 1, 2017</td>
<td>70% of all cruise ship calls on shore-power</td>
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<tr>
<td>Jan. 1, 2020</td>
<td>80% of all cruise ship calls on shore-power</td>
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OR – equivalent emissions reduction by other means
Public Benefits of a Shoreside Project

Emission Reductions per Ship Call
(based on 77,441 GRT / 856’ LOA as typical)

- 1.3 tons of nitrogen oxides (NOx)
- 0.87 tons of sulfur oxides (SOx)
- 19.7 tons of CO₂
- 140 lbs of PM
COMING TO A PORT NEAR YOU . . . . .

When Is Shore Power Sustainable?

- Abundant Low Emitting Sources of Electricity
- Hydro; Natural Gas; Nuclear
- Available Distribution Infrastructure
- Frequent & Regular Cruise Ship Calls
San Francisco’s Pier 27

Shoreside Power Project Plan

PIER 27/29

Existing vault

Existing switches, breakers, transformer

Existing conduit & cable

New conduit & cable

New transformers

Connect Pt. 1

Connect Pt. 2

BERTH 27

P27 Shed

Sanes Francisco's Pier 27 Shoreside Power Project Plan

The Embarcadero
INITIAL TEST PHASE
Success

Monique Moyer
Executive Director
Port of San Francisco

Dean Brown
E.V.P. Corporate Services
Princess Cruises

Hon. Gavin Newsom
Mayor, City & County of San Francisco
Thank You