Totem Ocean Trailer Express
Niche Ro/Ro Liner Service

- Speed - 10 hour port turnaround
- Flexibility - all equipment types
- Vehicles
Dedicated Service

- Dedicated service between Washington and Alaska
- Highway and rail connections throughout greater Alaska and Lower 48/Canada
Vessel Profiles

Original TOTE Ponce Class Ship

Orca Class Ship
## Vessel Comparison

<table>
<thead>
<tr>
<th></th>
<th>Orca</th>
<th>Ponce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>839 feet</td>
<td>790 feet</td>
</tr>
<tr>
<td>Beam</td>
<td>118 feet</td>
<td>105 feet</td>
</tr>
<tr>
<td>Speed</td>
<td>24 knots</td>
<td>24 knots</td>
</tr>
<tr>
<td>Propulsion</td>
<td>Diesel Electric</td>
<td>Steam Turbine</td>
</tr>
<tr>
<td>Cargo</td>
<td>550 trailers + 300 autos</td>
<td>385 trailers + 110 autos</td>
</tr>
<tr>
<td>Internal Ramps</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>
Orca Class Inboard Profile
### TOTE Cargo Mix Flexibility

<table>
<thead>
<tr>
<th></th>
<th>Stretch Flatbed</th>
<th>Reefers</th>
<th>Dry Cargo</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 foot</td>
<td>53 foot</td>
<td>53 foot</td>
<td>48 foot</td>
</tr>
<tr>
<td>48 foot</td>
<td>48 foot</td>
<td>48 foot</td>
<td>45 foot</td>
</tr>
<tr>
<td>45 foot</td>
<td>45 foot</td>
<td>45 foot</td>
<td>40 foot</td>
</tr>
<tr>
<td>40 foot</td>
<td>40 foot</td>
<td>40 foot</td>
<td>30 foot Pups</td>
</tr>
</tbody>
</table>
Increased Control and Flexibility
Streamlined Operations

- Combined terminal and vessel operations
- Ship staffed by SSA, long-time partner
- Vessel maintenance done in-house
- Ship sails with Alaska pilot onboard
- Bridge electronic technician on staff
- No pre-stowing of cargo
Alaska Railbelt Freight

67% Liner Vessel

26% Barge

7% Overland
Alaska Transportation Challenges

- 1,450 nautical miles one way (Tacoma-Anchorage)

- Seas to 60 feet

- Wind gusts to 100 knots
Port of Anchorage
Ice Choked Harbor

Cook Inlet
- Ice choked 6 to 7 months per year
- 36 foot tidal range
High Tide
Expansion Plans

- Extend Port 400 feet
- Diversify and expand business
- 10 years behind and $700 million over budget
Port of Tacoma’s Top Trading Partners
(based on value of 2011 two-way trade, in U.S. dollars)

1. China/Hong Kong $14.9 billion
2. Japan $10.6 billion
3. South Korea $3.3 billion
4. Alaska $3 billion
5. Taiwan- $2.5 billion
Gateway to Alaska

- Trade with AK is about 1/3 of the Port of Tacoma’s container business
- Port of Anchorage estimates that 90% of all goods used by Alaskans west of Cordova comes through Port of Tacoma
- 35% of all goods consumed in Alaska are shipped aboard TOTE vessels
96% On Time Since 2003
Protecting Alaskan Waters
2012 Puget Sound Champion - Puget Sound Partnership
2012 Port of Tacoma - Environmental Stewardship Award
2010 Port of Tacoma Community Vitality Partner Award
2010 Environmental Excellence Awards – Midnight Sun, North Star, Westward Venture & Great Land - Chamber of Shipping of America
2009 Best Award – Citizens for a Healthy Bay
2009, 2008 Environmental Excellence Awards for 3 vessels
2008 WA State Recycling Association Recycler of the Year
2007 14001:2004 Certification Completed
2007 Tahoma Environmental Award
2005 WA State Governor’s Award for Pollution Prevention and Sustainable Practices
TOTE RAIN GARDENS

These rain gardens are designed to filter out pollutants from the terminal and buildings that would otherwise flow into Commencement Bay. They are the first industrial rain gardens in the South Sound, and will treat over a quarter million gallons of stormwater each year. Filtering out heavy metals helps us meet our NPDES permit requirements and protect wild salmon. Several partners and sponsors made this project possible, including more than 75 volunteers who helped plant 800 plants in April of 2011.

What is a Rain Garden?

A rain garden is a shallow depression planted with a variety of flowers, shrubs and grasses that “don’t mind getting their feet wet.” Rain gardens help soak up polluted runoff from rooftops and paved surfaces while protecting our local waterways. When planted with the right types of plants, rain gardens also attract birds, butterflies and bees.

Benefits

- Reduce flooding
- Filter oil, grease, and toxic materials
- Recharge the aquifer
- Provide beneficial wildlife habitat

1. Stormwater collects pollutants from the roof and paved surfaces

2. Rain garden absorbs and filters runoff through amended soil layers and deep native plant roots

The Alternative

Without a rain garden, this polluted stormwater would drain untreated into Commencement Bay

3. Rain gardens help our fish and other wildlife enjoy cleaner water
LNG
The Future of Domestic Shipping
Benefits of LNG

Low Cost Energy
- LNG costs 41% less than IFO-380

Stable Pricing
- Large fixed capital costs
- Low feed-stock costs
- Domestic sourcing reduces volatility from geopolitical impacts

Clean
- Sulfur Oxide (SOx) emissions are 95% lower than ECA limits
- Reduces SOx, Particulate Matter (PM) and Nitrous Oxide (NOx) by almost 100%

Safe
- Zero fatalities over the 40-year life of the industry
Project Overview

- First conversion in the world of vessels of this type
- Six MAN engines will be converted to dual fuel diesel – LNG propulsion
- 5 year estimated timeline
- Estimated $80+ million budget
Phased Project

35-40% of work will be conducted underway, limiting the out of service time to regular dry docking schedule

- Structural components built during regulatory dry docking in Q1 2014
- Use of regularly scheduled single-sailing weeks
- LNG available for in-port use in Q2/3 2014
EPA & USCG Partnership

- Aug. 2012 - limited waiver from North American ECA during conversion to LNG
- First permit issued under Annex VI, Reg. 3
- Required completion Sept. 2016
Shoreside Capacity

- Project helps establish long-term supplies of LNG for use by other sectors of the transportation industry in the Puget Sound
Breaking Barriers

• Environmental benefits will extend throughout the region
• Break through supply barriers that have constrained the growth of LNG in the transportation industries
Commitment to Community

1% of gross revenues donated back to communities
Thank you

Questions?

Phil Morrell

pmorrell@totemocean.com

www.totemocean.com
LNG & the Future of the U.S. Domestic Maritime Industry

Phil Morrell
Vice President, Marine & Terminal Operations
LNG Conversion of Two Orca Class Vessels in Alaska Trade

Two new 3100 TEU LNG-Powered containerships for the Puerto Rico Trade
The North American Emission Control Area – Challenge and Opportunity
Possible Solutions

• **Do nothing:** Cost of 1% compliant IFO 380 is 30-40% higher with further increases expected in 2015

• **Install exhaust gas cleaning system:** Scrubbers use existing fuel with added costs

• **Convert to Natural Gas:** Meet all current and future emissions requirements, cleanest of all options
Clean & Safe Fuel

• Conversion to natural gas will reduce ship emissions 95% below even the most world's most stringent air quality standards that are outlined in the North American Emissions Control Areas

• LNG will virtually eliminate Sulfur Dioxide (SOx), Particulate Matter (PM), Carbon Dioxide (CO2) and Nitrous Oxide (NO2) and far exceeds any other fuel source for environmental safety
Orca Conversion

- Built for Alaska Trade
- 33,000 MMBTU of LNG needed per week, per ship
- Dual fuel capable
- Bunker in Tacoma or Anchorage
- Minimal out of service time during conversion
New LNG Ships

- Puerto Rico service
- 3100 TEU
- First LNG container ships in the world
- Dual fuel capable
- Bunker in Jacksonville or San Juan
- First delivery in late 2015
Jones Act Playing a Significant Role in U.S. Maritime Innovation

Advantages

• Dedicated trade lanes
• Long-term capital investments
• Consistent weekly bunkering requirements
Now is the Time

• Clear window of opportunity to develop LNG supply infrastructure for maritime industry
• For vessels spending a third of their time or more in the ECA, LNG is a viable alternative
• We predict a boom in the construction of dual fuel, LNG powered vessels