Alternative Maritime Power at the Port of Los Angeles
AMP Agenda

- Container Vessel On Board Electrical Power Systems
- Shore to Ship Power Transfer Methods
- Cost Comparison
Container Ship Particulars
On-Board Electrical Systems

- Approx. 10% of current vessels are 6.6 k.v.
- Balance are 440V vessels. 440V Vessels require a 6.6/440 transformer.
- Vessel power demand widely variable 1 – 10 MW (Average 4MW)
Container Ship Particulars
On-Board Electrical Systems

Power Demand Examples

- 2 Megawatt at 6.6 k.v. = 1 cables
- 2 Megawatt at 440 V = 9 cables
Container Ship Particulars
Shore to Ship Power Transfer

- Barge Based Power Transfer System
- Transformer/Cable Container Power Transfer System
- Ship Based Cable & Power Transfer System
Shore to Ship Power
Barge Power Transfer
Shore to Ship Power
Container Ship Equipment
Shore to Ship Power
Barge Power Transfer
Shore to Ship Power

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Shore to Ship Power
Transformer Container Power Transfer System
Shore to Ship Power
Transformer Container Power Transfer System

(*) Ventilating system
  Setting temperature: 85° • Adjustable: •
  Source: • A6100V • 60Hz
Shore to Ship Power
Transformer Container Power Transfer System

Cable reel control box: Cable (185 mm²)
High voltage shore connection panel
Transformer: 480V
Connection panel
Low voltage cable

AMP Mobile Container
- 6600V Line
- 480V Line
- Connector
- CAVOTEC/TERASAKI
  Supply portion
Remote Control Device

Engine Room:
- Low voltage SWBD
- Extinguishing ASH
- Adding the new ACB to the surge generator panel space.

TERASAKI ELECTRIC CO., LTD.
Shore to Ship Power
Ship Based Power Transfer System
MV NYK Atlas first Arrival
Shore to Ship Power
Ship Based Power Transfer System
Shore to Ship Power
Ship Based Power Transfer System
Shore to Ship Power
Ship Based Power Transfer System
AMP Container Ship
Outfitting Cost

- China Shipping (440 volt): $320,000
- NYK (6.6 kV): $830,000
- APL (440 volt): $1,800,000
Thank You.