AAPA 2015 Marine Terminal Management Training Program
Sustainable Port Development and Operations
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Make Money by Saving the Planet

Use Energy Responsibly
Imagine
Dreaming of a perfect world
Today’s Ports
Balancing environmental challenges with economic demands
Big Ships 24,000 TEU ● Congestion to cost $7B shipping delays in 2015
US ports to spend $46 billion in port improvements by 2017 ●
84% goods moved by trucks ● $101B annual cost of road congestion in US ●
$900B goods transported to and from US annually by container ships

Since 2005 ● ZERO emissions goal ● originated by POLB and POLA
SOx 90% DOWN ● NOx 56% DOWN ● DPM 82% DOWN ●
2015 new MARPOL rules: sulphur content less than 0.10% but no set sanctions ●
Ports of Los Angeles & Shanghai launched EcoPartnership in 2014

Energy efficiency account for 60-75% energy productivity increase since 1970 ●
Saved 20M+ MWh in 2012 (power to 2M homes) ● 10% energy improvements in commercial & industrial buildings = $40B savings & 49M vehicles off the road ●
CA Shore Power compliance up to 80% in 2020 ● POLB Energy Policy of 2013

For every $1B spent on projects $75M is wasted due to ineffective communications and $109M due to poor project performance ● $57T global infrastructure investment needed through 2030, including $0.7T seaports, $4.5T rail, $12.2T power ●
Ships to keep on board a Ship Energy Efficiency Management Plan (SEEMP)

Sources: ACEEE, AAPA, CARB, DOE, DOT, EIA, EPA, IEA, IMO, Kurt Salmon, OECD, McKinsey, PMI, POLB, POLA, WSJ.
Energy Focus
Seeking alternative energy sources to meet growing demands
Energy Efficiency Alone is Not Enough
Planning strategically for energy sustainability
Energy Security
Mitigating risks and ensuring resiliency
Energy Goals and Priorities

- Improve Resiliency
- Reduce Demand
- Assure Supply
- Promote Energy Conscious Culture
Aiming for Uninterrupted Energy Flow

**Energy Resources**
- Power Generation
- Energy Conversion
- Transmission & Distribution
- Renewable and Clean Energy
- Reduced Reliance on Petroleum
- Cogeneration
- Microgrids
- Combined Heat and Power

**Energy Efficiency**
- Renewables
- Human Behavior
- Energy Conservation
- Reduced Energy Waste
- Load Shifting

**Supply**
- Fuel Switching

**Demand**
- Advanced Metering
- Demand Response
- Peak Management
- Distributed Generation

Energy, Water, and Environmental Sustainability
Inspiration
What prompted me to start this business

Photo: Julia Caesar
Energy Drivers

AVAILABILITY
- Ensuring critical service continuity during disruptions—natural and reliability issues (equipment failure)—and resume

EFFICIENCY
- Access to sources of energy necessary for current and future power demands

SUSTAINABILITY
- Control and reduce of energy use and demand; maximize operational productivity and cost-effectiveness

RELIABILITY
- Consistent and high-quality delivery of energy that meets forecasted peaks in demand

SECURITY
- Safe installations, supply systems, equipment, and use that meet standards and regulations

RESILIENCY
- Four factors of sustainable development:
  - environment
  - economics
  - politics
  - culture

SAFETY
- Reliable, uninterruptible, accessible, available, affordable, equitable supply, sufficient to meet operational needs
A world where businesses and policymakers understand the profitability and value that comes from responsible energy, water, and environmental sustainability planning.
Roadmap to Strategic Energy Planning

1. Corporate Policy
2. Sustainability Plan
3. Existing Conditions & Energy Infrastructure
4. Future Demand & Capacity
5. Market Assessment & Trends
6. Improvements
7. Reporting
8. Training
9. Collaboration
10. Resources
11. Goals

Roadmap:
- INNOVATION & TECHNOLOGY
- MARKET ASSESSMENT & TRENDS
- IMPROVEMENTS
- REPORTING
- COLLABORATION
- RESOURCES
- GOALS

3COTECH
Profitable Sustainability
Keep It Moving

“Plans are useless, but planning is indispensable.”

Dwight D. Eisenhower
Thank you

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