

Association of Energy Engineers

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Photo: Dmitry Sytnik

Energy Efficiency Alone Is Not Enough

Use Energy
Responsibly

3COTECH
Profitable Sustainability

34th West Coast Energy Management Congress

The Next Generation of Energy Management

Agenda

- Energy Efficiency is Crucial
- Energy Efficiency Alone is Not Enough
- Energy Gap
- San Pedro Ports Case Study: *Energy Island*
- Energy Strategy

Energy Focus

Energy efficiency is extremely important

“U.S. economic output expanded more than three times since 1970 while demand for energy grew only 50%.”
ACEEE Laitner et al. “Long-Term Energy Efficiency Potential”

“if energy productivity had remained constant since 1970 [when about 68 quadrillion Btu (Q or quad) were consumed], the U.S. would have consumed 207.3 quadrillion Btu in 2007, when it actually only consumed 101.6 quads.” - Rocky Mountain Institute

Energy efficiency
alone is not enough.

*Energy efficiency saves money but
employing energy efficiency alone is like
cutting your monthly budget without
adding to your paycheck.*

Energy GAP

Seeking alternative energy sources to meet growing demands and handling power shortages



Photo: cherezoff

Closing the Gap

- Energy efficiency and conservation measures
- Increase in energy productivity
- Behaviors
- Technological advances
- Investments
- Clean energy generation

Aiming for Uninterrupted Energy Flow

SUPPLY

Fuel Switching

Power Generation SMART GRID

Energy Resources

Energy Conversion Transmission & Distribution

RENEWABLE AND CLEAN ENERGY

Reduced Reliance on Petroleum

Cogeneration Microgrids

Combined Heat and Power



DEMAND

Advanced Metering

Demand Response

Peak Management

DISTRIBUTED GENERATION

Energy Efficiency

Renewables Human Behavior

ENERGY CONSERVATION

Reduce Energy Waste

Load Shifting

Energy, Water, and Environmental Sustainability



San Pedro Bay Ports

Balancing environmental challenges
with economic demands

Photo: Kat Janowicz

ENERGY ISLAND

The Port of Long Beach



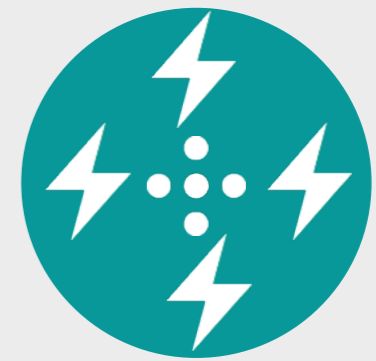
Controllable Load



Energy Storage



Backup Power



Micro-Grid



Renewables



Fuel Cells

POLB Environmental Achievements

- TAP – Technology Advancement Program
- ETAP – Energy Technology Advancement Program
- CAAP- Clean Air Action Plan
- AMECS – Advanced Maritime Emissions Control System

Sulfur
Oxides
SOx

Diesel
Particulate
Matter
DPM

Nitrogen
Oxides
NOx

Greenhouse
Gases

21%

50%

85%

97%

0.3%

TEUs

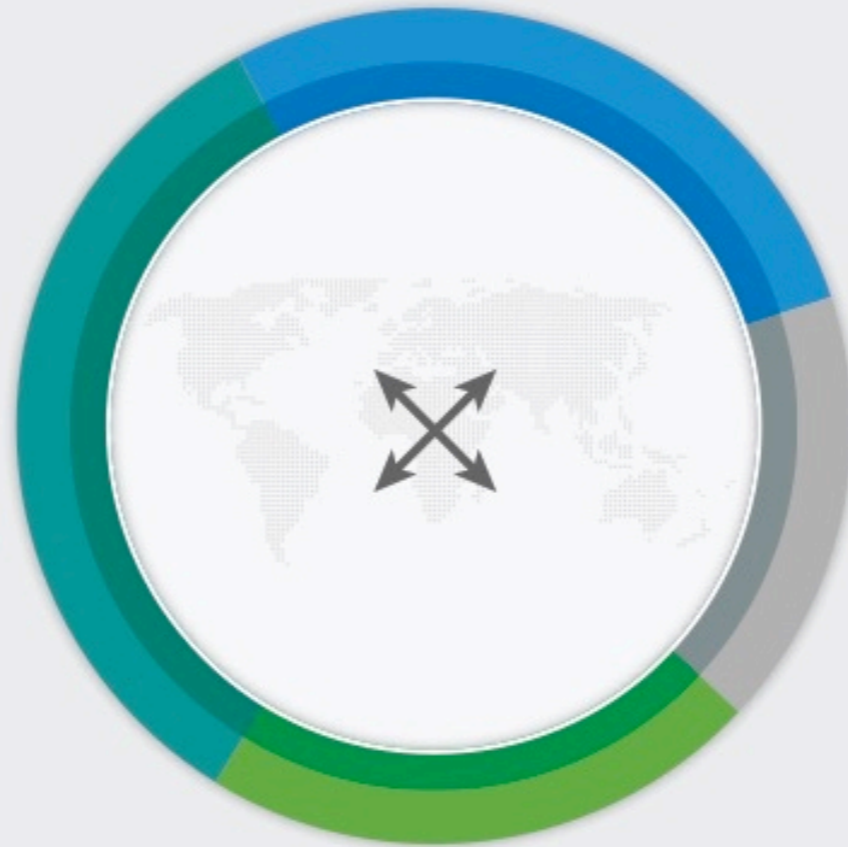


Energy Security

Mitigating risks and ensuring resiliency

ENERGY STRATEGY

Energy Goals and Priorities



**IMPROVE
RESILIENCY**



**REDUCE
DEMAND**



**ASSURE
SUPPLY**



**PROMOTE
ENERGY
CONSCIOUS
CULTURE**

Energy Drivers

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

AVAILABILITY

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

SUSTAINABILITY

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

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

EFFICIENCY

Four factors of sustainable development:

- environment
- economics
- politics
- culture

RELIABILITY

Reliable, uninterrupted, accessible, available, affordable, equitable supply, sufficient to meet operational needs

SAFETY

Roadmap to Strategic Energy Planning



Energy Sustainability

- Sustainable energy
- Doing more with less
- Doing the project right
- Doing the right project

Key Takeaways

- Energy efficiency is extremely important
- Energy efficiency alone is not enough
- Demand / Supply energy gap
- Take action today
- Identify your gap by assessing existing energy infrastructure and future demand
- Tackle the gap from both, demand and supply side

Thank you

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