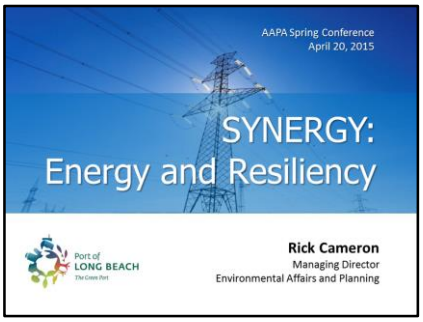

AAPA Spring Conference
April 20, 2015
SYNERGY:
Energy and Resiliency
Port of
LONG BEACH
The Green Port
Rick Cameron
Managing Director
Environmental Affairs and Planning

We just celebrated the 10 year anniversary of the Green Port Policy this year. Environmental stewardship is now part of our DNA. It drives our thinking about infrastructure development and protection of our community and the local and global environment

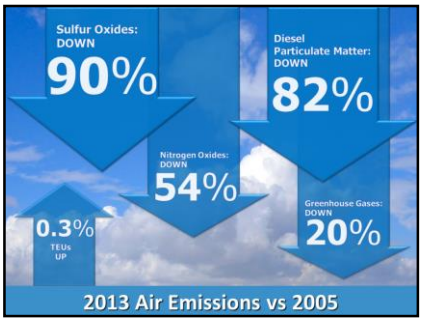
One of the first initiatives to come out of the Green Port Policy, was the San Pedro Bay Ports Clean Air Action Plan.

The focus of the plan was to reduce health risk and criteria air pollutants associated with port operations while allowing Port development to continue.

This was adopted by our Board and POLA in 2006 and updated in 2010.

The Plan laid out strategies to reduce emissions from trucks, vessels, terminal equipment, locomotives and harbor craft. And since it was adopted, we have been working closely with the industry to aggressively implement the strategies.

The California Air Resources Board mandates that at least 50 percent of a fleet's container cargo vessels plug in, going up to 80% by 2020.



The menu of **current** emission reduction efforts has helped us <u>exceed</u> our 2023 Clean Air Action Plan Goals.

<u>Goals (2005 baseline)</u>	<u>2014</u>	<u>2023</u>	
Sulfur Oxides		93%	93%
Nitrogen Oxides	22%	50%	
Diesel Particulates	72%	77%	

Our newest terminal that utilizes state-of-the-art automation and electric equipment, the $1.3B Middle Harbor Project, will increase overall Port container capacity by 10 percent, while continuing to reduce air pollution with the terminal's near zero-emissions operations.

By summer, we will reach a major milestone with the completion of the first phase.

Port tenant Long Beach Container Terminal and its parent company Orient Overseas Container Line will be able to begin operations early next year.

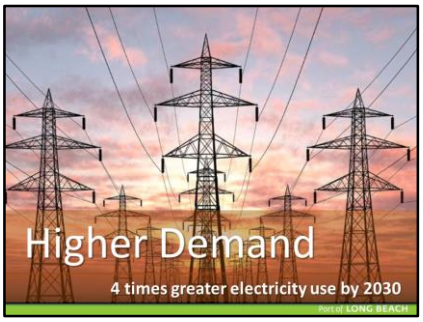
These gains allow us to envision a future with zero- and near-zero emission technologies, such as:

Electrification of all terminals, as leases come up for renewal

Shore power or AMECS emission controls for all vessels

Increasing on-dock rail with near-zero locomotives

Overhead catenary systems for drayage trucks


Higher Demand
4 times greater electricity use by 2030
Port of LONG BEACH

In 2013, we implemented our Port Energy Policy.

Just as our 2005 Green Port Policy made it clear that environmental protection is a top priority here at the Port, so our new Energy Policy makes it clear that sustainable energy use is a top priority. We are committed to with our customers and key stakeholders to deliver unprecedented energy conservation, operational efficiency and enterprise resiliency.

Successful, sustainable operations that meet the challenges of our industry – and our community – will require clean, reliable energy.

As we move toward our goal of a zero-emissions port, we are becoming increasingly reliant on electrical power.

At the same time, the grid is aging and there is increasing concern that a regional outage could cripple Port operations and our Long Beach community.

We call the comprehensive program that will help us achieve clean and reliable power the “Energy Island initiative.”

“Energy Island” refers to a self-generation system that uses renewable and other clean energy, along with load controlling and energy storage strategies.

Energy Island Goals

- Advance green power
- Use distributed self-generation with microgrid connectivity
- Provide alternative clean fuels
- Improve energy/operational efficiencies
- Attract business, create jobs

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Energy Island Outcomes

- Promotes resource conservation
- Generates clean and renewable power
- Provides cost stability/predictability
- Fosters innovative technologies
- Ensures high-quality, reliable energy supply

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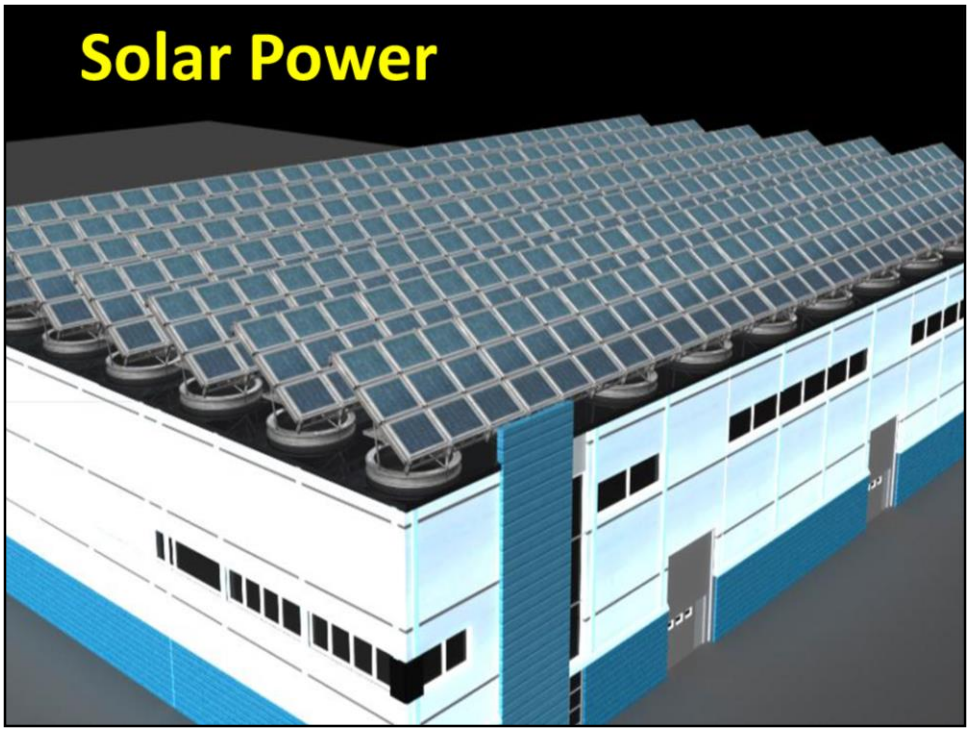
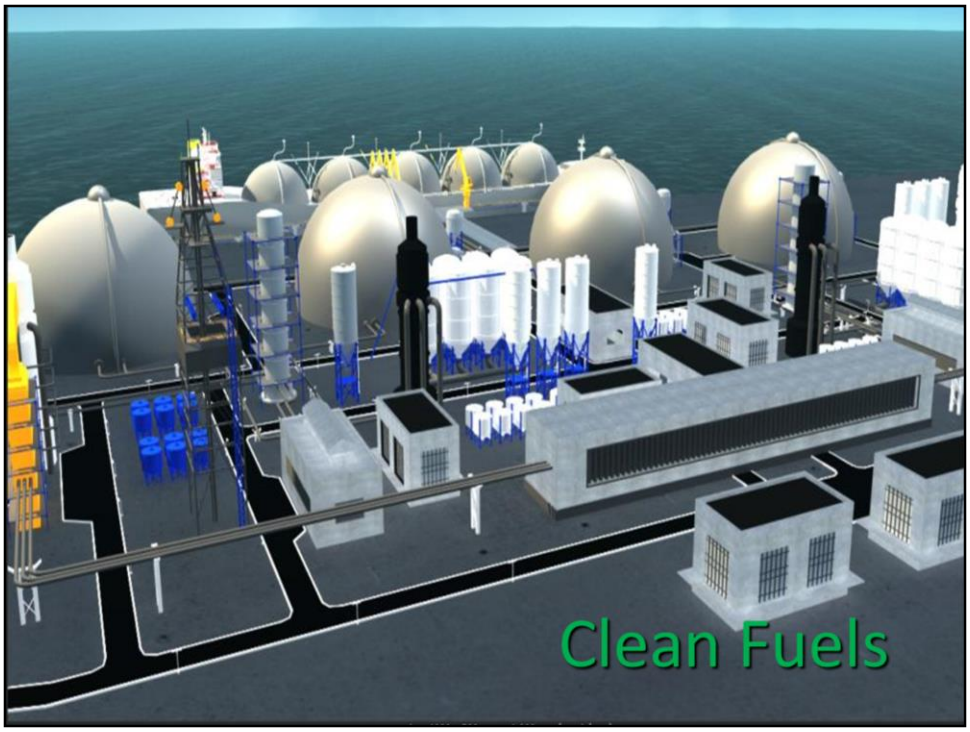
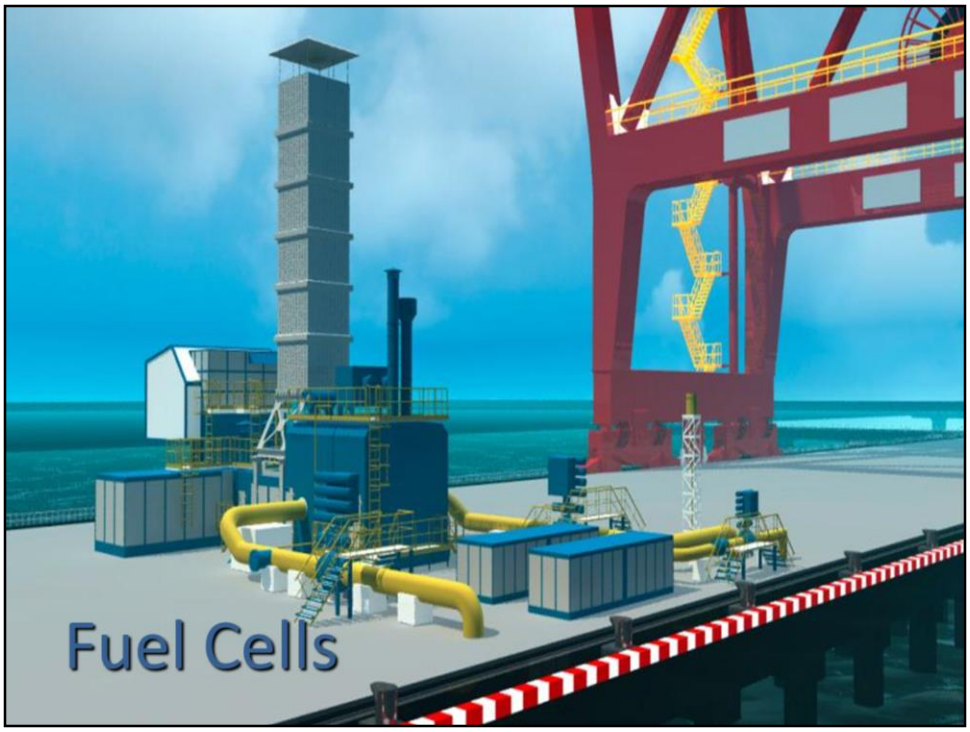
These are some of the strategies we'll employ to ensure cost-effective and resilient energy options for our tenants.

The following slides show a couple ways we can get there.


Solar Power


Clean Fuels



We might test fuel cells first using a Power Purchase agreement to ensure that someone else is operating and maintaining the equipment.

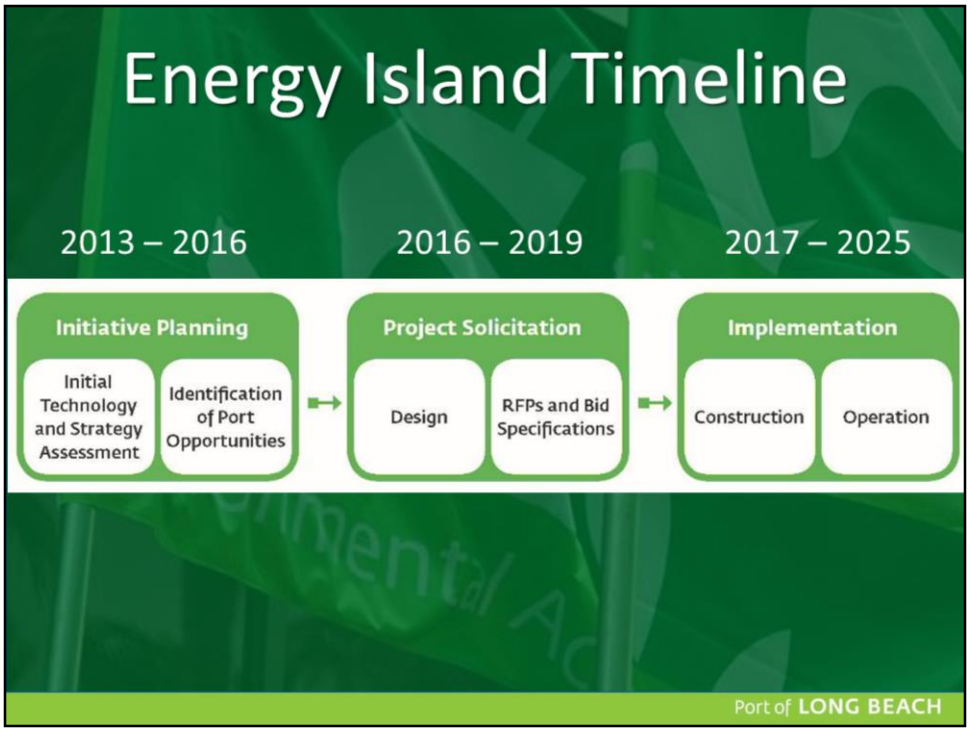
In addition, we are considering projects like:

Using existing heavy equipment batteries to shave peak demand. (Middle Harbor Battery Exchange)

Partnering with our City's waste-to-energy plant to purchase the power

Providing incentives for tenant adoption of energy-saving technologies

Demonstrating a biogas digester facility to alleviate the City's green waste surplus



First phase is planning and technology review

Soon we'll begin new pilot projects and feasibility studies for larger-scale projects

Then we'll commence large-scale construction

We estimate that it'll take about 10 years to complete this vision


Thank you
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