



Roadmap to Zero Emissions:

Gaining efficiencies and reducing pollution
through clean technology



Port of
LONG BEACH
The Green Port

Renee Moilanen

Manager of Air Quality Practices

October 27, 2015



Premier gateway for U.S-Asia trade

Port of Long Beach

Economic Engine & Environmental Leader



Clean Air Action Plan

One of nation's first comprehensive plans to tackle port-related pollution

Diesel
Particulate
Matter:
DOWN

85%

Nitrogen Oxides:
DOWN

50%

Sulfur
Oxides:
DOWN

97%

Greenhouse Gases:
DOWN

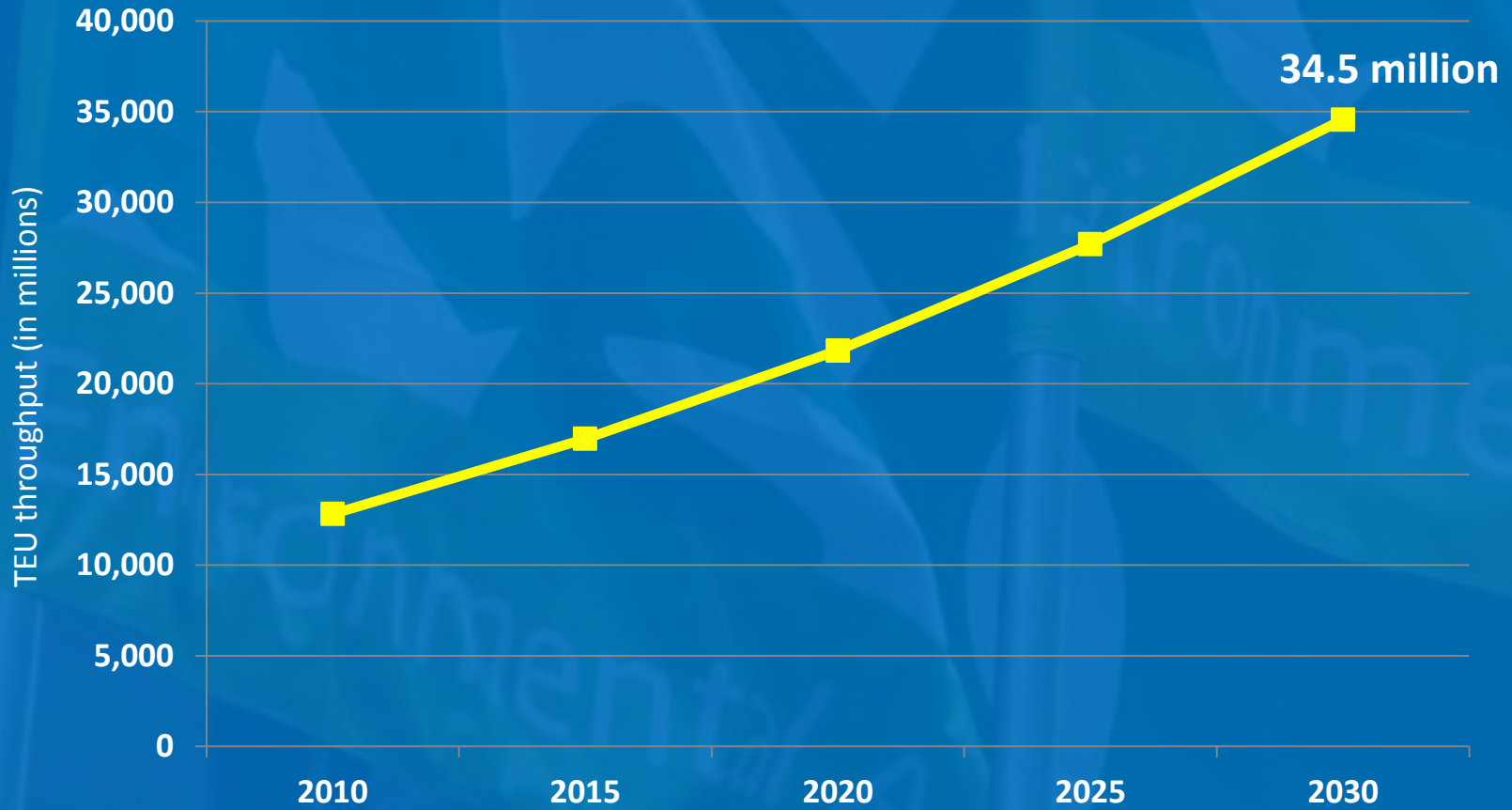
21%

2%

TEUs
UP

2014 Air Emissions Inventory

San Pedro Bay Cargo Forecast 2010-2030





Strategies for the Greenest Port Zero Emissions Roadmap

Provides framework for becoming emissions free

Finding the right fit





Real-World Demonstrations

Technology Advancement

Accelerate verification and commercial availability

Port of LONG BEACH



World's Most Advanced Technologies

Middle Harbor

Automated Terminal Operations



Cargo Handling Equipment

Electrified Operations

Automated Guided Vehicles (AGVs)

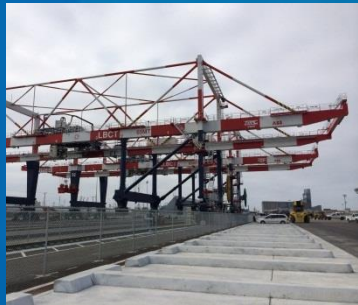
Automated operations

Efficiency Gains



1 AGV

1.5 UTRs



1 IYC

3 RTGs



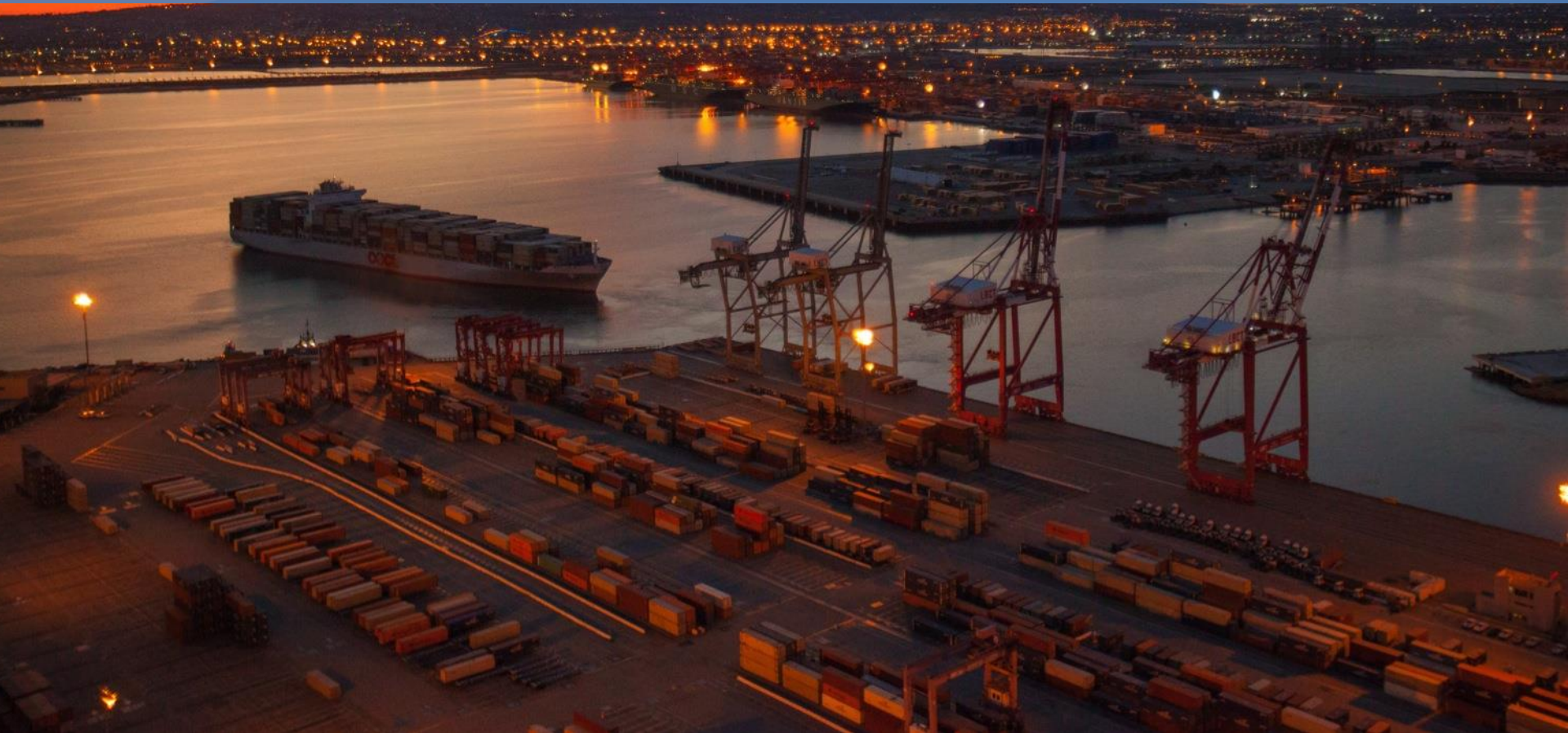
1 ASC

2 CHEs



Challenges

Emerging technologies under tough operating conditions with limited infrastructure and funding



Strengths

Increasing dollars and interest plus strong partnerships



Leading the way Cleaner Future



www.cleanairactionplan.org

Port of LONG BEACH