BIOFUELS FOR THE MARITIME INDUSTRY

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BIOECONOMY 2017
PORT OF LONG BEACH
Global trade hub and regional economic engine

#2 Busiest U.S. container port

$180 BILLION Worth of trade shipped annually

300 THOUSAND Jobs created in Southern California
2015 AIR EMISSIONS INVENTORY

- Diesel Particulate Matter: Down 84%
- Nitrogen Oxides: Down 48%
- Sulfur Oxides: Down 97%
- Greenhouse Gases: Down 14%

*Compared to 2005 Levels

Port of LONG BEACH
PORT NO\textsubscript{X} EMISSIONS BY SOURCE - 2015

- **Ships**: 58%
- **Trucks**: 17%
- **Rail**: 9%
- **Harbor Craft**: 9%

Port of LONG BEACH
Reduced Emissions

30% NO\textsubscript{x} reduction from ships & harbor craft
PROJECTED SP-BAY HARBOR CRAFT NOx EMISSIONS (tpd)
Challenges

User Acceptance, Availability, Cost, Regulatory Drivers
Technology Advancement

Port program funds emerging technologies
ON TRACK FOR TOMORROW!

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