

# EPA's Shore Power Technology Assessment – 2022 Update & Emission Calculator

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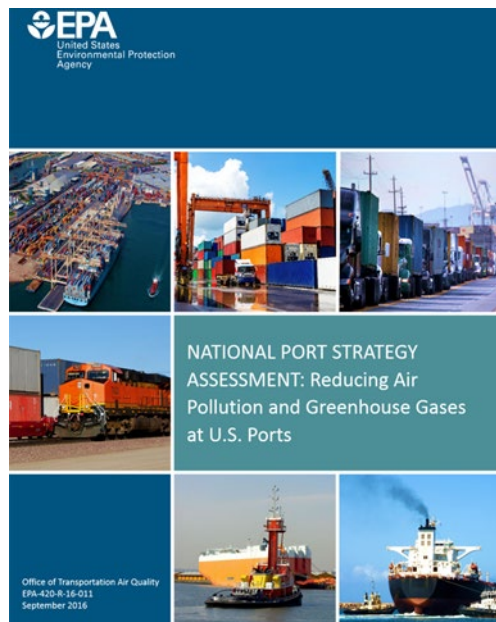
## Shore Power Technology Assessment at U.S. Ports



**2022  
Update**

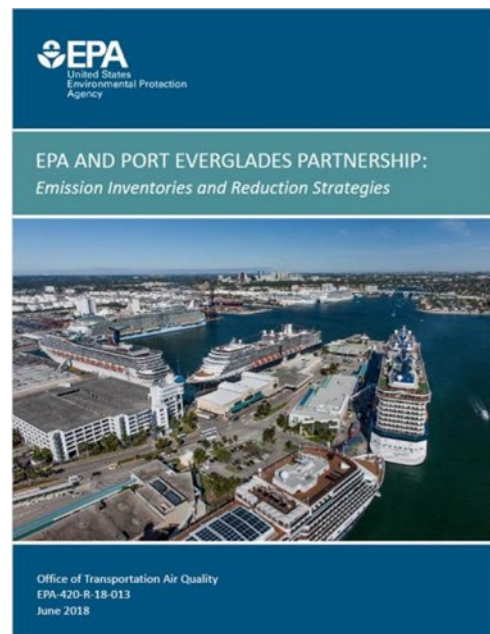


# Providing tools to help identify smart infrastructure investments



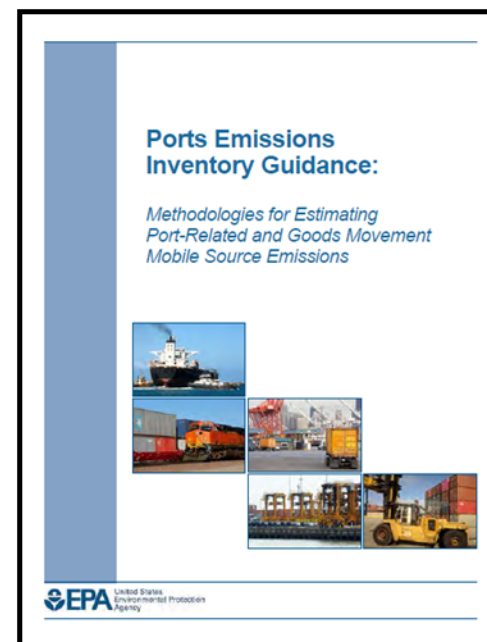
***National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports***  
September 2016

[www.epa.gov/ports-initiative/national-port-strategy-assessment-reducing-air-pollution-and-greenhouse-gases-us](https://www.epa.gov/ports-initiative/national-port-strategy-assessment-reducing-air-pollution-and-greenhouse-gases-us)



***EPA, Port Everglades Report Shines Light on New Methods for Analyzing Potential Air Pollution Reductions***  
June 2018

[www.epa.gov/ports-initiative/epa-and-port-everglades-partnership-emission-inventories-and-reduction-strategies](https://www.epa.gov/ports-initiative/epa-and-port-everglades-partnership-emission-inventories-and-reduction-strategies)



***Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions,***  
April 2022

<https://www.epa.gov/ports-initiative/port-and-goods-movement-emission-inventories>



***Shorepower report characterizes the technical and operational aspects of shore power systems,*** December 2022

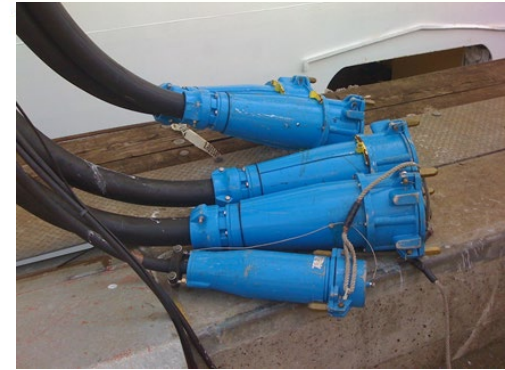
<https://www.epa.gov/ports-initiative/shore-power-technology-assessment-us-ports>

# Shore Power Assessment Report- 2022 Update



Technical  
Resources

This report updates our previously published 2017 report consulting with stakeholders the updates include:



- Information on new shore power systems in the U.S. since 2017.
- Updates to the California Air Resources Board (CARB) regulations, including new shore power requirements that expands participation.
- Updated information on vessel readiness and real-world costs.
- Lessons learned from CARB and port operators in Los Angeles, Hueneme, Seattle, New York & New Jersey.

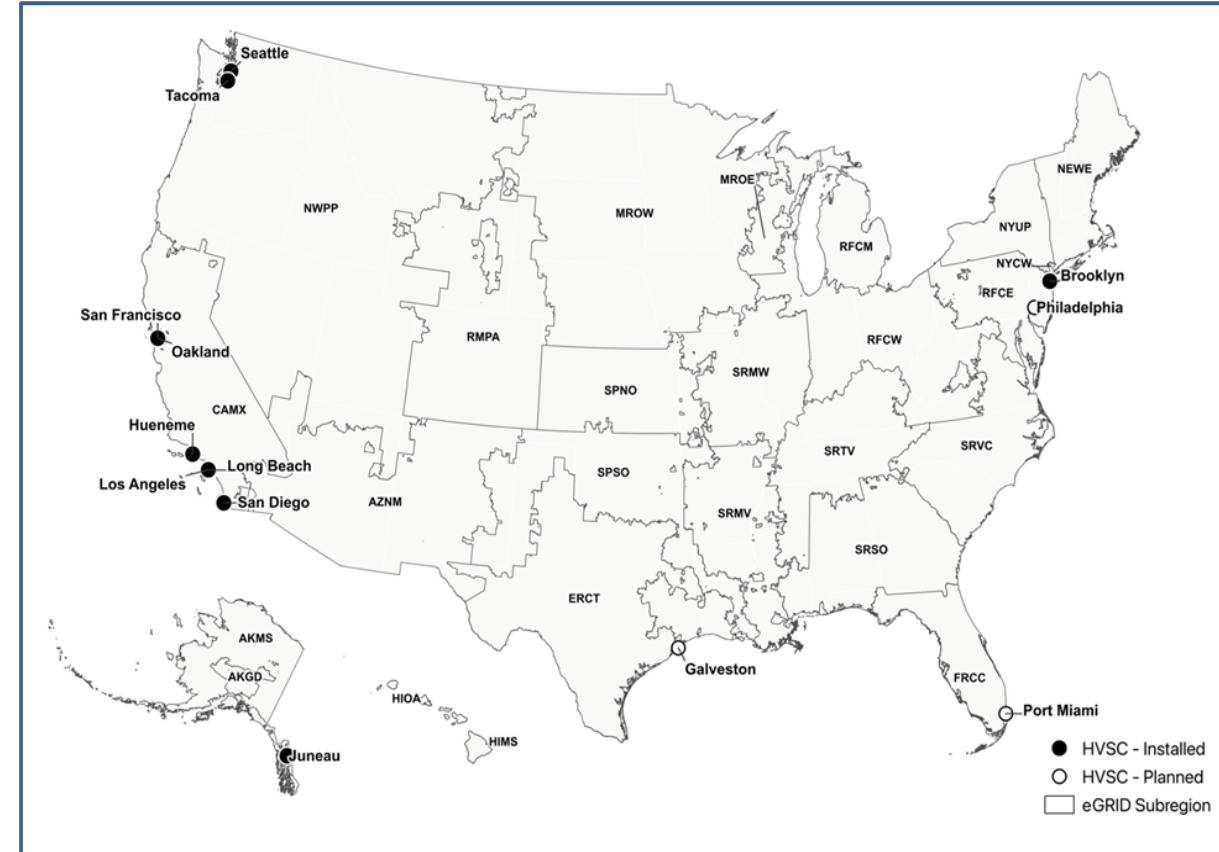
# Shore Power Assessment Report- 2022 Update



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## Key Findings :

- Shore power can effectively reduce ship exhaust emissions. Benefits vary from port-to-port and by vessel type.
- Shore power is expanding in the US to more places and vessel types
- Barriers include infrastructure and electricity costs
- Lessons learned from CARB and the ports of LA, Hueneme, Seattle, and NY/NJ





# Some Lessons Learned from CARB, LA, Hueneme, Seattle, and NY/NJ



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- The **importance of early and frequent interaction and planning between the port, regulatory agencies, and utilities** – to address demands of the commercial waterfront as well as local power needs.
- **Need for system designs to be flexible** in designating locations of dockside shore power connection vaults and cables to ensure vessels of all sizes and types can connect.
- **Reliability and availability** of shore power components and power supply to ensure successful shore power operations.
- Adhering to **on-time vessel scheduling**, so vessels can consistently and quickly plug in and not delay other vessels and port operations.
- Having a **ship pre-approval system** to quickly plug in for repeat ships.
- **Public funding sources are critical** for shore power infrastructure development.
- Shore power has helped **deliver emissions reductions for the local community**, and local residents notice when the system is not working.

# 2022 Shore Power Emissions Calculator (posted May 2022 )



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**The Shore Power Emissions Calculator includes new emission factors and expanded options for vessel and fuel types to better estimate emissions reductions.**

Some of the improvements included:

- Added forty-four new vessel types and engine loads, including size ranges within vessel type.
- Updated vessel emission factors consistent with current EPA Port Emissions Inventory Guidance (2022), including engine tier and LNG emission factors.
- Added a new reference section that provides emission factor calculation formulas and input data.
- Updated eGRID emission factors.
- Added latest eGRID PM<sub>2.5</sub> emission factors.
- Updated CO<sub>2</sub>eq weighting factors using IPCC Fourth Assessment Report GWPs.
- Added PM<sub>2.5</sub> emission estimates to the primary outputs.
- Updated user guide integrated with the calculator.
- Added custom error messages and improved error handling.

# 2022 Shore Power Emissions Calculator

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