# Environmental & Sustainability Updates

RAQPAC Meeting
October 26, 2023
Trae Camble, Director of Environmental Affairs, Port Houston

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# DISCUSSION TOPICS

- ***Who*** is Port Houston (vs. the Port of Houston)?
- ***Why*** focus on sustainability and decarbonization?
- ***Where*** are we focusing?
- ***What*** are we doing?
- ***Q&A***

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- Local Sponsor and advocate of the Houston Ship Channel
- Public terminals — including Bayport, Barbours Cut and Turning Basin
- Mission: Driving Regional Prosperity


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# THE NATION'S BUSIEST WATERWAY

### Port Houston

- 8 public facilities all cargos
- 3.5MM TEU
- 7000 Trucks / Day
- Largest project cargo & steel port
- Houston Ship Channel "Project 11"

### Houston Ship Channel

- 200 private facilities
- World scale petro-chem complex
- Energy & chemicals capital
- 550MM BBL storage
- Over 1200 pipelines all products

### Together

**$3.4 MILLION**
JOBS NATIONWIDE

**$906 BILLION**
ECONOMIC IMPACT ACROSS THE U.S.

**>275 MILLION TONS/YR**
NATION'S LARGEST PORT BY TONNAGE

BUSIEST U.S. WATERWAY:
**10,000 VESSELS**
&
**200,000 BARGE**
TRANSITS ANNUALLY

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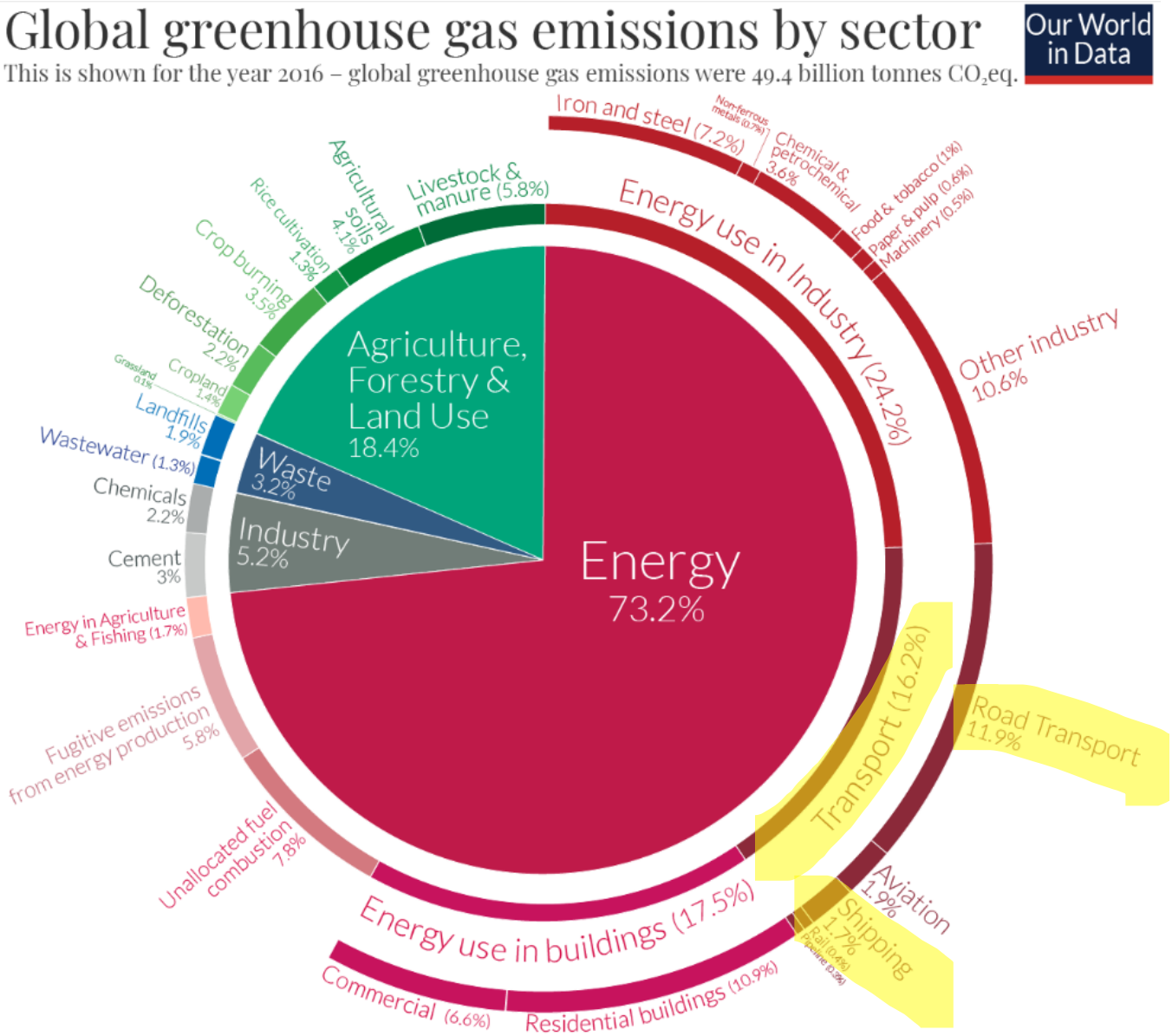
# THE DECARBONIZATION CHALLENGE

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# THE DECARBONIZATION CHALLENGE…

**Illustrative Proportions of GHG's** (1000 Tons)


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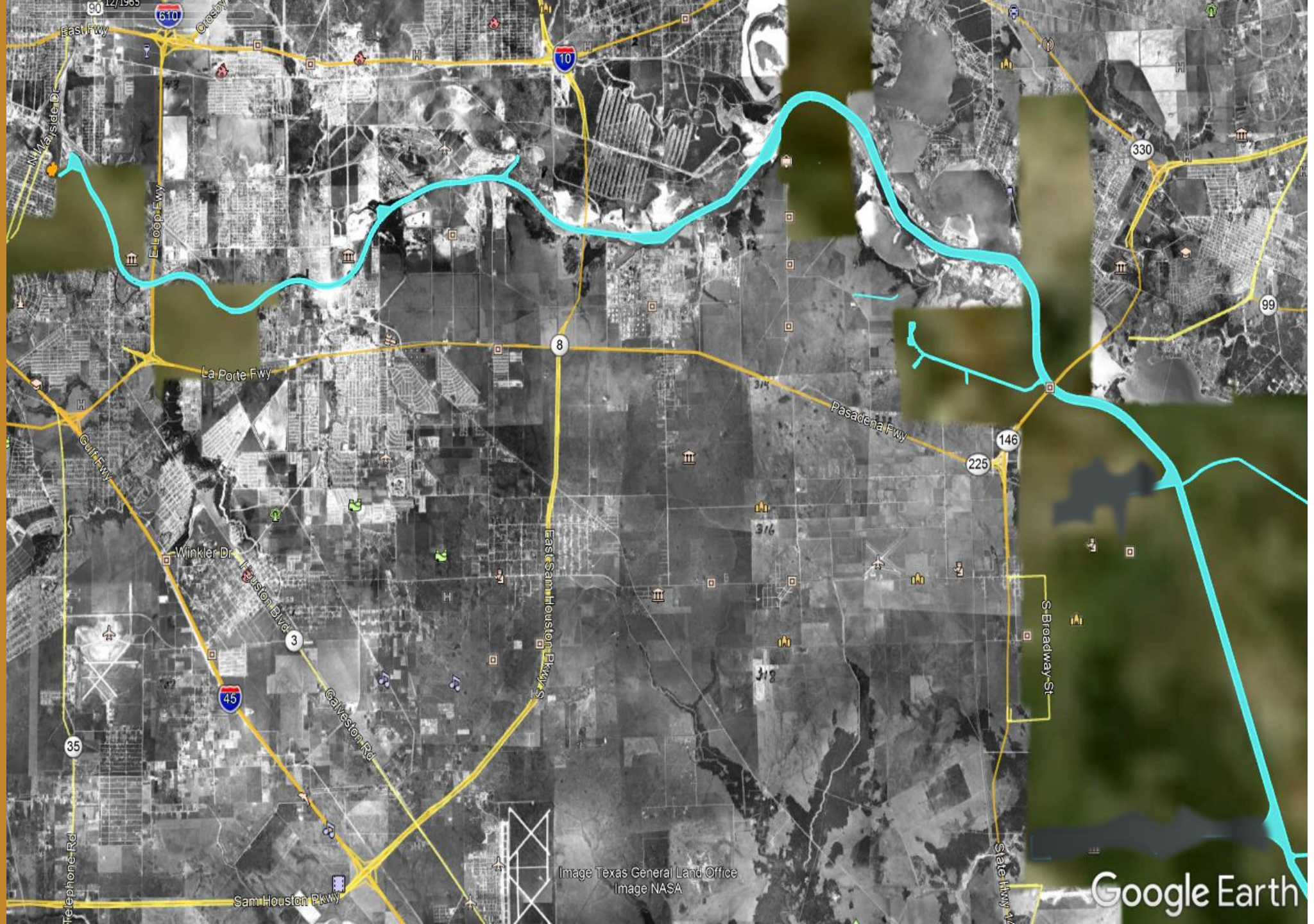
Values are Estimates / Block Sizes Not To Scale




# 1965

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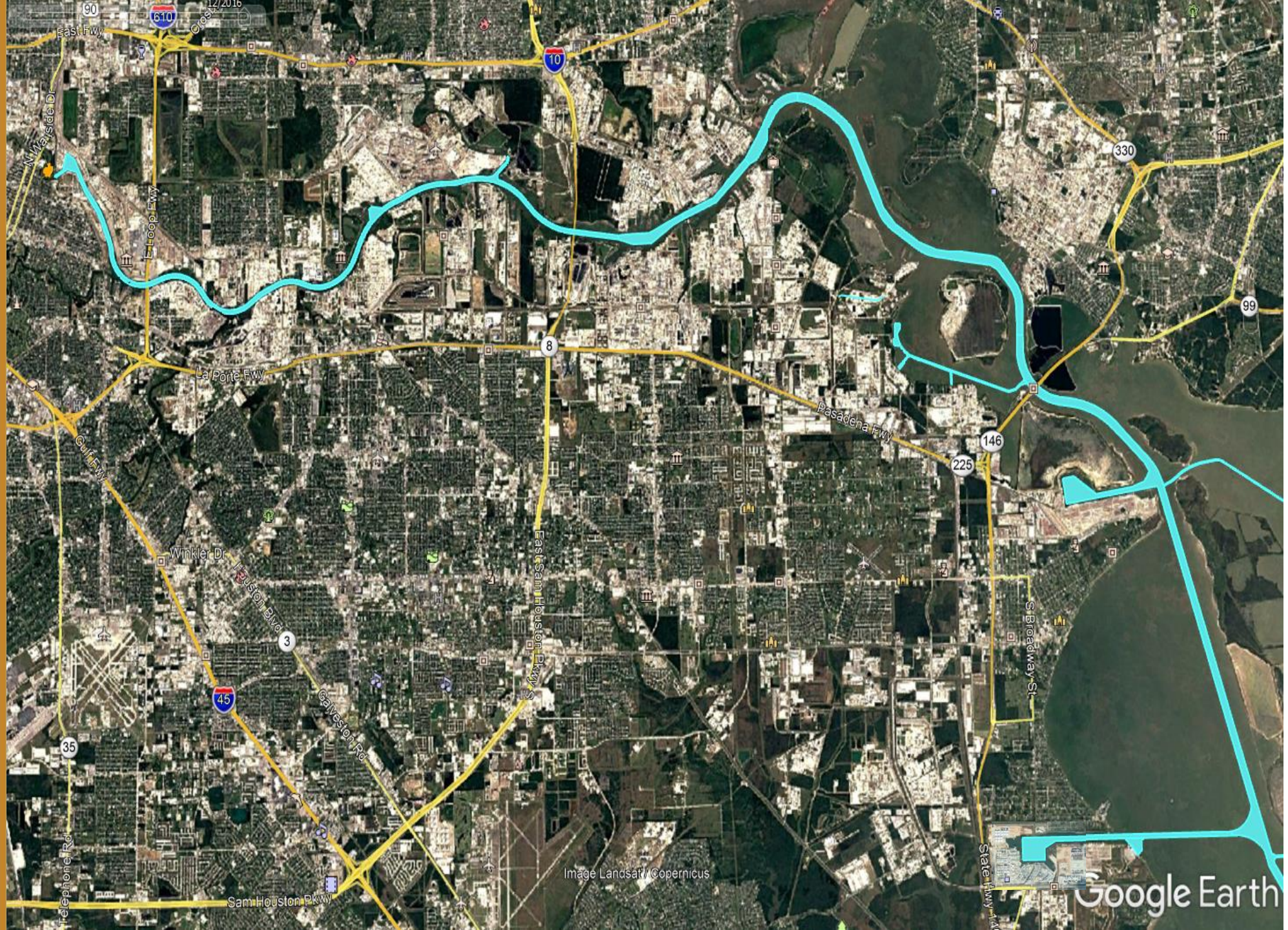


# TODAY

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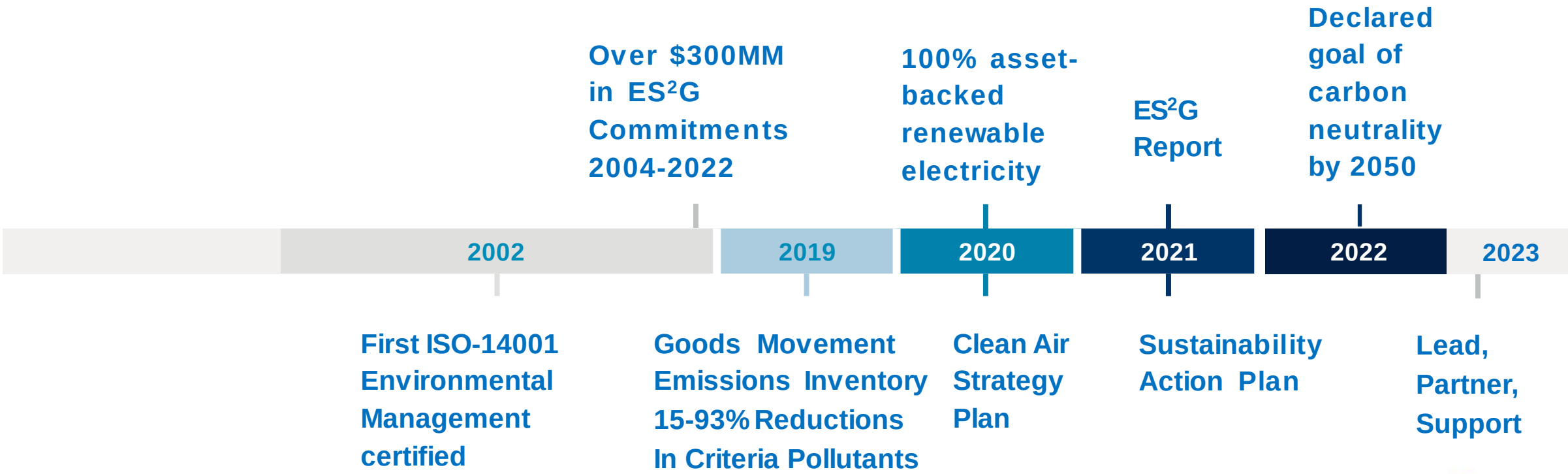
# SHARED RESOURCE

# COMMITMENTS TO SUSTAINABILITY

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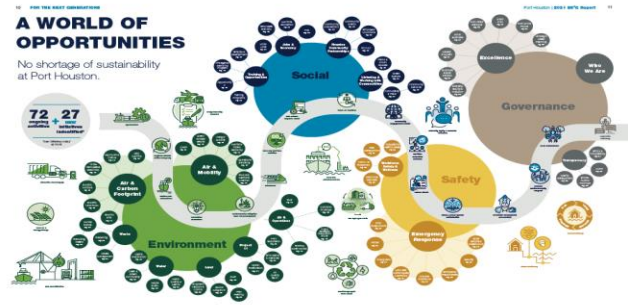
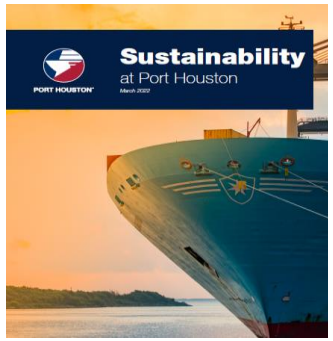
| *Questions* | *Answers* |
|---|---|
| Stakeholder Priorities? | Clean Air & Energy, Community |
| How to Work Together? | Lead, Partner, Support |

# SUSTAINABILITY and ES²G ™

**November 2021**

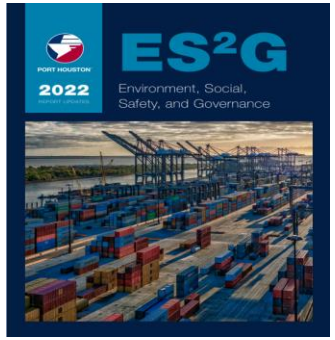



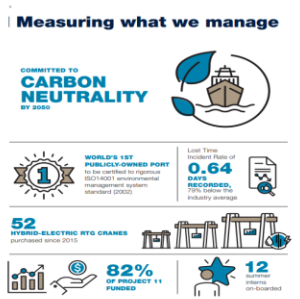

**March 2022**






**November 2022**





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# SUSTAINABILITY ACTION PLAN

## OPPORTUNITIES AND ENGAGEMENT MODEL

### LEADING

- CHE Electrification
- Maritime Education Outreach
- Parks & Green Spaces Revitalization
- Diversity, Equity & Inclusion Initiatives
- Freight Mobility Renewal
- Community Engagement Events
- Economic Development Job Creation
- S/MWBE Business Equity Program

### PARTNERING

- Alternative Fuel Drayage
- Dockside Emissions Redux
- Harbor Street
- Environmental Mitigation Bank Co-Development
- Solar PV & Energy Storage
- DERA/TERP Repower Grants
- Parks and Green Spaces
- Marine Fuel Alternatives
- Plastics Pyrolysis Value Chain
- Legislative Advocacy

### SUPPORTING

- Decarbonization in Shipping
- Innovation / Incubators
- TCEQ Monitors
- Regional Climate Action Plan (CAP)
- Storm Resiliency
- IEA Hydrogen Ports
- Intermodal
- Synchronizer
- Flood Resiliency

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# ENGAGEMENT MODEL

**ALL 28 STS CRANES** are fully electric

**100% Renewable Electricity**

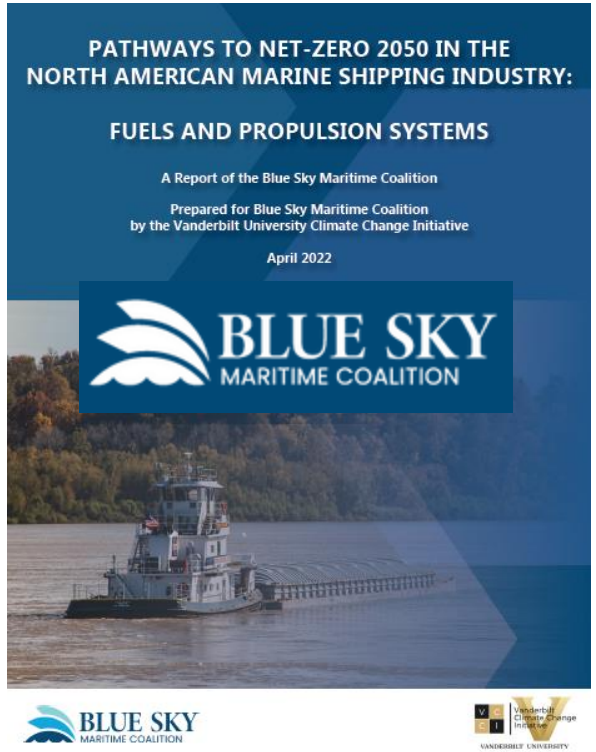
**ELECTRIC YARD TRUCK** piloting has begun

**LEAD**

**57 HYBRID ELECTRIC RUBBER TIRE GANTRY (RTG) CRANES** purchased since 2015

**5 ELECTRIC POOL VEHICLES** for port use

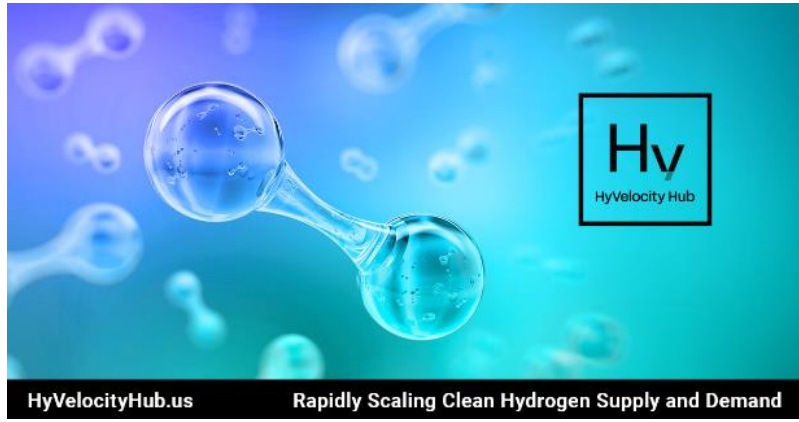
**SUPPORT**




BLUE SKY MARITIME COALITION

VANDERBILT UNIVERSITY

**PARTNER**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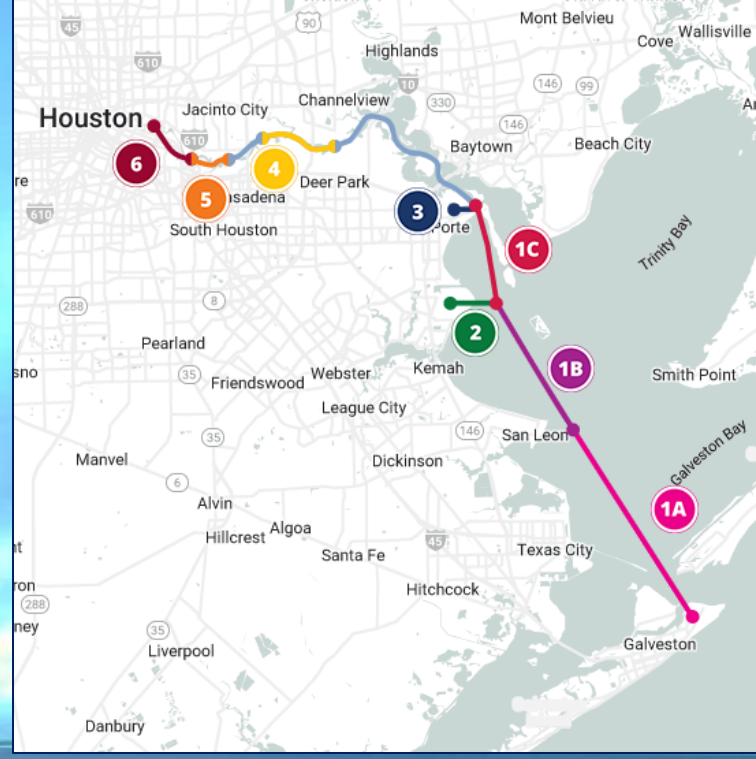
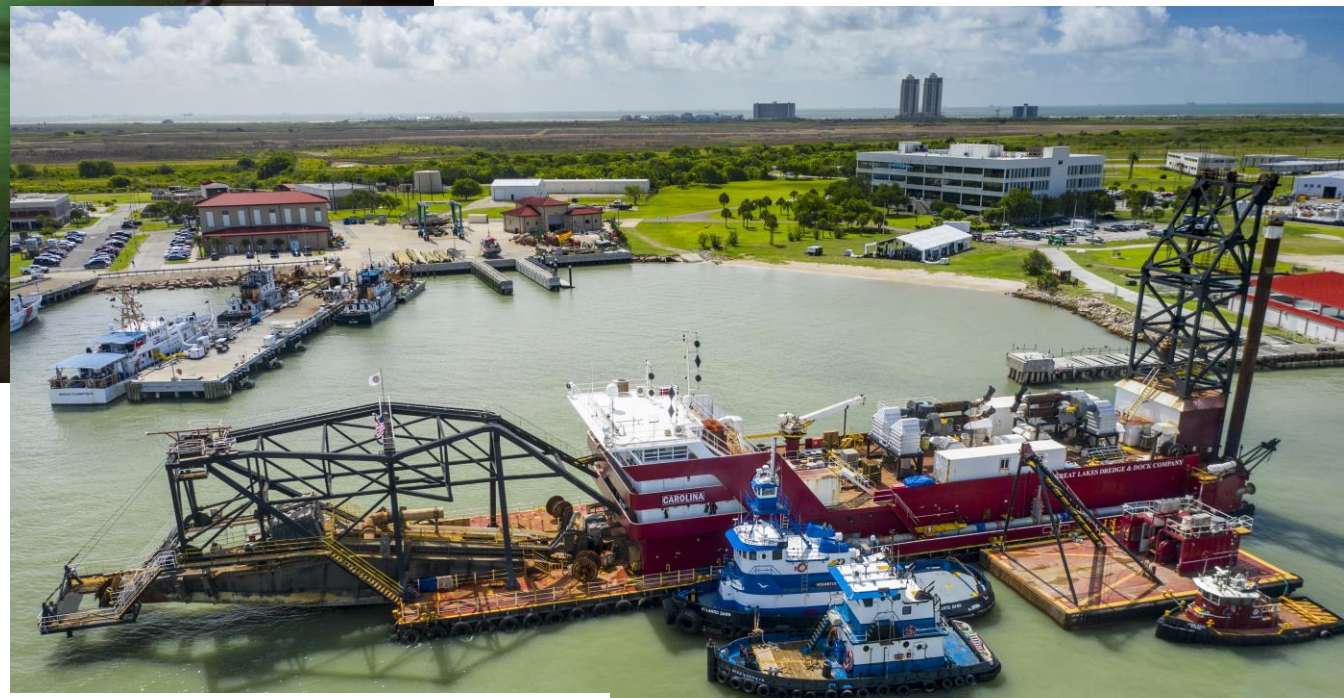
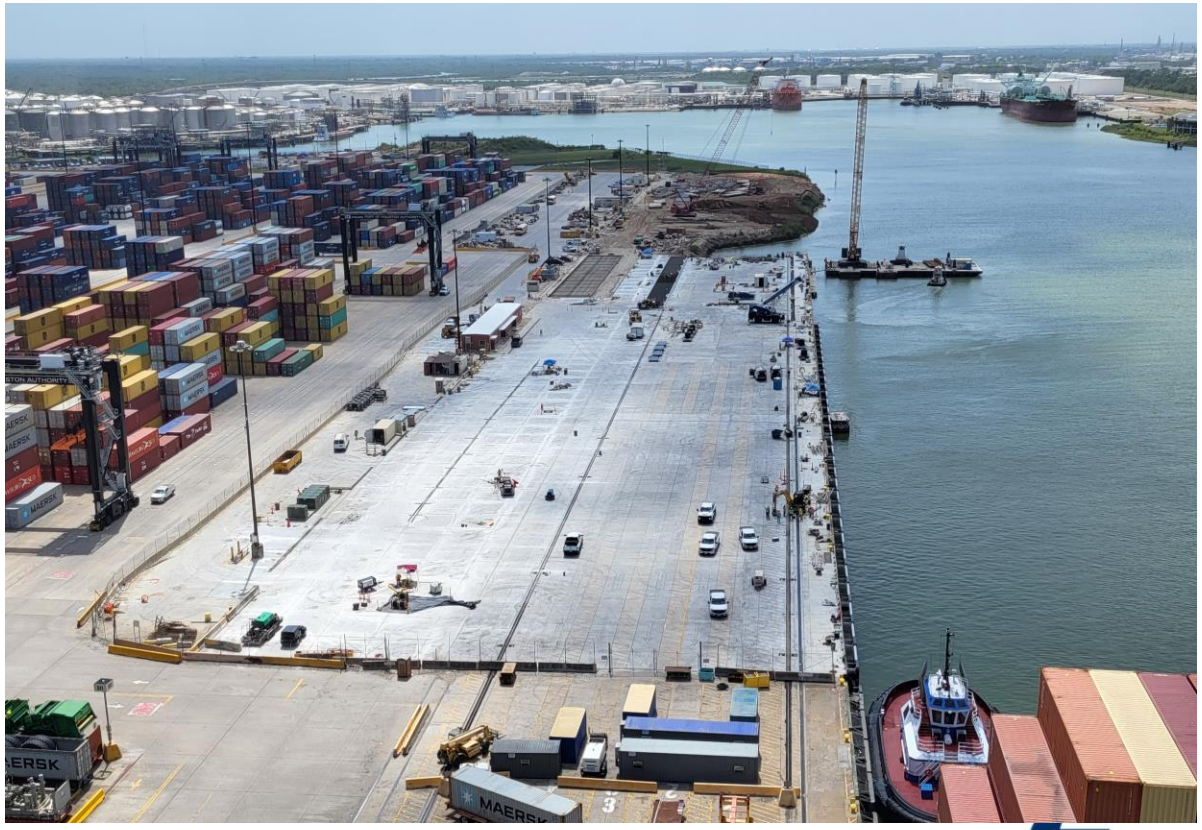



# LEAD: PROJECT 11


# Project 11: CLEAN HYBRID AND SCR DREDGES

# BAYPORT CONTAINER TERMINAL – WHARF 6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# POSSIBILITIES


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DRAFT IN PROGRESS

# 2050 ROADMAP

| | 2016 | 2020 | 2022-25 | 2030 | 2040 | 2050 |
|---|---|---|---|---|---|---|
| | Carbon footprint reduced 0% | Scope 1-2 Carbon footprint reduced 55% | 60% | 70% | 90% | Carbon footprint reduced 100% |
| Scope 1 & Scope 2 Lead | **Baseline emissions established**<br><br>**Scope 2**<br>• LED lighting | **Scope 1**<br>• Purchase hybrid-electric RTG cranes only<br><br>**Scope 2**<br>• Implement 100% renewable electricity<br>• Continue LED lighting | **Scope 1**<br>• Purchase zero-emission terminal tractors<br>• Purchase zero-emission pool cars<br>• Pilot zero-emission forklifts and other cargo handling equipment<br><br>**Scope 2**<br>• Evaluate solar generation opportunities | **Scope 1**<br>• Purchase zero-emission forklifts and other cargo handling equipment<br>• Consider zero-emission construction and operations for terminal and inland expansions<br>• Maximize waste recycling<br><br>**Scope 2**<br>• Implement solar and wind generation<br>• Generate and distribute clean electricity for microgrids | **Scope 1**<br>• Complete cargo handling equipment transition to zero-emission<br>• Optimize future terminals for efficiency and minimal emissions<br><br>**Scope 2**<br>• Continue clean electricity generation and implementation | **Scope 1**<br>✓ RTG cranes hybrid or electric<br>✓ Terminal tractors zero-emission<br>✓ Other cargo handling equipment zero-emission<br>✓ Pool cars and trucks zero-emission<br>✓ Residual emissions offset with nature-based solutions<br><br>**Scope 2**<br>✓ Electricity 100% renewable since 2020, augmented as needed |
| Scope 3 & Beyond Value Chain Partner & Support | | **Beyond Value Chain**<br>• Documented emissions via 2019 GMEI Report | **Scope 3**<br>• Inventory carbon footprint of Port Houston procurement / suppliers<br>• Identify and pilot carbon neutral construction materials<br>• Inventory tenant emissions and create policy<br>• Minimize employee travel emissions<br>• Encourage clean dredging<br><br>**Beyond Value Chain**<br>• Facilitate pilot of zero-emission drayage trucks and electric/fuel infrastructure<br>• Develop regional drayage strategies<br>• Pilot shore power<br>• Capture leading practices in ocean and harbor vessels<br>• Continue to apply for a variety of state and federal grants<br>• Define green corridors for U.S. Gulf Coast | **Scope 3**<br>• Prioritize carbon neutral materials in purchasing<br>• Implement tenant emissions policy<br><br>**Beyond Value Chain**<br>• Support wide-spread adoption of zero-emission drayage truck fleets and charging/fueling truck stops<br>• Encourage transition to low/zero-emission ships, harbor vessels, and locomotives<br>• Assist transition to lower-emission container transport options, like freight shuttles or containers on barge<br>• Pilot green shipping corridors<br>• Pilot carbon capture technology | **Scope 3**<br>• Prioritize carbon neutrality in capital goods and professional services<br>• Develop offsets to address remaining carbon emissions<br>• Encouraging sustainable investments<br><br>**Beyond Value Chain**<br>• Complete optimization of shore power use and/or zero-emission vessels<br>• Zero-emission vessels<br>• Implement green shipping corridors<br>• Monitor transition to low/zero-emission locomotives | **Scope 3**<br>✓ Vessels, trucks and suppliers at carbon neutral/net zero standards<br>✓ Remaining emissions offset<br>✓ Investment profiles consistent with sustainability goals<br>✓ Tenant-operated terminals and facilities meet carbon neutral standards<br><br>**Beyond Value Chain**<br>✓ Carbon neutrality adopted across the industry, including drayage trucks, ships, harbor vessels, locomotives<br>✓ Optimized use of green shipping corridors |

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**All plans and projects subject to feasibility and business alignment – timing subject to technology development and commercialization cycles. Noted future percentages represent Port Houston goals.*

# 2050 ROADMAP

## 2022-25

### Scope 1: PORT EQUIPMENT
- Purchase zero-emission terminal tractors
- Purchase zero-emission pool cars
- Pilot zero-emission forklifts and other CHE

### Scope 2 : ELECTRICITY
- 100% Renewable Electricity Source
- Solar generation opportunities evaluated

### Scope 3: SUPPLIERS & EMPLOYEES
- Inventory carbon footprint of Port Houston procurement / suppliers
- Develop strategies and tactics to align carbon neutrality
- Identify & Pilot carbon neutral construction materials
- Tenant emission inventory
- Employee emissions minimized
- Encourage clean dredging/ DMPA

### Beyond Value Chain: PORT OPERATORS and OTHERS
- Facilitate pilot of zero-emission drayage trucks and electric/fuel infrastructure
- Regional Drayage Strategies
- Pilot Shore Power
- Capture leading practices in ocean and harbor vessels
- Grants e.g. MEGA, DERA, TERP
- Define Green Corridors for USGC, International

## NET-ZERO ROADMAP PROGRESS

IDENTIFY | MAP | EVALUATE/ PILOT | PRIORITIZE | EXECUTE

EDF NET ZERO ABATEMENT SOLUTION FRAMEWORK

(source: Pathways to Net Zero: The Decisive Decade, EDF / Deloitte, 2021)

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# THANK YOU

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