

**Port Stakeholders Summit**  
*Advancing Sustainable Ports*  
*Workshop 3: Port Expansion Case Study*

# Overview: Port of Arbor – Case Study

**Jerry Boese, Ross Strategic**  
**April 8, 2014**  
**Baltimore, Maryland**

# This afternoon's agenda

- **1:30 Convene & welcome**
- **1:35 Overview of case study**
- **1:45 Panelist highlight their strategies and solutions**
  - **5 minutes each**
- **2:25 Q&A and Discussion**
- **3:00 Adjourn**
- *--break--*
- **3:30 - 4:45 Report-out in plenary session**

# Panelists (aka Port Advisors)

1. **Peg Hanna**, New Jersey DEP (state agency)
2. **Frank Esposito**, US Coast Guard (federal agency)
3. **Dr. Sacoby Wilson**, Univ. of Maryland (researcher)
4. **Amy Goldsmith**, Coalition for Healthy Ports (community)
5. **John Esposito**, Ports America (Terminal operator)
6. **Dr. Erica Holloman**, Greater SE Development Corp. (Community)
7. **Gerry Coyle**, Evans Trucking (Trucking company)
8. **Heather Wood**, VA Port Authority (Port Authority)

# Case Study Scenario *(fictional!)*

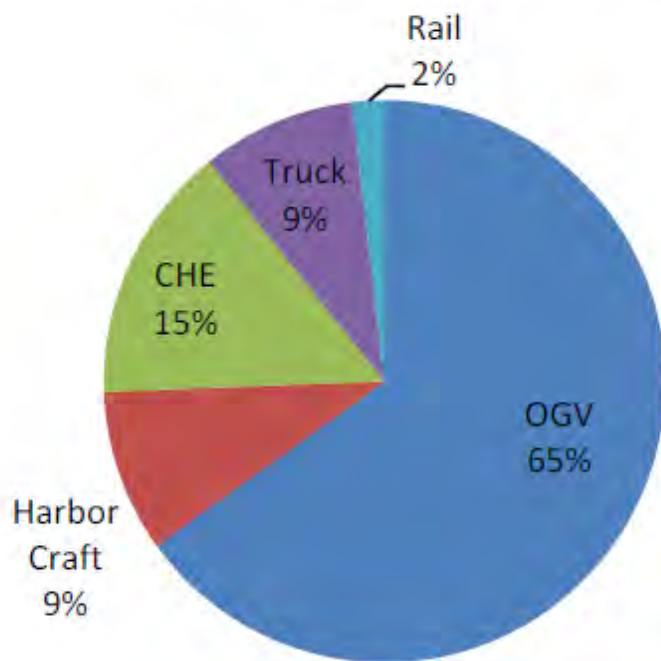
- **Port of Arbor wants to expand**
  - Currently handles **1.6 million TEUs/yr**
  - With expansion, is projected to handle **2.1 million TEUs/yr (by 2030)**
  - Deepen channel from **45' to 50'**
  - **Modernize** cranes and cargo handling equipment

# Port Advisors' Assignment

- **REDUCE EMISSIONS (by 2030)**
  - **PM – by 40 Tons/year**
  - **NOx – by 1,200 tons/year**
- **BUDGET CONSTRAINT**
  - **\$15 million to spend 2015-2030**
- **Plus: Develop a strategy to inform and engage local residents**

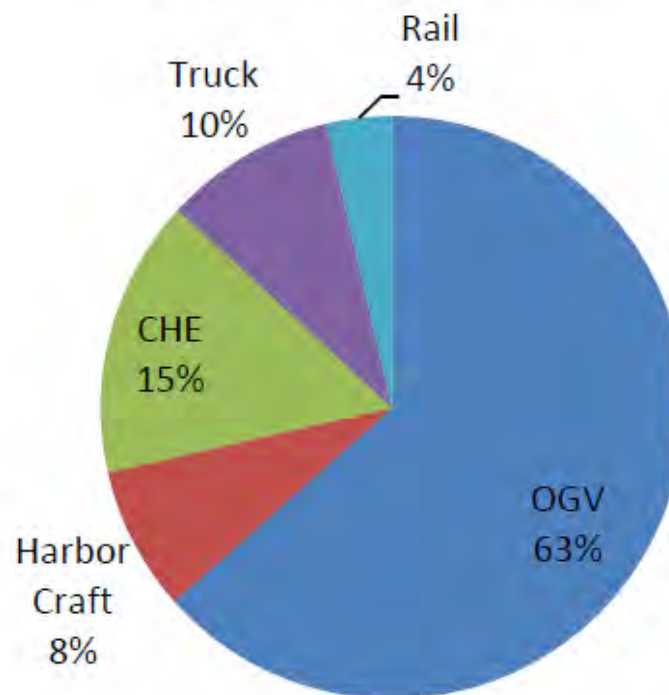
# NOx emissions

## 2014 NOx Emissions



Total = **3,876** tons/year

## 2030 NOx Emissions

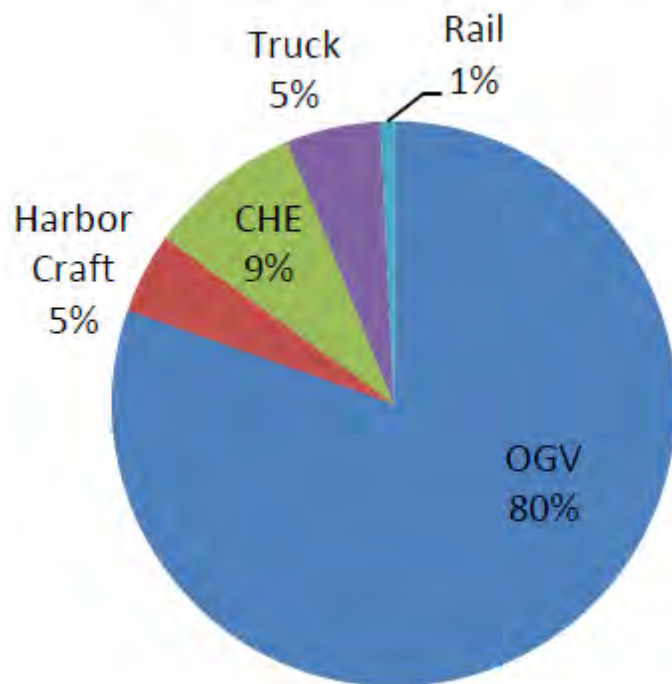


Total = **4,886** tons/yr (projected)

**Goal: reduce by 1,200 tons/yr**

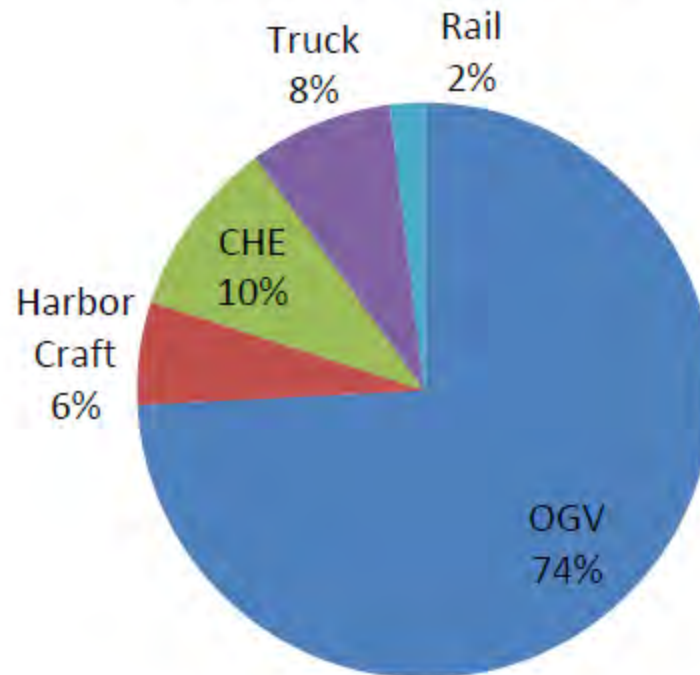
# PM emissions

## 2014 PM Emissions



Total = **260 tons/year**

## 2030 PM Emissions



Total = **310 tons/yr (projected)**

**Goal: reduce by 40 tons/yr**

# Port's list of Emission Reduction Strategies

1. Operational strategies (5)
2. Ocean-going vessels (3)
3. Cargo handling equipment (3)
4. Harbor craft (3)
5. Trucks (3)
6. Locomotives (3)
7. Community projects(3)
  - (total of 23 strategies)
  - Case study gives **tons/year reduction** and **total cost** for each strategy (illustrative)



# Funds available

- **\$6 million** from the state for diesel emission reduction strategies
  - State wants to reduce O<sub>3</sub> and PM2.5 in non-attainment areas
- **\$4 million** from EPA (DERA program)

# Case Study: The players

- **Port of Arbor, a public agency (fictional)**
- **Terminal operators**
- **The Community**
- **Cargo owners**
- **Truckers**
- **Longshore workers**
- **State and local government**
- **Federal Agencies**
  - **EPA; Army Corps of Engineers; USDOT; Coast Guard**

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# Port of Arbor Case Study

## Panelist strategies and recommendations



## Federal Agency View

Frank Esposito, US Coast Guard

# Federal Agency View (Mr. Esposito)

- **Federal Agencies can be a proponent**
  - US Army Corps dredging Or FHWA funding
  - Need to cover ALL relevant laws (NEPA, CAA, CWA, ESA, CZMA and many more)
- **When in regulatory role, not a proponent or an opponent but a strident advocate for**
  - Transparent process addressing ALL laws
  - Fair results



## Ports and Communities Move Towards Zero Emissions

Amy Goldsmith

NJ Director, Clean Water Action *and* Clean Water Fund  
Chair, Coalition for Healthy Ports (NJ/NY)

# Port & Community: Move Towards Zero Emissions

**GOAL: Mandated national “Zero Emission” port policy/practices**

- **Ensure open, ongoing community/port dialogue & role in development**
- **1<sup>st</sup> diesel reductions must benefit high impact neighborhoods**
- **Focus first on shore side power, modernizing diesel trucks, and electrify yard hostlers**
- **Establish equitable distribution of costs & pool of funds**
- **Codify plan as a Community Benefits Agreement**





## Port Stakeholders Summit, Baltimore

John Esposito, Ports America

## John Esposito, Ports America

**Any program for port expansion must address three concerns:**

- **An increase in Pollution in Community**
- **Truck congestion and increased volumes in the Community**
- **Service failures on the terminal caused by congestion**

**Using this definition of the exercise I looked at infrastructure improvements within the provided budget which would address these concerns while positioning the Port to be competitive in the future.**

**The funds will be employed to facilitate and finance new technology implementation by the stakeholders in Phase I of the project. The money will be paid back by the stakeholders over a period of time. These recouped funds will be used to complete the plan in Phase II.**

**To address Labor's concerns, retrain workers on maintenance of new systems, initiate chassis pool and an appointment system for OTR trucks that would provide additional work shifts and minimize truck traffic through the Port and in the Community.**

**(CONTINUED)**

ACTION	NOX REDUCTION	PM REDUCTION	COST	RESPONSIBLE PARTY	Amounts to be recouped	Timeline
Improved Gate Efficiency	226	11	1,500,000	Port Authority	0	Phase I
Contract Specifications	279	15	12,000,000			
Improved Container Management	23	3	50,000	Stakeholders	50,000	Phase I
On Dock Rail	26.1	4.4	83,000,000			
Vessel Speed Reduction Program	400	30	2,000,000	Stakeholders	1,000,000	Phase I
Cold Ironing / Shorepower	81	5.3	13,000,000			
Clean Fuels at Berth	0	13	2,500,000			
Engine Replacement	128	7.2	58,000,000			
Replace Cargo Handling Equipment	5	0.3	5,000,000			
Electrify Wharf Cranes Phase I - 4 cranes	52	6	2,670,000	Port Authority	0	Phase I
Electrify Wharf Cranes Phase II - 8 cranes	103	13	5,330,000	Port Authority	0	Phase II
Repower Straddle Carriers plus DOC Retrofit	46	3.5	2,200,000	Stakeholders	1,100,000	Phase I
Supply Boat Repower	68	3.6	1,200,000	Stakeholders	600,000	Phase I
Tug Repower	105	11.5	2,700,000	Stakeholders	1,350,000	Phase I
Hybrid-Electric Retrofit / Repower	100	3.2	3,500,000	Stakeholders		
Reefer Unites Replacement	6.4	0.67	3,900,000			
Dray Truck Replacement with Hybrid Electric Fuel Cell	10.8	0.42	2,600,000			
Dray Truck Replacement of pre-1997 with MY 2010 or later	110	29	1,800,000	Port Authority	900,000	Phase I
Repower Genset Locomotives	30	1	3,000,000			
Idle Reductions: Automatic Engine Stop / Start	8.2	0.28	45,000	Stakeholders	22,500	Phase I
Idle Reduction: Fuel Operated Heaters	17	0.56	210,000	Stakeholders	110,000	Phase I
Bilingual Community Integration Specialist	0	0	100,000			
Quarterly Community Discussions	0	0	300,000	Port Authority	200,000	Phase I
Health Impact Assessment	0	0	900,000			
<b>TOTAL for TARGETED ITEMS Phase I</b>	<b>1055.2</b>	<b>92.44</b>	<b>14,675,000</b>		<b>5,332,500</b>	
<b>TOTAL for TARGETED ITEMS Phase II</b>	<b>103</b>	<b>13</b>	<b>0</b>	<b>Paid with money recouped from Stakeholders</b>		
<b>FINAL RESULTS</b>	<b>1158.2</b>	<b>105.44</b>	<b>14,675,000</b>			



## One Port, One Voice

Erica Holloman-Hill, Ph.D.  
Greater Southeast Development  
Corporation

# Concerns

## Port of Arbor

### Emissions:

- Expected increase
- Proposed reduction

## Community

### Environmental:

- Truck traffic
- Locomotive

### Social:

- Medically underserved
- Poverty rate

# Strategies & Solutions

## S & S

- Operational
- Trucks
- Locomotive
- Community Projects
- Port Job Training

## Cost

\$3.55 million

\$9 million

\$300 thousand

\$1.3 million

\$85 thousand



## Drayage Carrier Perspective

Gerard Coyle  
The Evans Network of Companies

# Marine Terminal Performance

- **Efficient Marine Terminal Throughput is Everything**
  - Gate Hours of Operation
  - Computer Systems
  - Problem Resolution
  - Identification of Terminal Bottlenecks
  - Adequate Supply of Chassis
- **Access To Marine Terminals**
  - Highways and Connectors
  - Adequate Parking
- **Measurement Marine Terminal Performance**
  - Key Performance Indicators (KPIs)
  - Measurement of Truck Turn Times Inside and Outside the Terminal
  - Identification of Bottlenecks
  - Open and Transparent Reporting
- **Matching of Import Loads and Export Loads**



# Port Stakeholders Summit



## Port of Virginia's Solution

**Heather L. Wood**  
**Port of Virginia**

# Port Arbor – Virginia Recommendation

- **Improved Gate Efficiency** **\$ 1.5M**
- **Container Management Chassis Pool** **\$ 50K**
- **Vessel Speed Reduction** **\$ 2M**
- **Electric Cranes** **\$8M**
- **Dray Truck Program** **\$1.8M**
- **\$7.7M to leverage TIFIA/TIGER and P3 funds for on-dock rail.**

# Port of Arbor Case Study

## Discussion Q&A