SUSTAINABILITY: Assessing the Costs and Benefits

Presented by
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Port of Houston Authority
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3Ms – Matrix for Solutions

- Mission
- Methodology
- Means of measuring value/progress
Magnitude – Port of Houston

• No. 1 in U.S. in foreign tonnage
• No. 2 in U.S. in total tonnage
• 25-mile-long complex of public/private terminals along 53-mile ship channel
• More than 153 terminals
• 7,700 ships, 150,000 barges visit port annually
Magnitude – Port of Houston Authority

- Political subdivision of state of Texas
- Owns/operates 9 primary terminals at Port of Houston
- Handles roughly 15% of 220 million tons of cargo annually flowing through Port of Houston
The Mission

• Port of Houston is located within Clean Air Act non-attainment area
• PHA intends to contribute substantially more to the solution than it has to the problem
• Innovative programs/initiatives set to place PHA’s among the world’s greenest marine terminals
The Mission – PHA Environmental Policy

• Meet or exceed all applicable environmental laws and regulations.
• Provide and promote proactive environmental leadership and compliance . . .
• Continually evaluate and improve activities and practices . . .
Methodology – PHA Air Quality Program

• HGB area air quality challenge
  o Severe non-attainment 8-hour ozone

• PHA air quality challenges for ozone
  o Mobile sources
  o Stationary sources
  o Non-operated port sources
  o Federal pre-emption

• Global air quality challenge
  o Greenhouse gases/carbon footprints
Methodology – PHA Air Quality Program

PHA Emission Sources

• **Stationary**
  o Grain Elevator Operations
  o Emergency generators

• **Mobile**
  o Off road equipment
  o On road vehicles

• **Other**
  o Tenants
  o Vessels (OGV & Harbor craft)
  o Railroads
Methodology – PHA Air Quality Initiatives

- First vessel and CHE emission inventories
- Diesel emulsion program 2000-2006
- Clean fleet policy program
- TERP grant program
- Dust suppression program
- Gate modernization at BCT
- Evaluation and demonstration testing on emission reducing technologies
Methodology – PHA Air Quality Initiatives

- Maritime industry, tenant awareness program
- Purchasing Tier II and Tier III engines – TERP grants
- Purchasing LEV/ULEV/hybrid for on-road fleet vehicles: VOC goal established
- Conducted first GHG emission inventory for a port fleet. Evaluating emission reduction goals for 2009
- Contracted Air Quality Consultant to assist in developing PHA Clean Air Strategy Plan
Methodology – The Money & The Message

- $4.46 million toward environmental initiatives since 2007
- Another $20 million for environmentally sound capital improvements and fuel purchases since 2007
- $245k for advertising environmental initiatives in print/electronic media outlets since 2007
- $43.5k in environment-related community activities since 2007
- PHA employees volunteered 588 hours of service on environment-related activities since 2007
The Merits

- 1st US Port to meet ISO 14001 Standard
- EPA NEPT Member
- EPA Blue Skyways Collaborative Community Partner
- TCEQ Clean Texas Partner
- More than 4,200 acres of marshlands created or restored
Measuring Stick – Sustainability Matrix Tool

• Superior environmental/social performance = real economic benefits to business
• Unfortunately, intangible and societal providing long-term benefits typically not considered
• Means to assess sustainability projects & initiatives should be integrated into business decision-making
• Existing monetary & semi-quantitative frameworks available to assess fuller set of costs/benefits. However, typically too complex for common decision making
Measuring Stick – Sustainability Matrix Tool

• Develop scenarios
  – Current scenario (business as usual)
  – Other alternatives to consider
• Identify significant cost and benefit drivers
• For each scenario:
  – Estimate conventional (direct & indirect) costs in present $ value
  – Estimate ranges of liabilities
  – Assess magnitude of non-monetary impacts, level of concern to stakeholders, relevance to PHA’s business
# Direct & Indirect Costs & Benefits

**Current Scenario**

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost Driver</th>
<th>2007 Total Costs ($)</th>
<th>2008 Total Costs ($)</th>
<th>2009 Total Costs ($)</th>
<th>2010 Total Costs ($)</th>
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Measuring Stick – Sustainability Matrix Tool

### Impact Assessment

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<tr>
<th>Impact Categories</th>
<th>Impacts</th>
<th>Relevance to Port</th>
<th>Stakeholders’ Concern</th>
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<th>Scenario 2</th>
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- **Information is pulled from previous worksheet**
- **User assesses magnitude of impact, scored relative to reference**
- **Impacts are weighted by Relevance to Port and Stakeholder Concerns**
- **Average scores are calculated for Port and Stakeholders - for impact category**

*Port of Houston Authority*
Measuring Stick – Sustainability Matrix Tool

- **What the tool does:**
  - Value a more complete set of direct & indirect costs/benefits in $
  - Provide semi-quantitative scores for liabilities & non-monetary costs/benefits
  - Considers costs and benefits that are significant, but often ignored
  - Make decision-making process & assumptions more explicit
Questions?