

Container Ports and Air Pollution

By James S. Cannon

President, Energy Futures, Inc.

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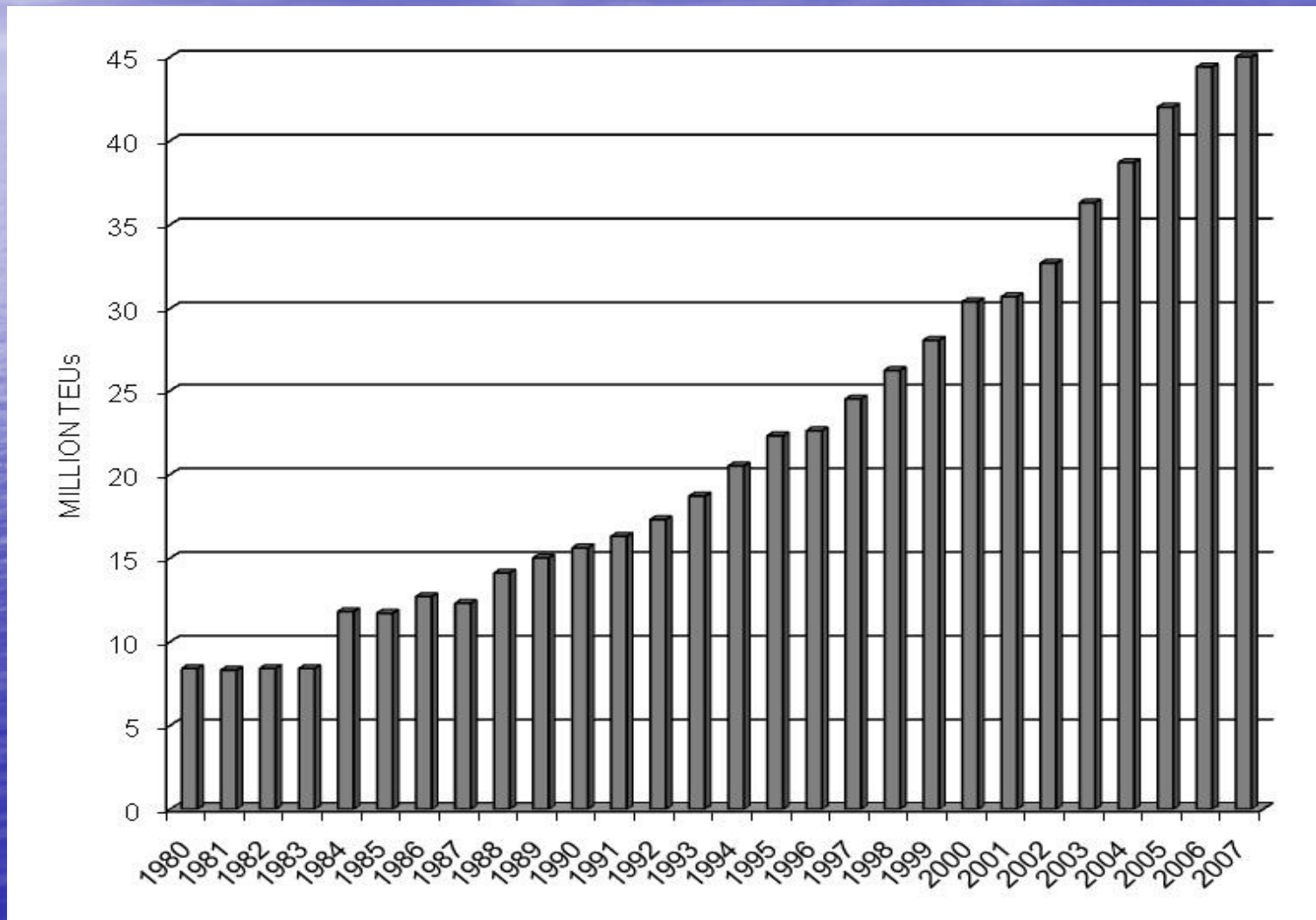
Container Ports and Air Pollution Study Released Last Month

- Examines U.S. container port cleanup for 2008
- Investigates port cleanup in Europe and Asia
- Analyzes international shipping supply chain issues
- Second Energy Futures study, *U.S. Container Ports and Air Pollution in 2008*

Drivers for Change in Goods Movement by Ship

- 64,000 premature deaths in port communities per year due to air pollution
- If a nation, ships would rank 6th largest CO₂ emitter
- Uses 1.5 time more fuel than aviation industry
- All three parameters pointing in the wrong direction

U.S. Ports 20 Consecutive Years of Growth



2008 the Busiest Yet for U.S. Port Cleanups – Gov't Actions

- Federal actions
 - Legislation ratifies Annex VI
 - Congressional debate over pollution and fees
 - EPA regulations
- California actions
 - CARB regulations
 - Bond funds
 - Container fees vetoed

Local Port Authorities Still Lead

- Absent strong federal program, local programs lead
- Ports of Los Angeles and Long Beach the most active in the world
- Ports of Oakland, CA, and New York and New Jersey in a second tier
- Several new programs at southeastern ports of Hampton Roads, Charleston and Savannah
- Biodiesel programs continue in Seattle and Tacoma

Growing Alternative Fuel Use

- Cleanup programs are multidimensional, but alternative fuel use is growing
- Natural gas is the leading alternative
 - Trucks
 - Cold ironing
- Electric technologies coming on strong
 - Hybrid electric yard tractors
 - Battery and grid powered projects
- High biodiesel blends

Natural Gas Fuel of Choice in U.S. – 8 Projects Underway

- All in California
- 3 LNG Yard Tractors
 - Los Angeles and Long Beach
- 3 Regional Truck Programs
 - LA, Long Beach and Oakland
- 2 skid mounted LNG cold ironing units
 - Oakland and LA

8 Electric Vehicle Programs Challenging Natural Gas

- 3 hybrid yard tractor programs
 - LA, New York and New Jersey
- 2 grid cold ironing programs
 - LA and Long Beach
- 1 Battery electric truck
 - LA
- 1 hybrid “Green Goat” locomotive
 - Hampton Roads
- 1 hybrid tugboat at LA

2 Biodiesel Programs Continue

- High biodiesel blends (B50 to B99)
 - Seattle
 - Tacoma
- Programs challenged by air quality deterioration in Puget Sound
- Strong U.S. government support
- Biodiesel could have future as marine fuel
 - Aviation fuel could be key competitor

European Port Cleanup

- Contrary to U.S., where local port authorities are leaders, in Europe the EC is very active
- Focus is on sustainability and intermodal shifts, not alternative fuels
- Many other regional players, also unlike U.S.
- Port of Rotterdam has 4 point cleanup plan

Asian Port Cleanup

- Contrary to U.S., terminal operators appear to lead most port cleanup efforts
- Focus is on energy efficiency and productivity
- Several hybrid RTG gantry projects
- Grid powered RTGs in Shanghai, Natural gas yard tractors in Bangkok
- Port of Hong Kong in the middle of a major public policy debate over clean port options

International Marine Issues

- New IMO Annex rules will reduce sulfur emissions, could banish bunkerfuel
 - Compliance is not simple
 - Options are to add pollution control or efficiency equipment onboard ships or switch to middle distillate or alternative fuels
- C40 Climate Leadership Group
 - World Ports Climate Declaration
 - Could also imperil bunkerfuel use

Recommendations

- Take advantage of economic crisis to simultaneously reduce costs and pollution
- New U.S. administration should establish a national port strategy, including funding
- All regions should expand alternative fuel use
- Shipping companies should expand port cleanup efforts
 - form partnerships with alternative fuel providers

Container Ports and Air Pollution Report

- Full report available at no cost from our website www.energy-futures.com
- Energy Futures based in Boulder, Colorado
 - Email jscannon@energy-futures.com
 - Phone 1 303 541 0185
- Thank you.