

Major Issues and Trends Facing the Port and Marine Transportation Industry



AAPA MTMTP

Charleston, SC

4-24-06

Objectives

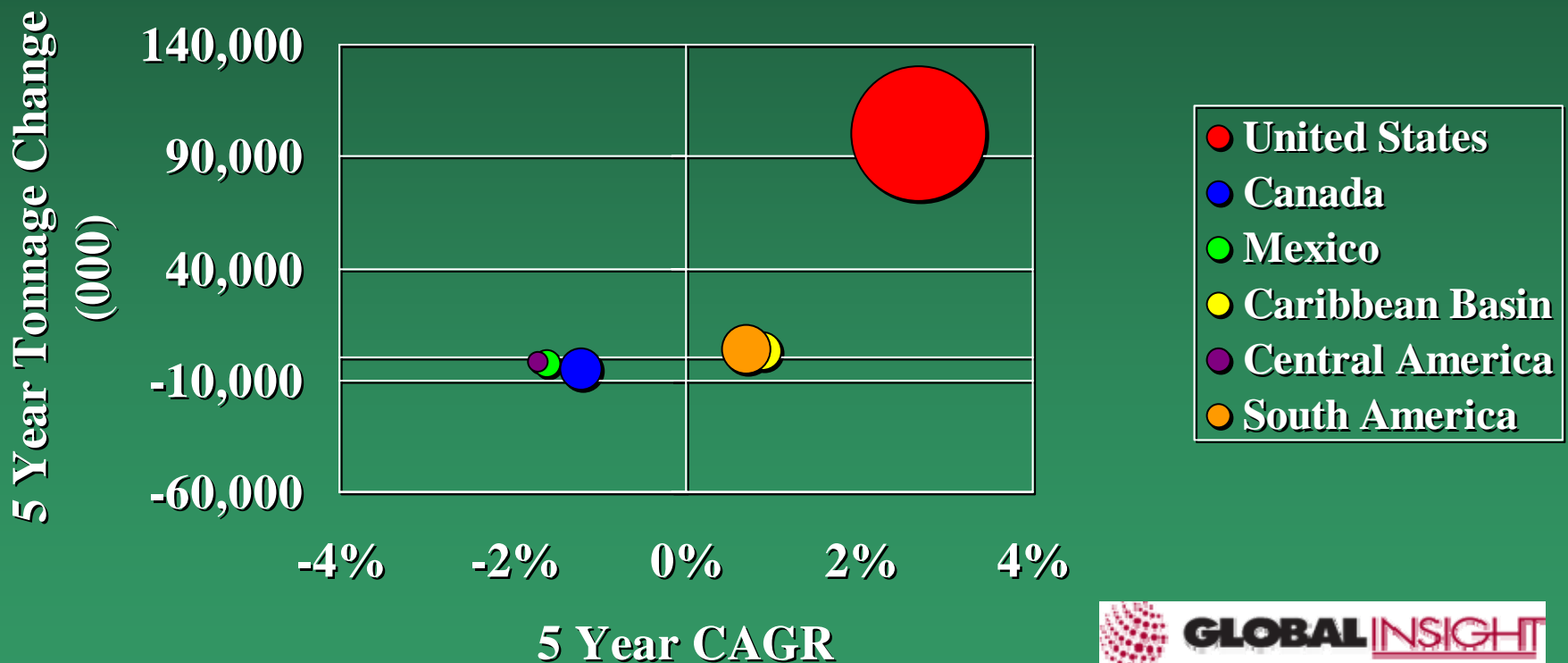
- Cover Some Mega-trends
- Discuss Transportation Industry Challenges
- Touch on Some of the Nuts and Bolts
- Assess Some of the Implications

Some Mega Trends

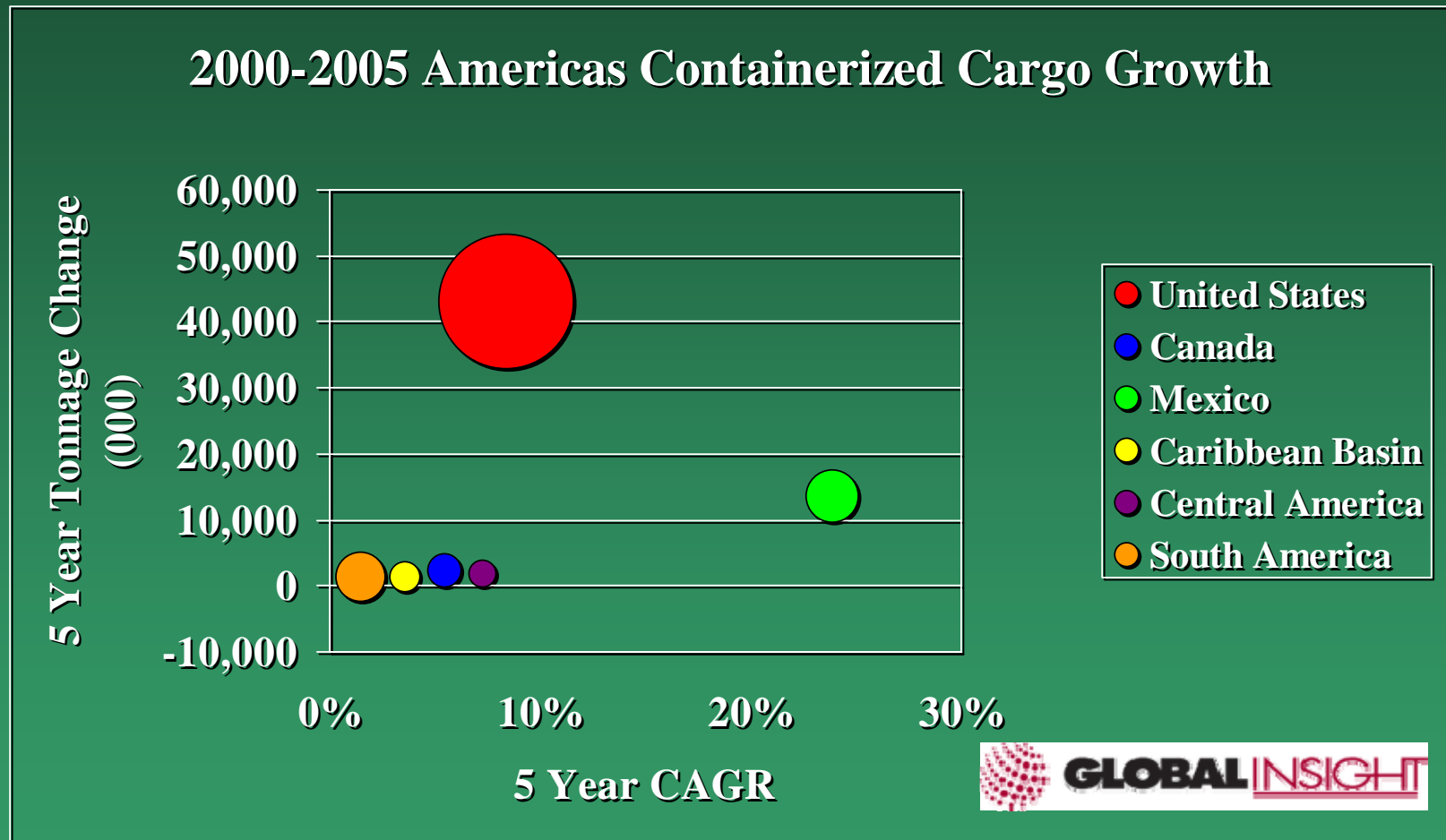


Hemispheric bulk cargo performance has been mixed over the past five years

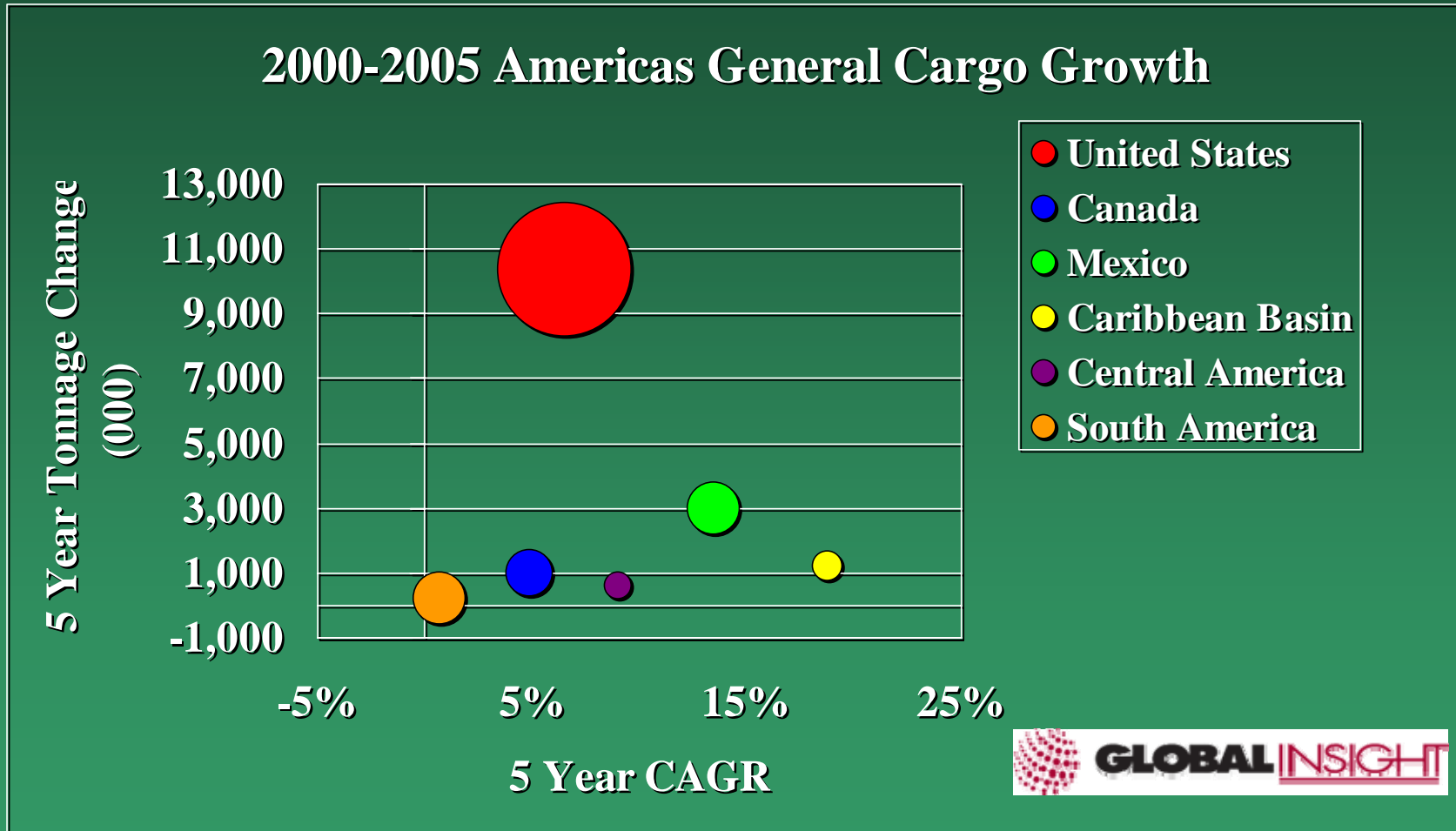
2000-2005 Americas' Bulk Cargo Growth



Mexico has lead the way in terms of growth in hemispheric container trade



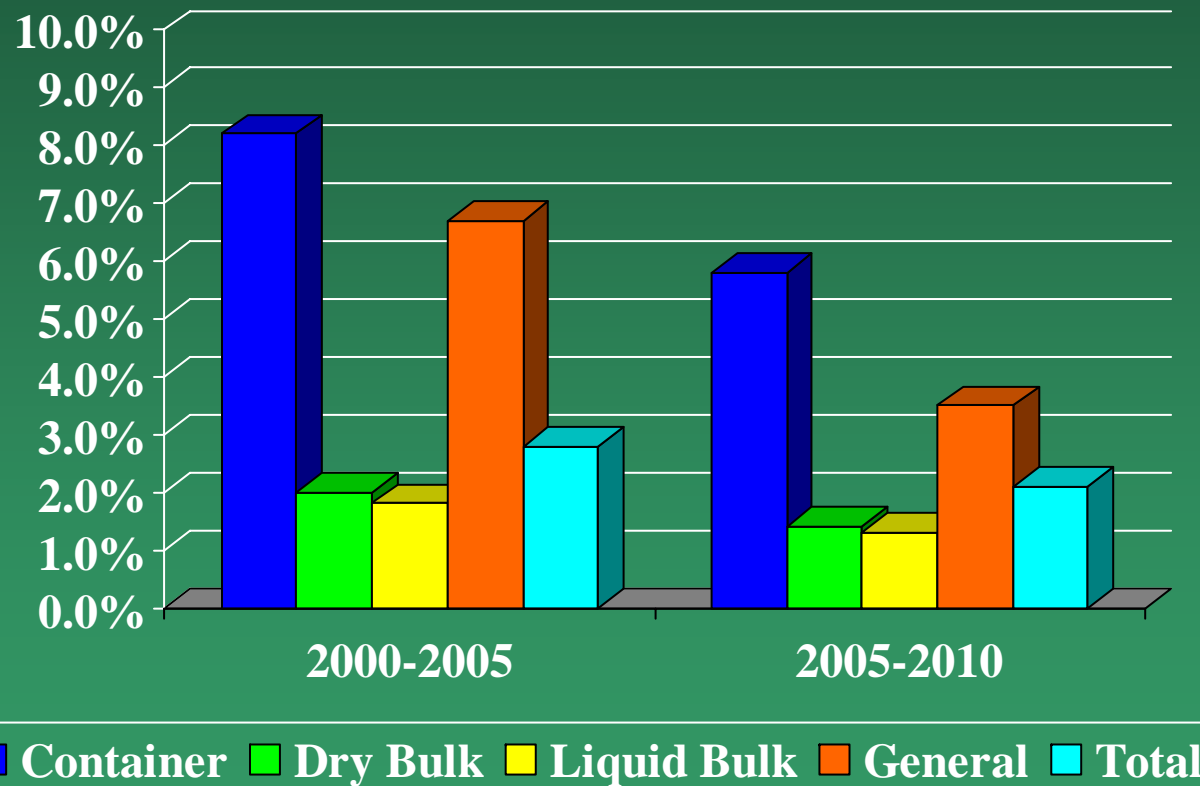
While almost all regions have contributed to overall growth in breakbulk cargoes



Trade Growth Will Continue to Increase the Pressure on Ports

- At a 5% CAGR, trade doubles every 15 years
- At a 7.5% CAGR, trade doubles every 10 years
- In 2005, the major North American ports handled a reported 44+ million TEUs
- By 2010, this volume will approximate 60-65 million TEUs

The next five years will see sustained growth across the hemisphere



II. Define the Challenges



Motor Carrier Challenges



Several factors have driven productivity gains

- Trailer size increased from 40' to 53'
- Truck engine and maintenance cycles lengthened
- Truck engine fuel efficiency increased
- Empty miles were reduced
- Unionized carriers share down
- Improved technology and processes

However, many of these productivity opportunities may be reaching their end

Area of Improvement

- Equipment Gains



- Fuel Efficiency Gains



- Labor Gains



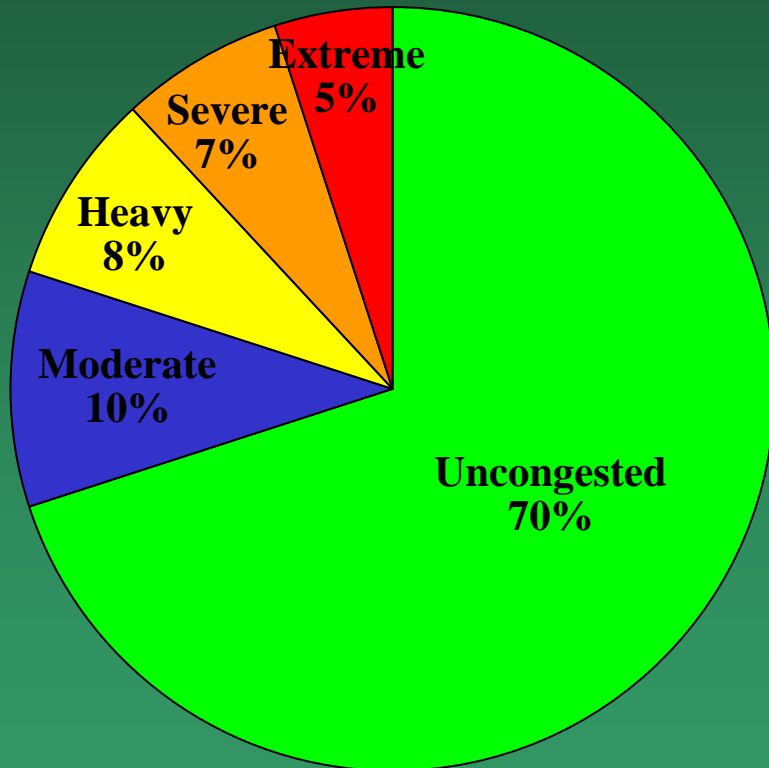
Inhibitor

- 53' to 57' Unlikely
- Environmental Regulations
- Hours-of-Service Regulations

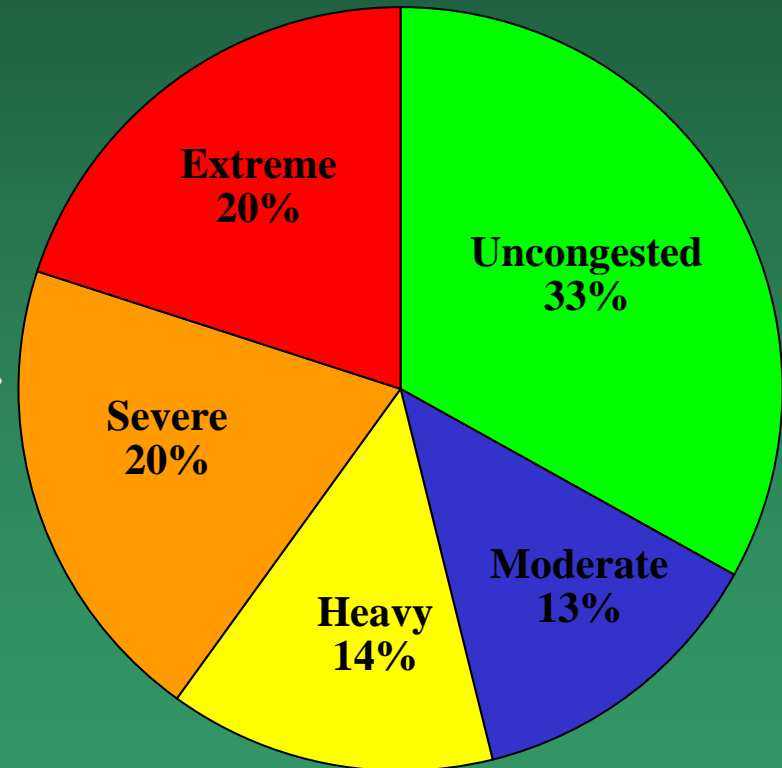
In addition to slower productivity gains, the infrastructure is reaching its capacity

Highway infrastructure is facing significant constraints

Percent of Peak-Period
Travel at Congestion Level
1982



Percent of Peak-Period
Travel at Congestion Level
2002



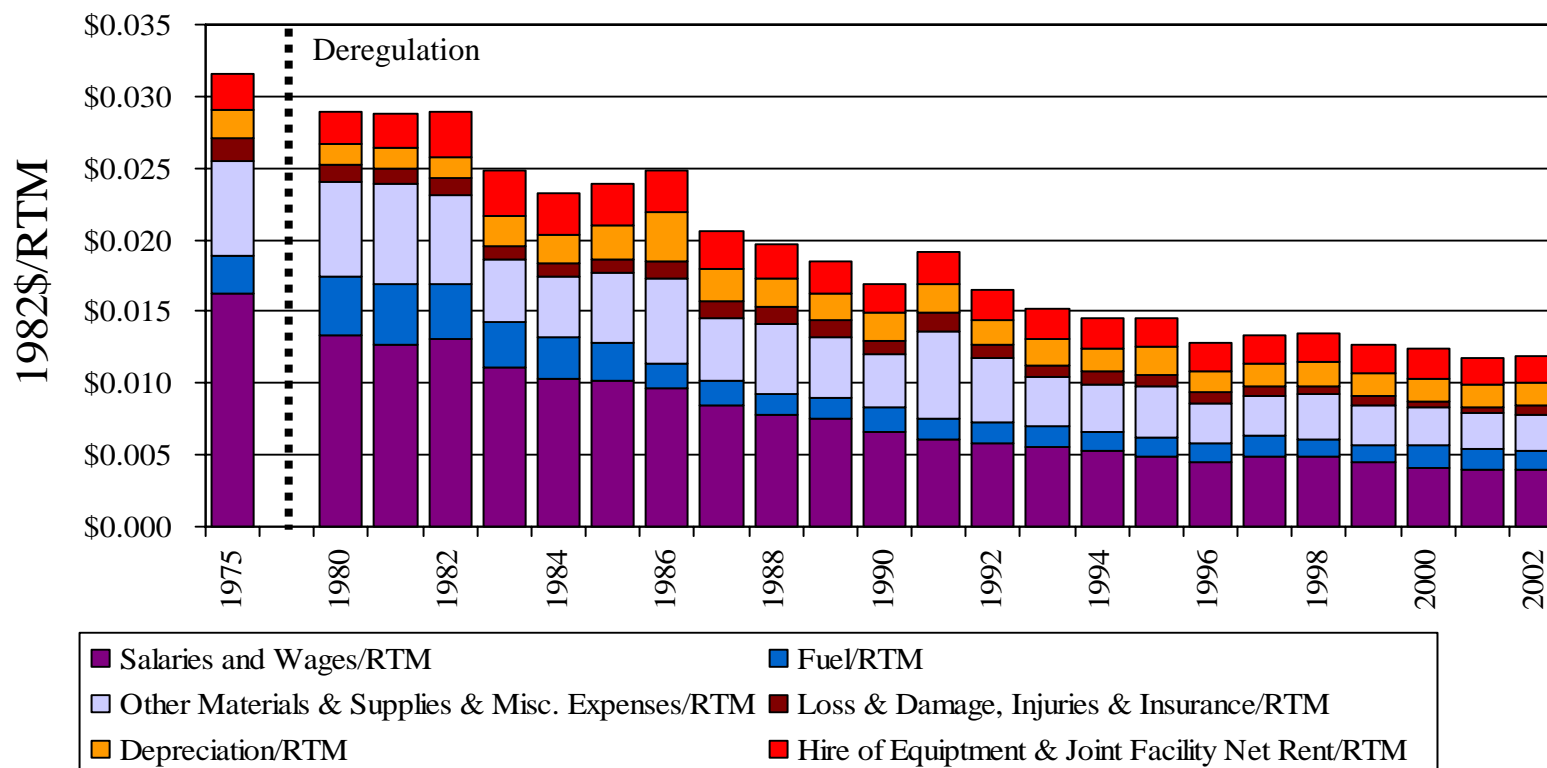
Source: Texas Transportation Institute at Texas A&M University

Rail Industry Challenges



Railroads have more than halved their cost/revenue ton-mile since deregulation

Railroad Expenditures per Revenue Ton-Mile (1982\$)



Note: 1980 and 1981 Salaries & Wages Data reflect AAR's estimate of 95% of total payroll expenses. In comparison year (1982), this measure differs from the 1975, 1982-2002 methodology by 0.4%.

Sources: AAR "Railroad Ten-Year Trends." (various ed.); AAR "Analysis of Class 1 Railroads." (1981); AAR "Railroad Facts" (various ed.).

Productivity gains have contributed to the decreasing cost/revenue ton mile

Productivity Improvements

- Labor requirements declined
- Networks and track were rationalized following mergers
- Engine fuel efficiency increased
- Railcars increased to 286,000 lb. gross rail load
- Many railcar types were improved

For railroads, some of these productivity opportunities may have reached their limits

Area of Improvement

- Equipment Gains



- Labor Gains



- Fuel Efficiency Gains



Inhibitor

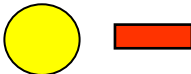
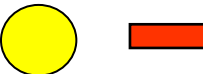

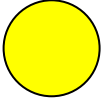




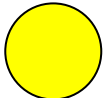

- 315,000 GTW Unlikely
- Adding Employees
- Future Locomotive Environment Regulations?

In addition to slower productivity gains, the infrastructure is reaching its capacity

Port Industry Challenges



Port Region Container Capacity Summaries

	2005 Net Position	2010 Net Position	Comments
PSW			LA/LB face significant capacity challenges during the next five years. Environmental regulation, enforcement and associated costs are key drivers. Oakland will likely have adequate capacity
PNW			Tacoma has largest expansion potential although port-rail and continued PSW diversions pose challenges
Atlantic			North Atlantic, particularly with the AMPT-Portsmouth terminal should provide adequate capacity. The South Atlantic will need to improve density and reduce dwells. A significant increase in Suez services would pose challenges.
South Florida			Southport expansion, terminal reconfiguration, higher density and lower dwell should accommodate growth
Gulf			Bayport, Choctaw and some combination of Tampa, Texas City, Corpus Christi, Brownsville, Millennium Port will likely generate surplus capacity

The Port Industry challenge is multi-dimensional and modal

- Harbor deepening
- Environmental
- Labor efficiency and effectiveness
- Berth utilization
- Reducing dwell times/increasing velocity:
breakbulk as well as container
- Port-rail interface
- Regional transportation infrastructure

The Challenges

Needs are increasing

Environmental challenges

Funding shortfalls

Modally focused

Maritime Industry:
Fragmented approach

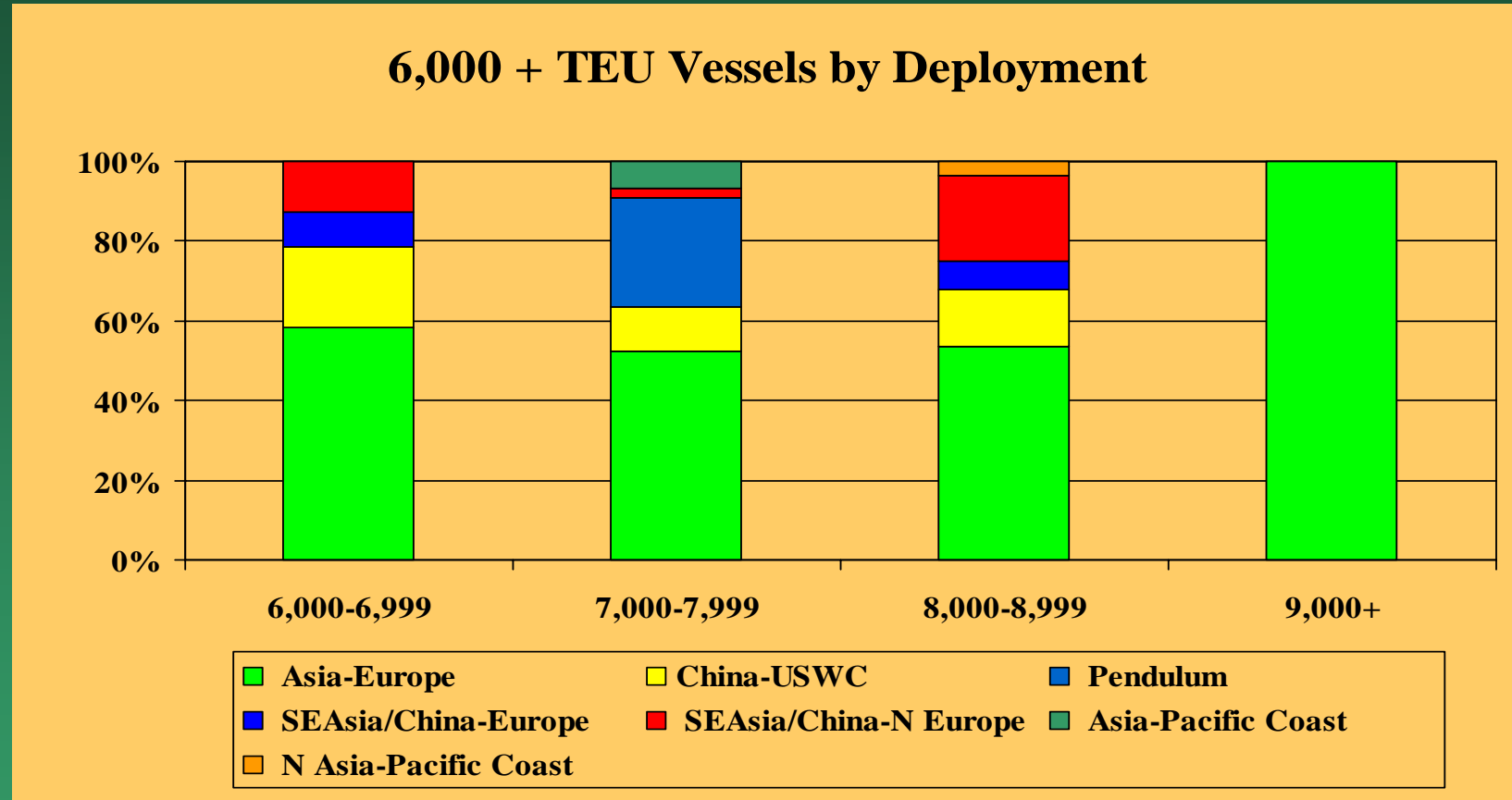
Maritime visibility

Finding the Common Ground

Cover Some Nuts & Bolts



The Big Ships-Where Are They Deployed?

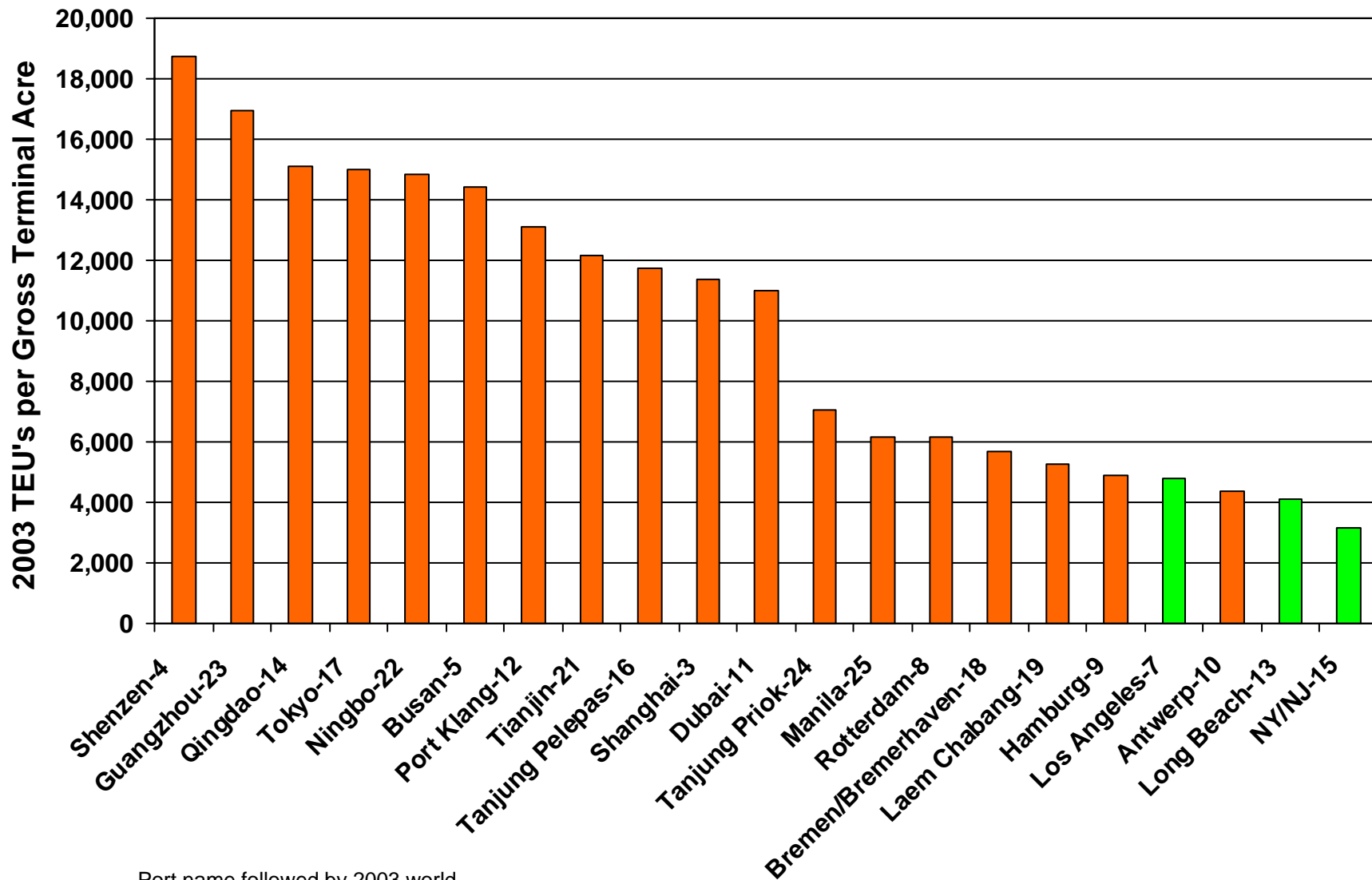


Note: Analysis includes 80% of all vessels over 6,000 TEU currently deployed

Big Ship Realities in a Load Center Port

- 6,300 moves
- 26+ to 50 berth working hours at 25-40 moves per hour and six cranes
- 18 to 32 sorts
 - 3 to 4 load ports to 6 to 8 destinations
- 2,500 to 3,200 rail moves
 - 10 to 13 double stack trains

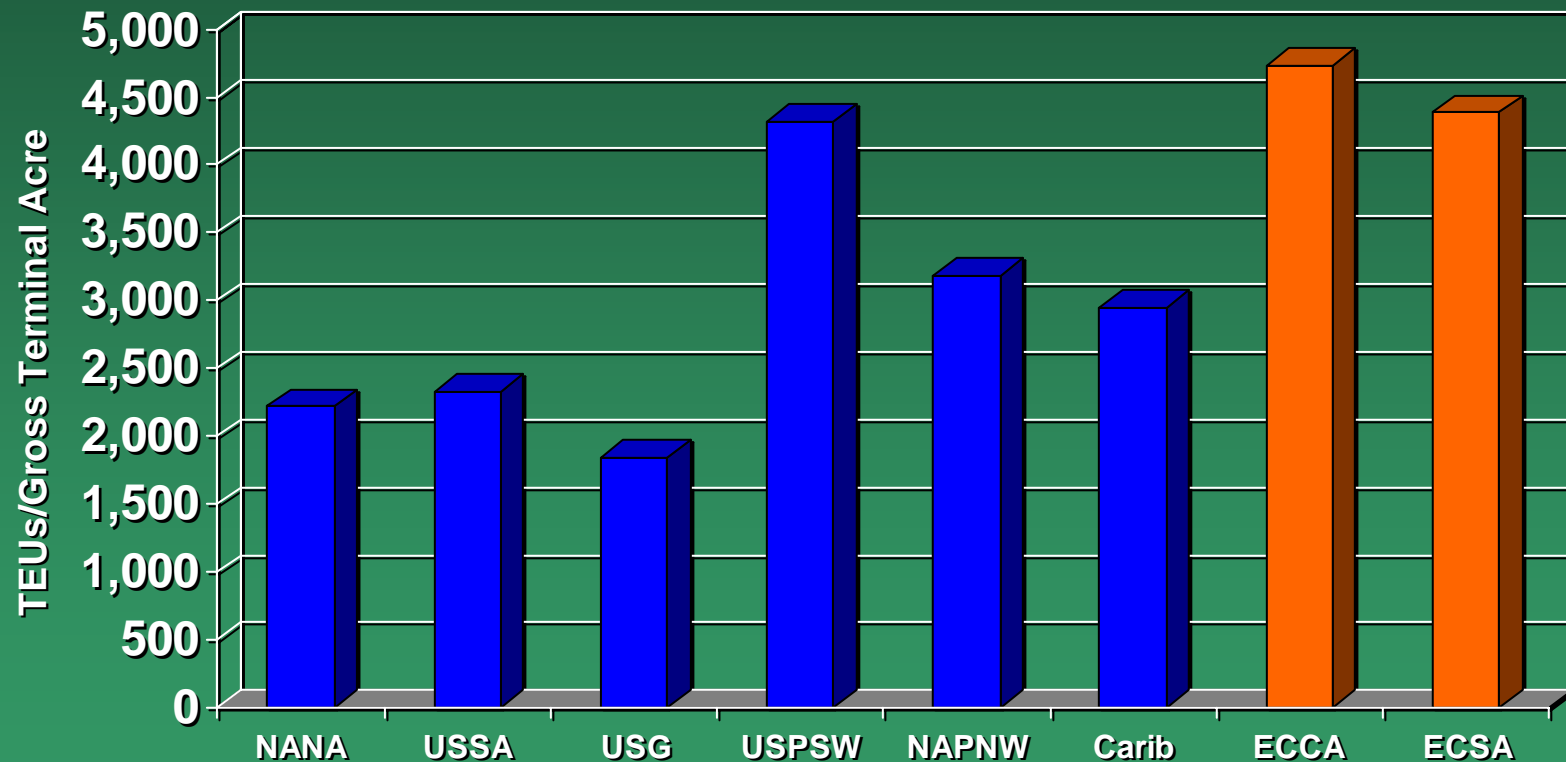
TEUs per Gross Terminal Acre for the World's Top Ports excluding Major Transshipment Ports 2005



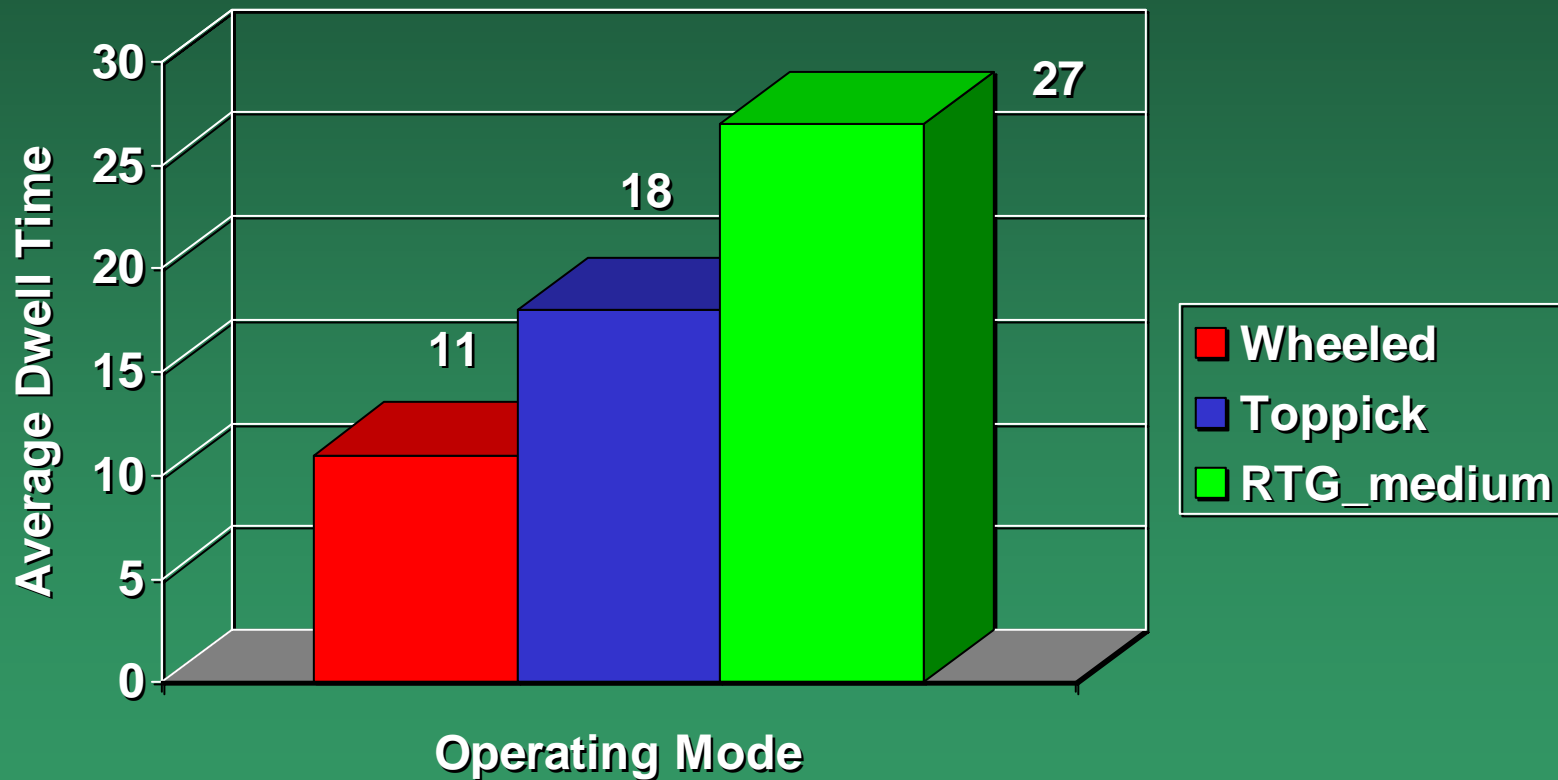
Port name followed by 2003 world gross throughput rank

Estimated Average TEUs per Gross Terminal Acre by Coastal Range*

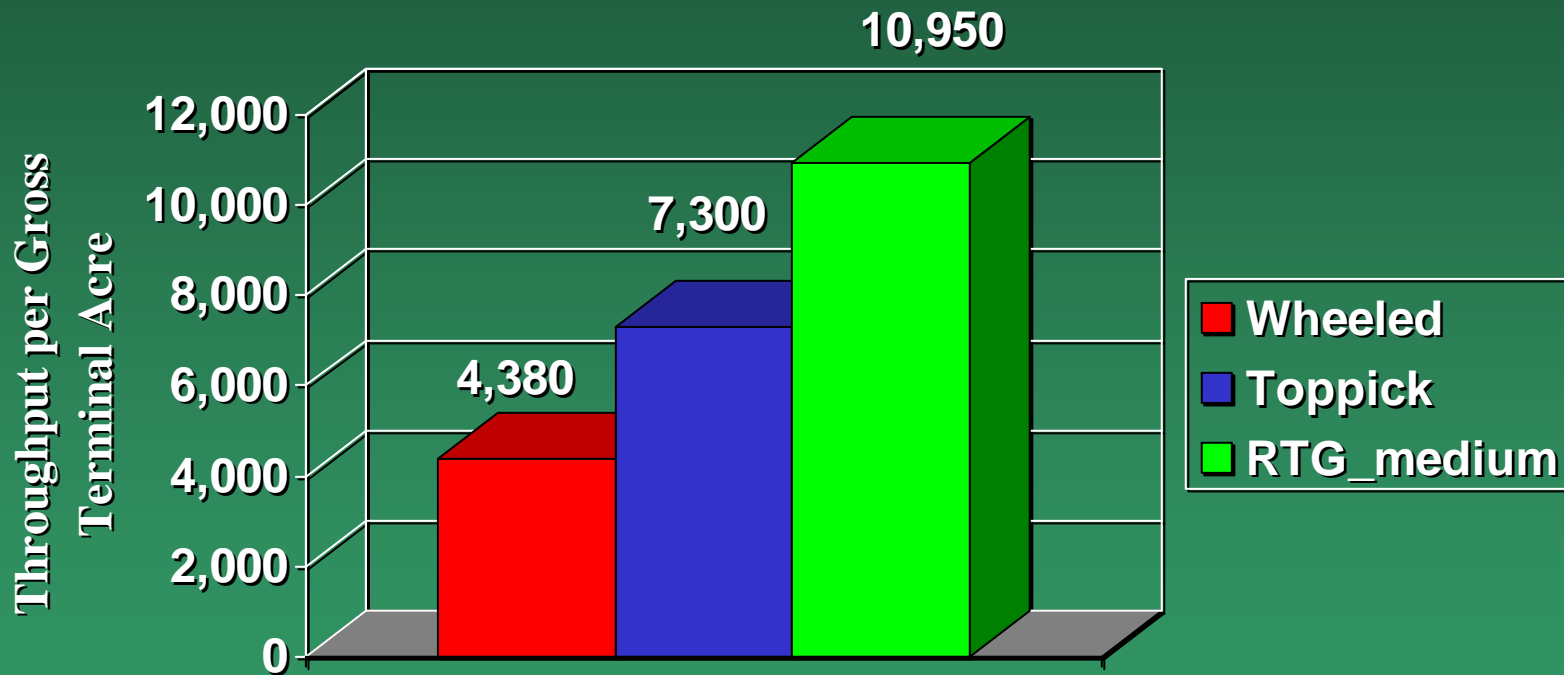
2004



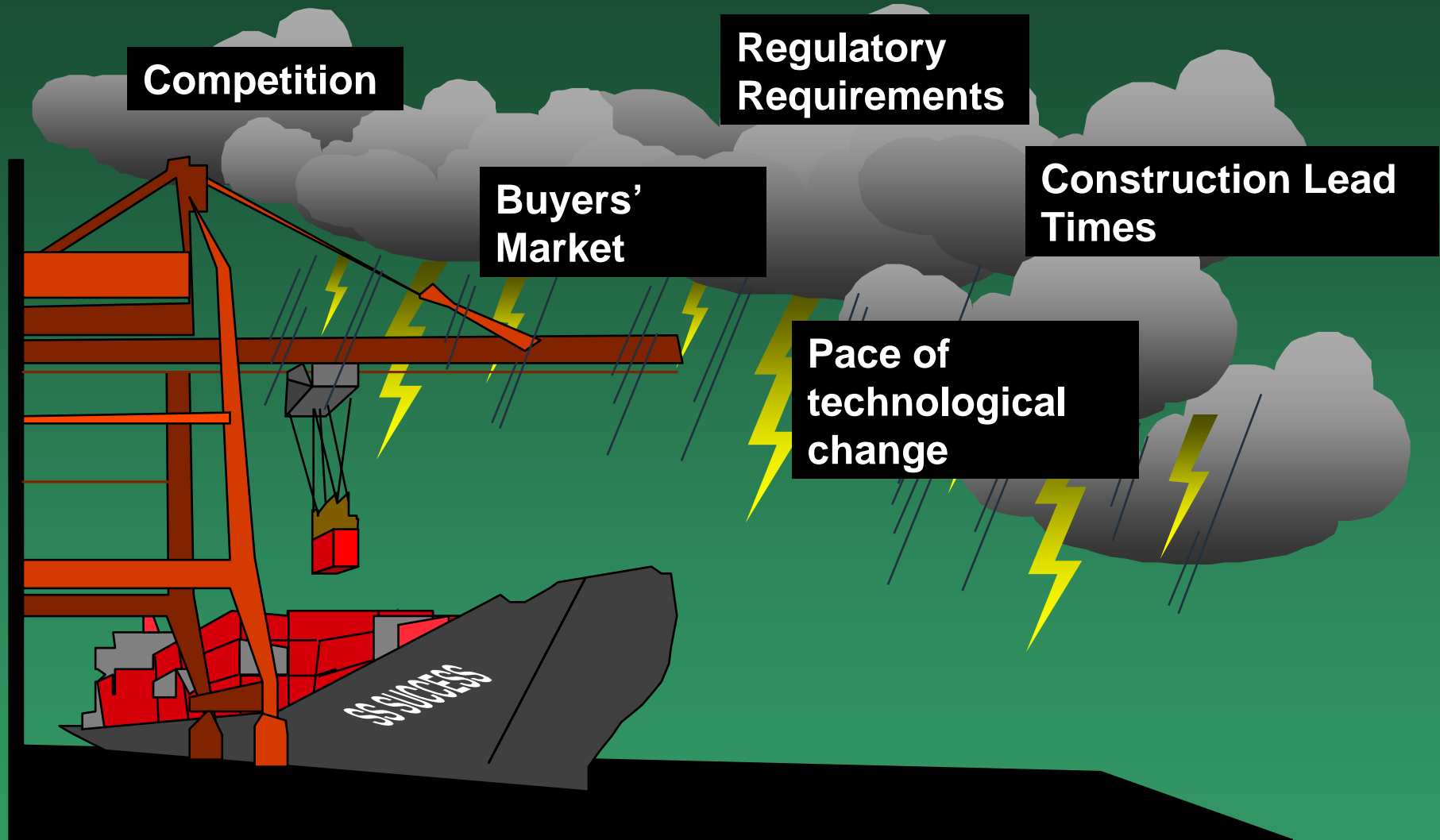
Operating Realities of 3,000 TEUs per Gross Terminal Acre Per Year



Operating Realities if the average dwell time is 7 days



The Port Industry Faces Significant Challenges in Financing Capital Investment



In addition, a significant portion of port capital investments do not generate revenues and have long investment lead times

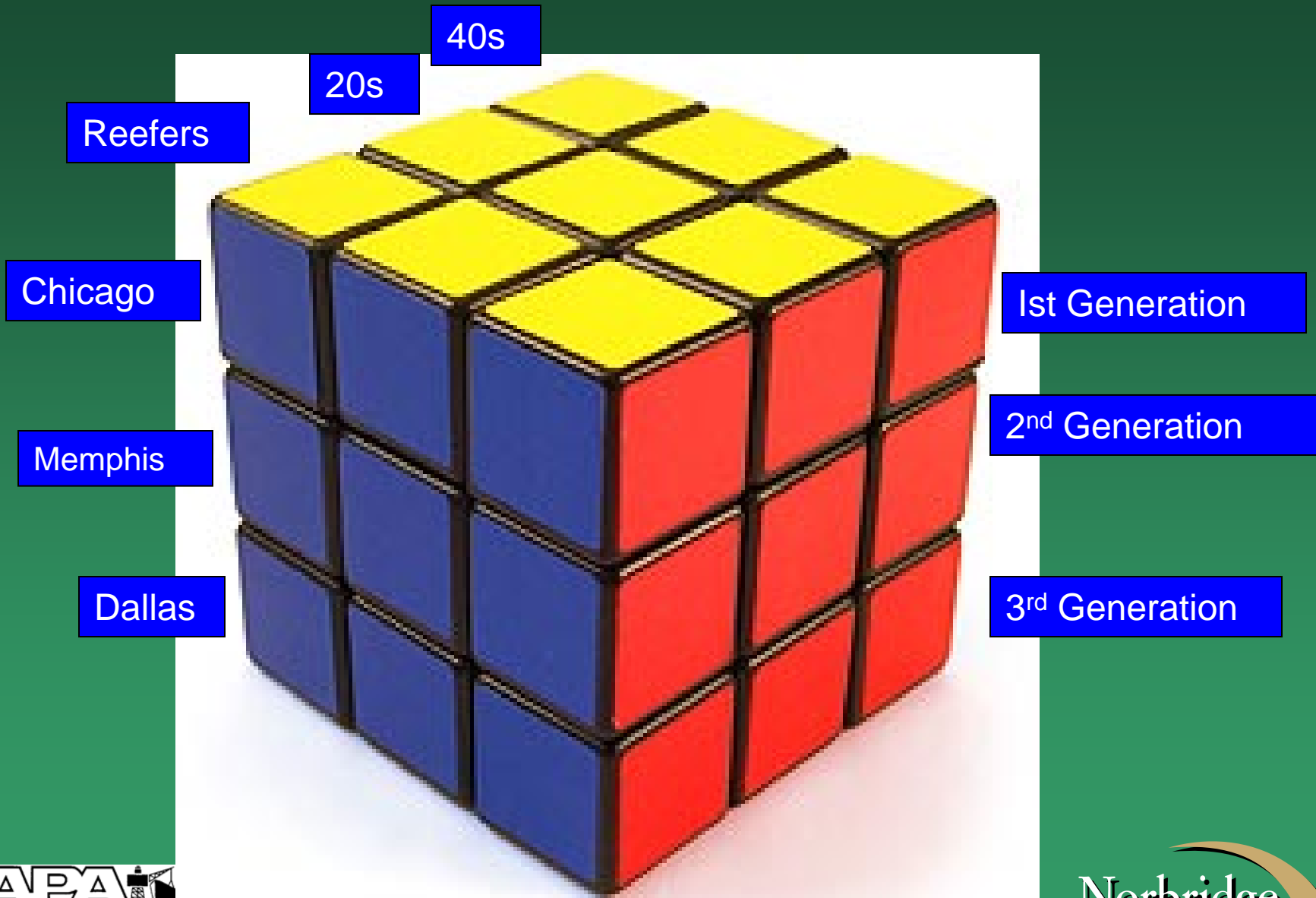
- Dredge spoil disposal areas
- Landfill
- Environmental remediation (cleanup)
- Mitigation
- Road and rail connections
- Grade separations
- Retention ponds
- Rail marshaling yards
- Utility rights of way



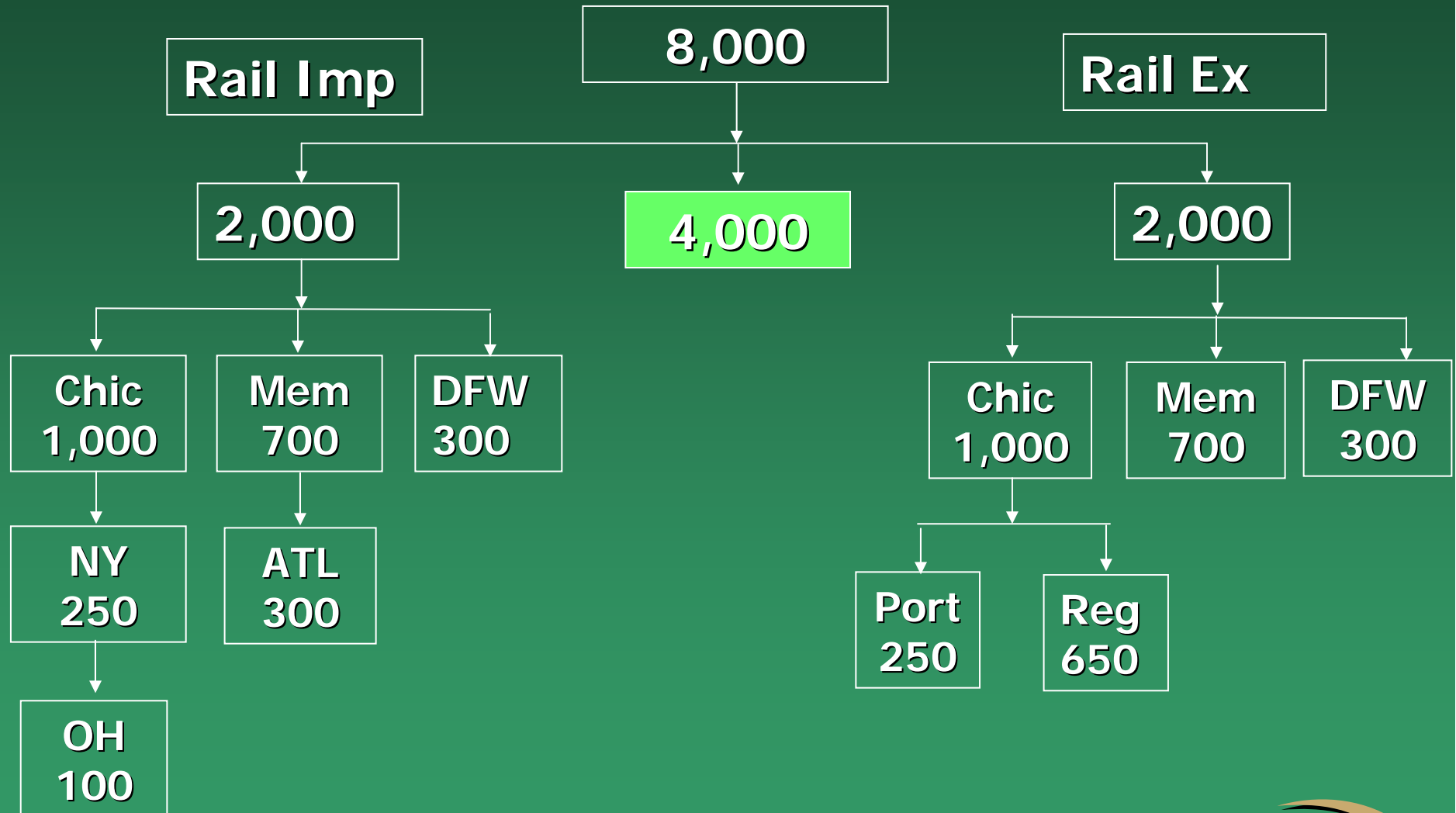
Port-Rail Interface Challenges



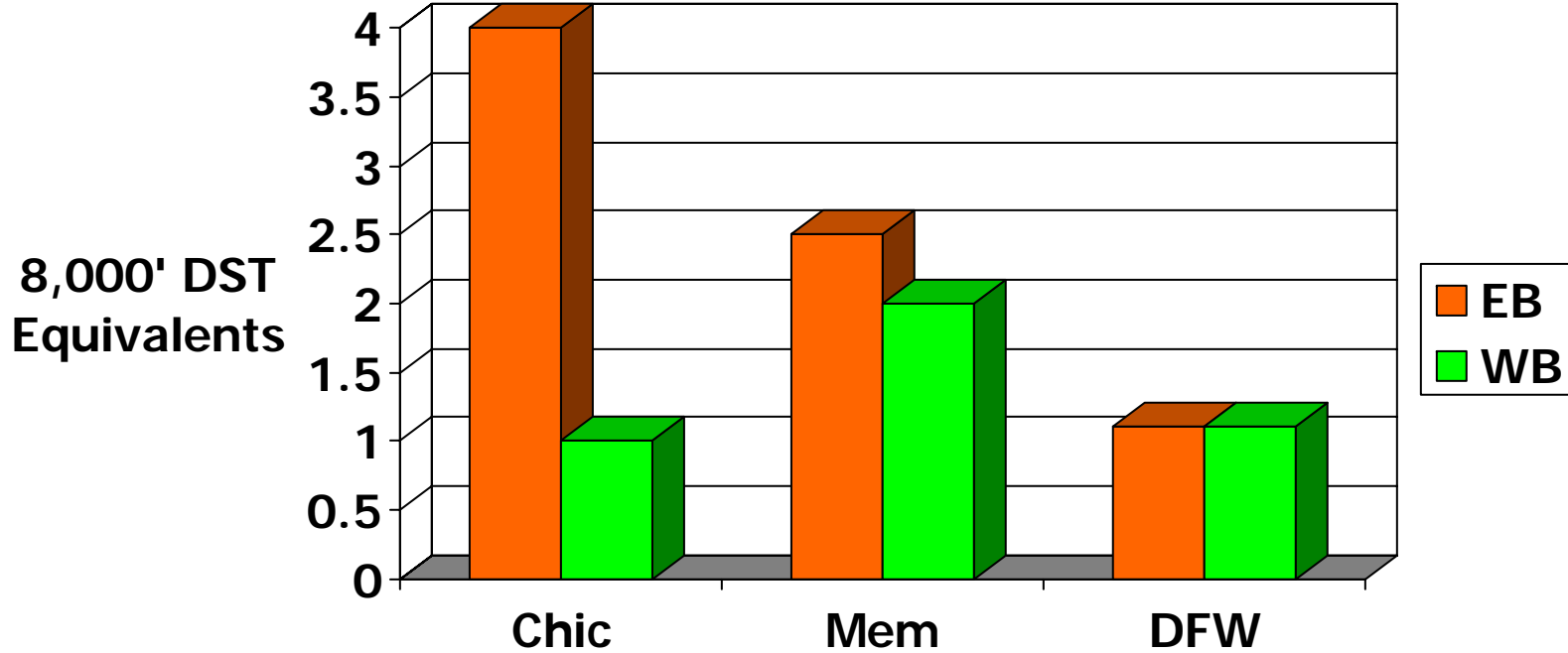
The Port-Rail Interface: Mastering Rubik's Cube



The Port-Rail Interface: The Choice Challenge



The Port Rail Interface: Train Equivalents



The Port Rail Interface: Integrating the Players' Needs & Practices

Carrier

- Vessel schedule
- Vessel stow
- O/Ds
- Equipment type
- Service Requirements

Railroad

- Network structure
- Network capacity
- Traffic balance by lane
- Car fleet
- Domestic traffic
- Blocking requirements
- Schedule

Port

- Landlord or operating
- Rail terminals
 - On dock
 - Contiguous
 - Centralized or decentralized
- Load tracks: #, length, config
- Support tracks: #, length, config

Assess Some of the Implications



A Systemic Approach is Required

What Does It Mean?

- Focus is on the system, not a link or node
- The objectives are clearly defined
- The responsibilities are mutually established
- Quantifiable measures are established and used

What Does It Require?

- A³ Information
 - Available
 - Accessible
 - Accurate
- Cooperation
- An emphasis on velocity
- Flexibility to adapt
- Contingencies

What Are Some of the Tools

- ✓ 24/7 for everyone
- ✓ Just in system time
 - Not my time or your time
- ✓ Minimum free time, ideally measured in hours on peak days
- ✓ Peak pricing
- ✓ Chassis pools & gray boxes
- ✓ Virtual CYs
- ✓ Appointment systems
- ✓ Real time information tools across the supply chain
- ✓ An acceleration in adaptation of world class work rules and practices to the U.S . waterfront

Major Issues and Trends Facing the Port and Marine Transportation Industry

AAPA MTMTP

