Terminal Opportunities & Challenges

Peter I. Keller
NYK Line
April 24, 2006
First, a word about NYK
Sea–Earth–Air “Logistics Integrator”

**Hardware / Assets**

- **Sea**
  - 660 Vessels
- **Earth**
  - 260 Distribution Centers / 2,700 Tractors & Trailers
  - 27 Container & RoRo Terminals
- **Air**
  - 13 “B-747” Freighters

**Software / Services**

- **NYK Line**
  - 114 Offices / 4,000 Employees
  - 11,000 Seafarers
  - Ocean Transportation
  - NYK Line, TSK Line, NYK-Hinode, NYK Global Bulk
- **NYK Logistics**
  - 250 Offices / 13,000 Employees
  - Freight forwarding & Transportation
  - NVOCC “Double Wing Express”
  - Customs Clearance and Import/Export Management
  - Warehousing & Distribution
  - Consolidation
  - Cross Dock / De-consolidation
  - Origin Cargo Order Management
  - Manufacturers’ Inbound Logistics
  - Auto Logistics (PDI, Transportation)
  - Other Logistics Services & Consultation
- **Yusen Air & Sea Service**
  - 166 Offices / 4,300 Employees
  - Air Forwarding and relevant Logistics Services
- **Nippon Cargo Airlines**
  - 17 Offices / 750 Employees
  - Air Transportation
<table>
<thead>
<tr>
<th>Ship Type</th>
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<td>Bulk carriers</td>
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<td>Others</td>
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</table>

646 vessels with 37.6 million DWT (as of March 31, 2005)
Industry Challenges
Industry Challenges

Infrastructure

- Will become the most significant limiting factor for cargo movement, not supply or vessel size.
- Carriers will need to focus on offering superior terminal and operational service to offer competitive service levels.
- Cargo delivery efficiencies must be focused on to reduce cost and drive customer following.
- Terminal space utilization, cargo sequencing and reduced turn time will be critical to enable carriers/terminals to meet future demand.
North American Container Terminal Capacity Update
Container terminal capacity definitions and key assumptions: current average industry operating practices

**Definitions**

- **Capacity**: the theoretical maximum capacity of the marine container terminals
  - Assumes container terminal storage is the constraint -- as it is in most container terminals
  - Includes consideration of peaking in order to estimate the maximum theoretical capacity
- **Utilization**: projected throughput divided by capacity

**Key Assumptions**

- Base Case storage capacity: 50% 90 TEU/acre wheeled storage and 50% 135 TEU/acre toppick storage for imports. 100% 135 TEU/acre toppick storage for exports.
- Medium Density storage capacity: 100% imports/exports RTG stowed 2.5 high, 225 TEU/acre.
- High Density storage capacity: 100% imports/exports stowed 3.5 high, 315 TEU/acre.
- All Empties block stowed, 450 TEU/acre.
- **Import Dwell:**
  - Rail – 2 days
  - Local – 5 days
- **Export Dwell:**
  - Rail – 3.5 days
  - Local – 7 days
- **Empty dwell – 21 days**
- Capacities adjusted for a 20% peaking factor
## Port Region Summaries

<table>
<thead>
<tr>
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<th>2005 Net Position</th>
<th>2010 Net Position</th>
<th>Comments</th>
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<tbody>
<tr>
<td>PSW</td>
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<td>LA/LB face significant capacity challenges during the planning horizon. Oakland has ample capacity</td>
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<tr>
<td>PNW</td>
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<td>Existing capacity plus Tacoma’s expansion potential should result in ample capacity unless major PSW diversions continue</td>
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<tr>
<td>South Atlantic</td>
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<td>Savannah’s significant surpluses and Charleston's modest surpluses provide ample capacity. Charleston’s berths may pose constraints</td>
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<tr>
<td>South Florida</td>
<td></td>
<td></td>
<td>Port Everglade’s significant surpluses drive South Florida’s surpluses throughout the planning horizon</td>
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</table>
San Pedro Bay Ports’ Net Position:

- **Base density:** capacity shortfall under all demand scenarios
- **Medium density:**
  - Accommodates low growth
  - Shortfalls occur under both the base and high forecast scenarios
- **High density:**
  - Accommodates low and base forecast scenarios
  - Capacity is balanced in 2009 and a shortfall occurs in 2010
- **Implications:** given current environmental issues and associated lead times, the terminals will need to significantly improve asset utilization to accommodate demand through 2010
The Southern California region*

San Pedro Bay Area Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: Norbridge analysis.

*Includes the ports of Long Beach and Los Angeles.
Los Angeles

Los Angeles Capacity Utilization

Thousands of TEUs

Low Forecast
Base Forecast
High Forecast
Base Density
Medium Density
High Density

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<th></th>
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<th>2010</th>
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Source: Norbridge Analysis

Note: Bars represent projected port throughput while lines represent projected port capacity
Long Beach

Long Beach Capacity Utilization

Thousands of TEUs

Low Forecast
Base Forecast
High Forecast
Base Density
Medium Density
High Density

2005 2006 2007 2008 2009 2010 Beyond

Low Forecast 5,982 6,192 6,408 6,633 6,865 7,105 7,354
Base Forecast 6,156 6,556 6,982 7,436 7,919 8,434 8,982
High Forecast 6,473 7,250 8,120 9,095 10,186 11,408 12,777
Base Density 5,683 5,683 6,427 6,427 6,427 6,427 6,427
Medium Density 7,585 7,585 8,578 8,578 8,578 8,578 8,578
High Density 9,188 9,188 10,391 10,391 10,391 10,391 10,391

Source: Norbridge analysis.

Note: Bars represent projected port throughput while lines represent projected port capacity.
Oakland’s Net Capacity Position: +

- **Base density**: accommodates low and base demand through 2009
- **Medium density**: accommodates low and base demand beyond 2010
  - Capacity shortfall occurs in 2010 under the high forecast
- **High density**: accommodates all growth scenarios beyond the forecast period
- **Implications**: Available capacity, in combination with the expansion potential associated with the Army Base project should insure that Oakland does not face significant capacity issues during the forecast horizon
Oakland

Source: Norbridge analysis.

Note: Bars represent projected port throughput while lines represent projected port capacity.
Puget Sound’s Net Capacity Position: 

- **Base density:** accommodates low and base demand throughout the planning horizon
  - Under the high forecast, shortfalls develop by 2008
- **Medium density:** accommodates low and base demand beyond 2010
  - Capacity balance occurs in 2010 under the high forecast
- **High density:** accommodates all growth scenarios beyond the forecast period
- **Implications:** Available capacity, in combination with Tacoma’s expansion potential should insure that Puget Sound does not face significant capacity issues during the forecast horizon
  - This does not reflect the potential effect that continued diversion of PSW cargoes could have on the current capacity surplus
Puget Sound* Ports

Puget Sound Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: AAPA, MARAD, and Norbridge analysis.

*Includes the ports of Seattle and Tacoma.
Seattle

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: Norbridge analysis.
Tacoma

Tacoma Capacity Utilization

Source: AAPA, MARAD, and Norbridge analysis.

Note: Bars represent projected port throughput while lines represent projected port capacity.
Puget Sound’s Net Capacity Position:

• **Base density:** capacity shortfalls occur under all demand scenarios

• **Medium density:** accommodates low and base demand beyond 2010
  – Capacity shortfalls develop by 2009 under the high forecast

• **High density:** accommodates all growth scenarios beyond the forecast period

• **Implications:** Vancouver could begin to experience capacity shortfalls by 2007-2008 depending on demand. The opening of Prince Rupert Phase I could offset this trend and result in a capacity surplus throughout the planning horizon
Vancouver

Vancouver Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: Norbridge analysis.
New York’s Net Capacity Position: +

• **Base density:** accommodates the low and base forecasts throughout the planning horizon
  – Capacity shortfalls develop in 2009 under the high forecast scenario

• **Medium density:** capacity significantly exceeds demand under all forecast scenarios

• **High density:** capacity significantly exceeds demand under all forecast scenarios

• **Implications:** New York is not expected to experience capacity issues throughout the forecast horizon
  – The introduction of multiple Suez services with 6,500+ TEU ships could potentially create draft and berth constraints
New York/New Jersey

New York/New Jersey Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: Norbridge analysis.
Hampton Road’s Net Capacity Position: 🟢

• The Maersk Cox Property development in combination with the ongoing modernization of NIT South and expansion of NIT North will provide significant surplus capacity throughout the forecast horizon.

• **Suez Service Effects:** if a number of carriers were to introduce 6,500+ TEU vessel strings with Hampton Roads as the first port inbound due to its deep draft, it is possible that capacity shortfalls could develop under the base scenario.
Hampton Roads

Hampton Roads Capacity Utilization

Source: AAPA, MARAD, and Norbridge analysis.

Note: Bars represent projected port throughput while lines represent projected port capacity
South Atlantic’s Net Capacity Position:  

- Significant capacity surpluses in Savannah offset potential berth and yard constraints in Charleston and result in a net surplus for the South Atlantic region.
- The Mitsui/Trapac Jacksonville development could lead to further capacity surpluses if the NWA diverts traffic from Charleston and Jacksonville.
- The introduction of Suez Services could absorb some portion of the surplus depending on the number of strings, the average size vessel deployed and the port rotations.
South Atlantic*

South Atlantic Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: AAPA, MARAD, and Norbridge analysis.
Charleston’s Net Capacity Position: + / ○

- **Base density**: accommodates the low and base forecasts throughout the planning horizon
  - Capacity shortfalls develop by 2009 under the high forecast
- **Medium & High Density**: both scenarios generate significant capacity surpluses throughout the planning horizon
- **Potential berth constraints**: Charleston currently experiences berth constraints at selected terminals today on peak days. Berth capacity could become a significant capacity constraint
- The Navy Base development has been excluded from the analysis
Charleston

Charleston Capacity Utilization

Source: Norbridge analysis.

Note: Bars represent projected port throughput while lines represent projected port capacity.
Savannah’s Net Capacity Position:  

• Savannah has ample capacity under all operating scenarios
• The Mitsui OSK/Trapac development in Jacksonville could result in further increases if NWA traffic is diverted from Savannah
Savannah

Savannah Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: AAPA, MARAD, and Norbridge analysis.
Jacksonville’s Net Capacity Position: 

• Jacksonville has ample capacity under all operating scenarios.
• The demand side effects of the Mitsui OSK/Trapac development may increase the demand scenarios. However, significant capacity surpluses are still likely.
• The “wheeled nature” of Jacksonville’s Puerto Rico business probably leads to an overstatement of capacity:
  – Moderate overstatement under the Base Density scenario
  – Significant overstatement under the Medium and High Density scenarios
• Consequently, NYK may want to consider testing Jacksonville under a wheeled operation scenario.
Jacksonville

Jacksonville Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: MARAD and Norbridge analysis.
South Florida’s Net Capacity Position: 

- Significant capacity surpluses in Port Everglades drive the net capacity surpluses under all operating scenarios.
- Miami capacity is potentially overstated due to the wheeled operations by Seaboard.
  - Would reduce overall capacity, particularly under the medium and high density scenarios.
  - NYK may want to consider adjusting the Miami estimates to reflect Seaboard’s wheeled operations.
- Additional expansion potential at Port Everglades, if developed, would increase current capacity surpluses.
South Florida*

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: AAPA, MARAD, TSC, and Norbridge analysis.

*Includes the Port of Miami and Port Everglades.
Miami

Miami Capacity Utilization

Note: Bars represent projected port throughput while lines represent projected port capacity.

Source: TSC, AAPA, MARAD, and Norbridge analysis.
Port Everglades

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: AAPA, MARAD, and Norbridge analysis.
Houston’s Net Capacity Position:

- Houston faces significant capacity challenges under the base and medium density scenarios throughout the planning horizon.
- Moderate capacity surpluses occur under the high density scenario.
- The development of Bayport will create significant capacity surpluses.
- **Implications:** Houston faces significant challenges in accommodating growth during the planning horizon, particularly if the Wal-Mart distribution center development attracts additional direct call services.


Houston

Note: Bars represent projected port throughput while lines represent projected port capacity

Source: AAPA, MARAD, Norbridge analysis.
Marine Infrastructure

**Productivity**

- We must be better stewards of our assets
- West Coast is getting +/- 25 moves per hour (mph). Southeast Ports get +/- 40 mph. Even a NY Terminal gets 35 mph.
- World standard in excess of 45 mph
- Dwell of assets. Shippers demand fastest service with maximum of days free from demurrage & detention.
- Vessel operations typically 24/7, balance of supply chain 8/5. Slowest link dictates velocity.
- Berth constraints possible in future
- Labor a major driver
Industry Challenges

- Inland transportation costs and depot delivery points
- Trucking service and driver availability
- Fuel cost and cost sharing to avoid carrier service or availability disruption.
- Limited expansion for inland as well as port operations
- Chassis Operations – *A new paradigm is emerging*
Intermodal Partners

- Rail capacity, service and pricing concerns to support inland distribution centers. Rail costs up 25-28%

- Rail “duopoly” and regulation/deregulation dilemma

<table>
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<tr>
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<th>6-Jan</th>
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Intermodal Partners Opportunities

• Utilization of alternative gateways and rails
  - East & Gulf Coast – More emphasis on NS & CSX
  - Prince Rupert via CN
  - Mexico via KCS

• Panama Canal capacity long term v/v Suez Gateway

• Trucking capacity and driver retention demand rails examine short & medium haulage opportunities

• Efficiency of truck moves (less empty hauls) and dramatic changes in chassis management
Potholes

Does the population at large really understand how all that “stuff” gets to the Target shelves?

Transportation is seen as a congestion of highways, polluter of the seacoasts, fouler of the air and maker of noise
Industry Potholes

Lack of U.S. Transportation Policy including Maritime

- U.S. Flag fleet essentially restricted to Jones Act
- Little if any understanding of importance of International trade
- US Terminal expansion severely limited
- Interstate Highway system older than Containerization
- Rail capacity and service (Now “providers of capacity, not service”)
- Short Sea the “new game”
- Entry points to US are becoming more congested with little or no Government involvement for investment

This, while Asia and other places in the world are building capacity in their transportation systems to support the new reality of International trade
Industry Potholes

EPA and Government Regulatory limitations, at all levels, for operations and growth

- No current balance between environment and growth
- California attempting to preempt federal jurisdictions
- Others will follow for political reasons
Industry Potholes

Larger vessels will continue to create even greater challenges as we push the “mine is bigger than yours mentality” and we do NOT address productivity.

- Water depths
- Berth sizes
- Crane capabilities
- We need dramatic changes as to date we have generally “paved the cow path.”
Industry Potholes

Supply Chain Security

- An imperative to protect our Nation, our Business and our Customers Brand
- Answer is not in the U.S., rather it is an extraterritorial matter
- C-TPAT and Container Security Initiative (CSI) are reasonable initiatives
- Technology will be helpful if properly applied to solve a defined, real problem.
- Identity of Workers essential (TWIC)

*We need to stop the political posturing and listen to the real experts*
The Future

• Lines that can deliver Integrated Supply Chain solutions that meet specific customer demands will dominate

• Real Productivity solutions and paradigm changes as the business continues to mature are essential, especially in the U.S. Terminal and Intermodal segment

• We must find competitive alternatives to keep all elements of the Intermodal process in balance

• Supply Chain Visibility & Security will be non-negotiable
Questions and Answers