Growth Opportunities for General Cargo and Shallow-Draft Ports

Presented by
Guillaume Lucci, P.E.
Principal Vice President & General Manager
Ports and Maritime Services
NOVEMBER 2006
Planning for Growth

- What is Planning?
- What Are the Challenges?
- Planning - Example for the Coal Market
- So...What is Planning?
- Wrap-up
What is Planning?

• A few definitions of planning:
  – An act of formulating a program for a definite course of action.
  – The act or process of drawing up plans or layouts for some project or enterprise.
  – The cognitive process of thinking about what you will do in the event of something happening.

Planning literally just means the creation of a plan.
A Few Quotes

– Mencius: “Planning is in the power of man; executing is in the hands of Heaven.”
– Richard Nixon: “A riot is a spontaneous outburst. A war is subject to advance planning.”
– You are young at any age if you are planning for tomorrow.
– If you employed study, thinking, and planning time daily, you could develop and use the power that can change the course of your destiny.
Commodities - Corn

East Central SD Corn Prices: 1990-2006
(weekly average)

Data compiled by SDSU Extension Economics - http://econ.sdstate.edu

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Commodities – Crude Oil

Crude Oil Prices
2006 Dollars

- Iran / Iraq War
- OPEC 10% Quota Increase
  Asian Econ Crisis
- Iranian Revolution
- Series of OPEC Cuts
  4.2 Million Barrels
- Avg World $25.56
- Avg U.S. $23.57
- Median U.S. & World $18.43
- Yom Kippur War
  Oil Embargo
- Gulf War
- PDVSA Strike
  Iraq War
- Asian Growth
- 9/11
- U.S. Price Controls

2006 $/BARREL

1947 - Sept. 2006

- U.S. 1st Purchase Price (Wellhead)
- "World Price"

WTRG Economics ©1998-2006
www.wtrg.com
(479) 293-4081

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Construction Costs

![Producer Price Index Graph]

**Producer Price Index**
January 2002 = 100

- Steel
- Lumber
- Asphalt
- Concrete

Source: Bureau of Labor Statistics

*BLs series “Paving Asphalt” through 2003 (discontinued) then "Asphalt Paving Mixtures and Block"*
Vessel Sizes

Source: Martin Stopford – April 2003
Time – Charter Rates Bulkers

Capesize 1 year T/C  Panamax 3/5 months T/C  Handymax 3/5 months T/C

This week value

Source: Barry Rogliano Salles
Dry Bulk Carriers Second-Hand Prices

Source: Barry Rogliano Salles
Capesize & Iron Coal Freight Rates

This week value

- Bolivar/East Med 150,000 t
- Tubarao/Dunkirk (W+E) 160,000 t
- Tubarao/Fos 145,000 t

Source: Barry Rogliano Salles

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Atlantic Coal Freight Rates

Panamax Richards Bay / Le Harve - 70,000t

This week value

$/ton

Source: Barry Rogliano Salles

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Coal Export/Import Tonnage Trends

Figure 102. U.S. coal exports and imports, 1970-2030 (million short tons)

Source: Energy Information Administration
Terminal/Plant Infrastructure

Export to Dual Export/Import

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Globalization

“—My goodness, it’s grown!
—It’s just the effects of vitamin G, or globalization.

—¡Cómo ha crecido!
—Son los efectos de la vitamina G, globalización.
The Challenges - Volatility....

- Commodity Market
- Globalization Issues
- Construction Costs
- Charter Rates
- Fleet Size
- Environmental Issues
- Security Issues
The Elements of Planning

• Establish the facts
• Establish the variables and their sensitivity
• Assess the risks and Embrace them
• Establish the success metrics
• Set a realistic Expectation
• Define the solutions and course of action when face with change
• Continue planning

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Design Criteria – Outline the Facts

<table>
<thead>
<tr>
<th>Design Criteria Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Data and Facility Standards</td>
</tr>
</tbody>
</table>

**Project Information**

<table>
<thead>
<tr>
<th>Class</th>
<th>Project Description</th>
<th>Project Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Revision:** Issued for Review & Comment

**Site Data:**

<table>
<thead>
<tr>
<th>Project No</th>
<th>Project Manager</th>
<th>Current Revision By</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Design Storm:** 25 Year 100, 25, 50, or 100 Year

<table>
<thead>
<tr>
<th>Ambient Temperature Mean High</th>
<th>Mean Low</th>
<th>Mean Low</th>
<th>Max Low</th>
<th>Annual Snowfall</th>
<th>First Froze</th>
<th>Design Storm</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>67°F</td>
<td>47°F</td>
<td>5°F</td>
<td>8°F</td>
<td>31”</td>
<td>11°F</td>
<td>47”</td>
<td>25</td>
</tr>
</tbody>
</table>

**Site Data:**

<table>
<thead>
<tr>
<th>Significance Structural Effects</th>
<th>Snowfall, Waterway Move Freeze, Hurricane, Fog</th>
<th>Design Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>National</td>
</tr>
</tbody>
</table>

**Capacity:**

<table>
<thead>
<tr>
<th>Annual Throughput</th>
<th>6,000,000 tons per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution:</td>
<td></td>
</tr>
<tr>
<td>Yard Storage:</td>
<td></td>
</tr>
<tr>
<td>Truck Loadout:</td>
<td></td>
</tr>
</tbody>
</table>

**Environmental Assessment:**

<table>
<thead>
<tr>
<th>Permit Available</th>
<th>To be Developed</th>
</tr>
</thead>
</table>

**Design:**

<table>
<thead>
<tr>
<th>Permit Available</th>
<th>To be Developed</th>
</tr>
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</table>

**Design:**

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</table>

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</table>

**Design:**

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**Design:**

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</table>

**Design:**

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<tr>
<th>Permit Available</th>
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</thead>
</table>

**Design:**

<table>
<thead>
<tr>
<th>Permit Available</th>
<th>To be Developed</th>
</tr>
</thead>
</table>

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## Trends in Coal Export/Import

### Coal Export Facilities

#### Table 7. U.S. Coal Exports and Imports, 2000-2006

(Thousand Short Tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>January - March</th>
<th>April - June</th>
<th>July - September</th>
<th>Oct - December</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports</td>
<td>Imports</td>
<td>Exports</td>
<td>Imports</td>
<td>Exports</td>
</tr>
<tr>
<td>2000</td>
<td>13,598</td>
<td>2,815</td>
<td>14,379</td>
<td>2,745</td>
<td>15,799</td>
</tr>
<tr>
<td>2001</td>
<td>11,841</td>
<td>3,910</td>
<td>13,500</td>
<td>4,124</td>
<td>11,655</td>
</tr>
<tr>
<td>2002</td>
<td>9,253</td>
<td>4,000</td>
<td>11,043</td>
<td>3,857</td>
<td>9,257</td>
</tr>
<tr>
<td>2003</td>
<td>8,518</td>
<td>4,954</td>
<td>11,450</td>
<td>6,393</td>
<td>12,094</td>
</tr>
<tr>
<td>2004</td>
<td>9,688</td>
<td>5,326</td>
<td>15,255</td>
<td>6,853</td>
<td>12,203</td>
</tr>
<tr>
<td>2005</td>
<td>10,129</td>
<td>7,607</td>
<td>14,803</td>
<td>7,233</td>
<td>12,620</td>
</tr>
<tr>
<td>2006</td>
<td>10,659</td>
<td>8,958</td>
<td>12,590</td>
<td>7,956</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** Total may not equal sum of components because of independent rounding.

### Main Destinations for Exported Coal

<table>
<thead>
<tr>
<th>Continent and Country of Destination</th>
<th>April - June</th>
<th>January - March</th>
<th>April - June</th>
<th>Year to Date</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td>2006</td>
<td>2005</td>
<td>2006</td>
<td>2005</td>
</tr>
<tr>
<td>North America Total</td>
<td>5,860,882</td>
<td>3,427,350</td>
<td>6,132,782</td>
<td>9,288,232</td>
<td>8,397,972</td>
</tr>
<tr>
<td>Canada</td>
<td>5,748,644</td>
<td>3,230,402</td>
<td>5,897,462</td>
<td>8,979,046</td>
<td>7,771,429</td>
</tr>
<tr>
<td>South America Total</td>
<td>1,190,478</td>
<td>1,273,972</td>
<td>1,168,466</td>
<td>2,464,450</td>
<td>2,193,004</td>
</tr>
<tr>
<td>Brazil</td>
<td>1,085,707</td>
<td>1,216,002</td>
<td>994,711</td>
<td>2,301,709</td>
<td>1,937,092</td>
</tr>
<tr>
<td>Europe Total</td>
<td>4,910,077</td>
<td>5,016,445</td>
<td>5,428,841</td>
<td>9,926,522</td>
<td>10,264,236</td>
</tr>
<tr>
<td>Italy</td>
<td>648,895</td>
<td>1,031,634</td>
<td>695,202</td>
<td>1,680,529</td>
<td>1,149,028</td>
</tr>
<tr>
<td>Netherlands</td>
<td>523,083</td>
<td>425,551</td>
<td>641,849</td>
<td>948,634</td>
<td>1,365,238</td>
</tr>
<tr>
<td>Asia Total</td>
<td>156,390</td>
<td>786,872</td>
<td>1,702,632</td>
<td>943,262</td>
<td>3,369,513</td>
</tr>
<tr>
<td>Japan</td>
<td>67,792</td>
<td>263,234</td>
<td>528,096</td>
<td>331,026</td>
<td>1,499,035</td>
</tr>
<tr>
<td>Oceania &amp; Australia Total</td>
<td>1,058</td>
<td>22</td>
<td>-</td>
<td>1,080</td>
<td>629</td>
</tr>
<tr>
<td>Africa Total</td>
<td>471,425</td>
<td>154,503</td>
<td>370,325</td>
<td>625,928</td>
<td>707,097</td>
</tr>
<tr>
<td>Total</td>
<td>12,590,310</td>
<td>10,659,164</td>
<td>14,803,046</td>
<td>23,249,474</td>
<td>24,932,451</td>
</tr>
</tbody>
</table>

1. Based on the U.S.-Canada Free Trade Agreement; as of January 1990, the U.S. Department of Commerce began reporting statistics on U.S. exports to Canada based on information on imports provided monthly by the Canadian government.
2. Includes countries with coal exports less than or equal to 50,000 short tons in 2005.

* Quantity is less than 0.5 thousand short tons or percent change is less than 0.1%.

**Note:** Total may not equal sum of components because of independent rounding.

# Trends - Coal Import Facilities

## Table 20.

### Coal Imports by Customs District

<table>
<thead>
<tr>
<th>Customs District</th>
<th>April - June</th>
<th>Jan. - March</th>
<th>April - June</th>
<th>Year to Date</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td>2006</td>
<td>2005</td>
<td>2006</td>
<td>2005</td>
</tr>
<tr>
<td>Eastern Total</td>
<td>2,743,982</td>
<td>2,847,250</td>
<td>2,194,443</td>
<td>5,591,232</td>
<td>4,490,180</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>1,275,841</td>
<td>1,130,361</td>
<td>1,269,179</td>
<td>2,406,202</td>
<td>2,429,446</td>
</tr>
<tr>
<td>Southern Total</td>
<td>4,670,265</td>
<td>5,514,522</td>
<td>4,192,215</td>
<td>10,184,787</td>
<td>8,876,311</td>
</tr>
<tr>
<td>Mobile, AL</td>
<td>2,218,003</td>
<td>3,312,675</td>
<td>2,480,545</td>
<td>5,530,678</td>
<td>5,314,953</td>
</tr>
<tr>
<td>New Orleans, LA</td>
<td>852,967</td>
<td>423,767</td>
<td>156,550</td>
<td>1,276,734</td>
<td>448,181</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>548,279</td>
<td>634,088</td>
<td>640,404</td>
<td>1,182,367</td>
<td>1,201,308</td>
</tr>
<tr>
<td>Western Total</td>
<td>161,766</td>
<td>221,139</td>
<td>246,348</td>
<td>382,905</td>
<td>494,846</td>
</tr>
<tr>
<td>Honolulu, HI</td>
<td>120,696</td>
<td>198,172</td>
<td>206,087</td>
<td>318,868</td>
<td>402,713</td>
</tr>
<tr>
<td>Northern Total</td>
<td>379,957</td>
<td>374,849</td>
<td>600,081</td>
<td>754,806</td>
<td>978,851</td>
</tr>
<tr>
<td>Pembina, ND</td>
<td>311,358</td>
<td>348,433</td>
<td>316,951</td>
<td>659,791</td>
<td>661,664</td>
</tr>
<tr>
<td>Total</td>
<td>7,955,970</td>
<td>8,957,760</td>
<td>7,233,087</td>
<td>16,913,730</td>
<td>14,840,188</td>
</tr>
</tbody>
</table>

**Note:** Total may not equal sum of components because of independent rounding.

## Trends - Main Sources of Import Coal

### Table 18. U.S. Coal Imports
(Short Tons)

<table>
<thead>
<tr>
<th>Continent and Country of Origin</th>
<th>April - June 2006</th>
<th>Jan. - March 2006</th>
<th>April - June 2005</th>
<th>Year to Date 2006</th>
<th>Year to Date 2005</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,343</td>
<td>-</td>
</tr>
<tr>
<td>South America Total</td>
<td>6,382,727</td>
<td>7,425,762</td>
<td>5,988,892</td>
<td>13,808,489</td>
<td>12,406,731</td>
<td>11.3</td>
</tr>
<tr>
<td>Colombia</td>
<td>5,391,698</td>
<td>6,446,952</td>
<td>5,090,386</td>
<td>11,838,650</td>
<td>10,569,716</td>
<td>12.0</td>
</tr>
<tr>
<td>Venezuela</td>
<td>991,029</td>
<td>977,677</td>
<td>898,506</td>
<td>1,968,706</td>
<td>1,837,015</td>
<td>7.2</td>
</tr>
<tr>
<td>Europe Total</td>
<td>362,767</td>
<td>265,661</td>
<td>339</td>
<td>628,428</td>
<td>35,617</td>
<td>NM</td>
</tr>
<tr>
<td>Russia</td>
<td>325,933</td>
<td>265,033</td>
<td>-</td>
<td>590,966</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asia Total</td>
<td>638,593</td>
<td>745,549</td>
<td>576,185</td>
<td>1,384,142</td>
<td>1,196,539</td>
<td>15.7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>629,555</td>
<td>735,261</td>
<td>575,508</td>
<td>1,364,816</td>
<td>1,182,611</td>
<td>15.4</td>
</tr>
<tr>
<td>Oceania &amp; Australia Total</td>
<td>76,737</td>
<td>62,382</td>
<td>28,087</td>
<td>139,119</td>
<td>130,282</td>
<td>6.8</td>
</tr>
<tr>
<td>Africa Total</td>
<td>-</td>
<td>61,649</td>
<td>-</td>
<td>61,649</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>7,955,970</td>
<td>8,957,760</td>
<td>7,233,087</td>
<td>16,913,730</td>
<td>14,840,188</td>
<td>14.0</td>
</tr>
</tbody>
</table>

**Note:** Total may not equal sum of components because of independent rounding. Coal imports include coal to Puerto Rico and the Virgin Islands.

Coal Terminal Development Trends

East Coast (*Northeast to NY Harbor*)
Moving to cleaner cargoes and container handling

- Heavy environmental regulations
- Higher labor costs
- High land value
Coal Terminal Development Trends

Southeast – VA, SC, NC, GA:
Receptive to the growth of bulk handling terminals

- Multiple deep water ports
- Room for expansion
- Less stringent regulations
- Lower labor costs
- Good water drafts for larger size vessels

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Florida; the Exception:
Focus on container, cruise and leisure uses

- Coastlines used for tourists versus bulk terminal use
- Public perception/land value
- Pushing for clean cargo
Coal Terminal Development Trends

Gulf Coast – AL, MS, LA, TX:
Receptive to growth of bulk handling terminals

- Multiple deep water ports
- Room for expansion
- Less stringent regulations
- Lower labor costs
- Good water drafts for larger size vessels

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Coal Terminal Development Trends

**West Coast** – CA, OR, WA: Development will be difficult

- Limited deep water
- Heavy environmental regulations
- Adverse public sentiment
- Higher labor costs
- High demand for container facilities
Great Lakes:
Diminishing (?) use as import terminals

- Competitiveness directly affected by facilities on St. Lawrence River
- Economies favor transport through Quebec and Montreal followed by rail through the U.S.
Coal Terminal Development Trends

• Increase in imports and decrease in exports
• Desire to use cape size vessels for import from SA
• Will see expansion in existing terminals versus building new terminals due to:
  • Increase of charter rates
  • High current cost of construction
• Northeast, West Coast and Florida are all pushing for clean cargo due to environmental restrictions and public perception
Coal Terminal Development Trends

Security Considerations
- Homeland Security measures not adversely impacting bulk terminals
- Coal does not lend itself to hiding other materials or objects
- Requires minimal staff for shipping
Coal Terminal Development Trends

U.S. Ports will be importing coal offering economic or environmental advantages to the power plants and industries currently using domestic coal.

There are two broad categories for ports facilities that will handle this coal:

- Inter-modal terminals
- End users
Intermodal Terminals

- Dedicated or multiple clients
- “Green field” or expansion
- Single or multiple commodities
Coal Terminal/Plant Infrastructure Trends

Existing Facilities to Import Facilities

Factors Influencing Design:

• Location of facility
  ✓ Proximity to end users
  ✓ Outbound mode of transportation available

• Existing assets
Solution – Flexibility…Adaptability…

New Import Facilities
Largest crane-on-barge installation in U.S.

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Successful planning requires accepting failure. Success is not defined by gambling on the right solution for an unknown dilemma, but rather reacting properly to the market changes while limiting the impact on capital and operational costs.
Success Requires Risk – The Right Culture…

Levels of Productivity as a Response to Amounts of Risk

THE PSYCHOLOGIES OF:

- Entitlement
- Earning
- Fear

PERFORMANCE

RISK

Judith Bardwick -- October 10-11, 2006
So What is Successful Planning?

Planning is not:
- Forecasting…
- Guessing…
- Certainly not gambling…
- Promising the unpredictable…
So What is Successful Planning?

Setting the right expectation for users, operators, and owners…
A plan can be established to solve any problem…

Source: OCIMF Mooring Guidelines
...if we give it our best effort...

‘a heaving system of some kind’

Source: OCIME Mooring Guidelines
...protect ourselves from catastrophic failure...

Source: OCIMF Mooring Guidelines
…while not imposing too many restrictions…

Source: OCIMF Mooring Guidelines
...we could still miss the right spot...

Source: OCIMF Mooring Guidelines
…get caught by surprise…

Source: OCIMF Mooring Guidelines
...or even find ourselves without avenue...
…but the right plan will still lead us to the right outcome!

Source: OCIMF Mooring Guidelines
QUESTIONS?

River - Creating Value and Inspiring Extraordinary Opportunities

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AAPA