

Existing Marine Transportation Performance Metrics in the Federal Government and Industry

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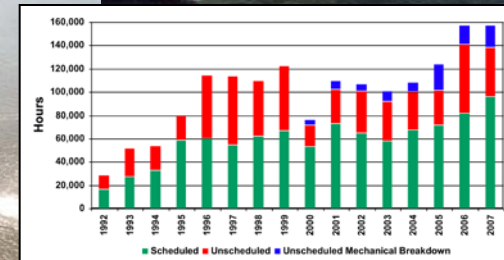
Engineer Research and Development Center,
USACE

Knauss Fellow, North Carolina Sea Grant

June 26th, 2012



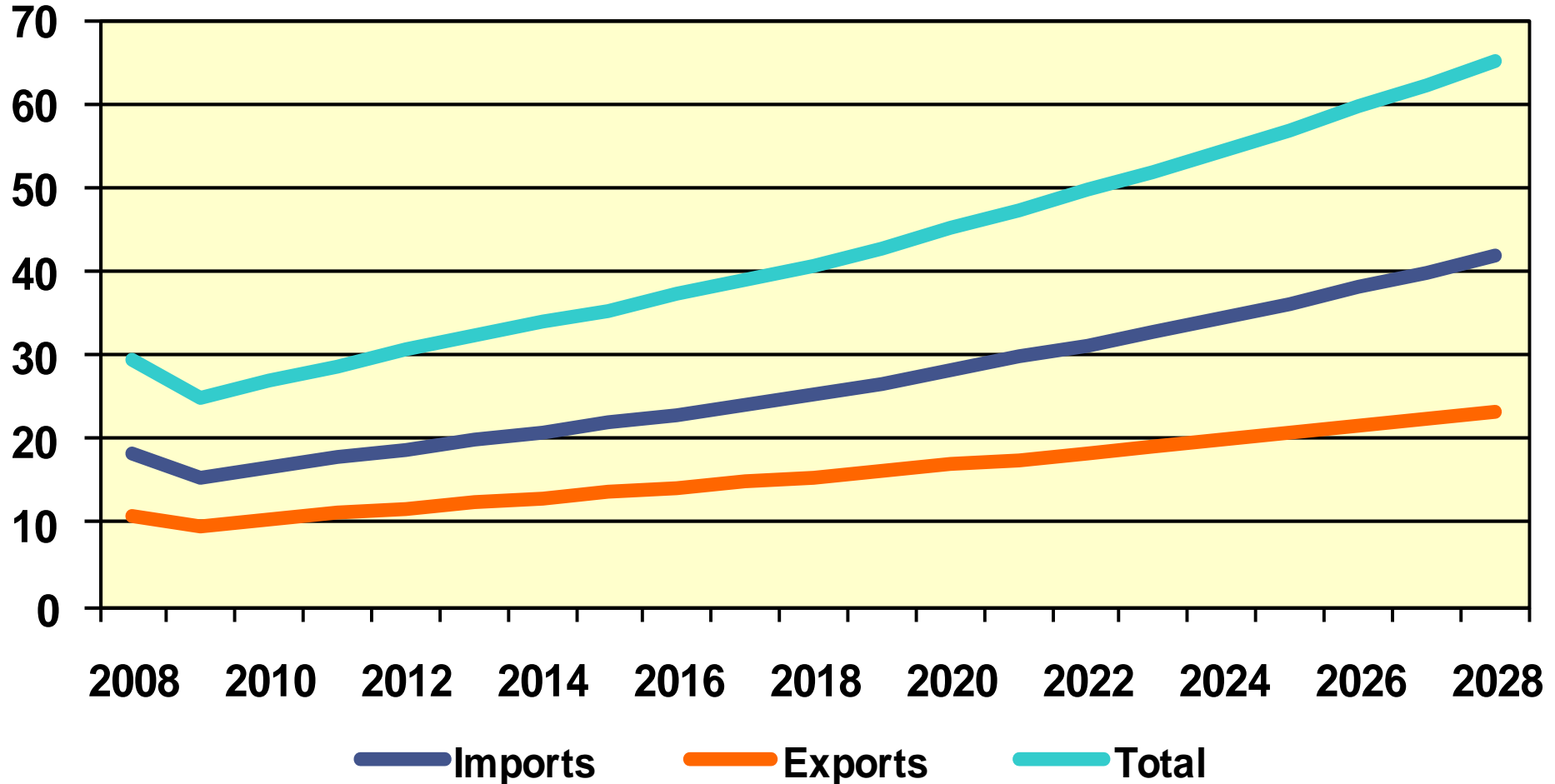
US Army Corps of Engineers
BUILDING STRONG

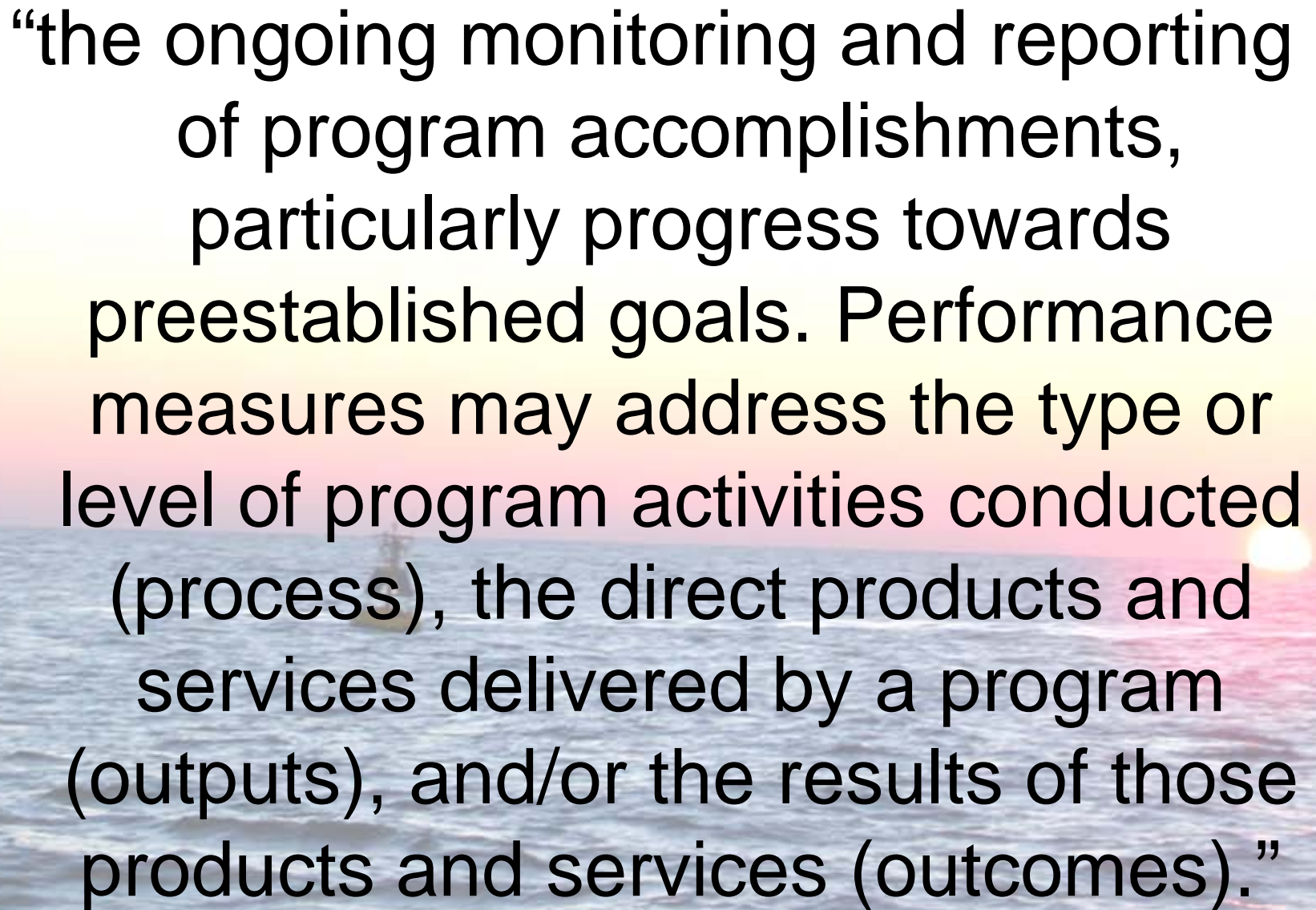


Containerized Cargo Forecast: U.S. Trade More Than Doubles

2008 - 2028

Millions of TEUs





“the ongoing monitoring and reporting of program accomplishments, particularly progress towards preestablished goals. Performance measures may address the type or level of program activities conducted (process), the direct products and services delivered by a program (outputs), and/or the results of those products and services (outcomes).”

Government Accountability Office

U.S. Army Corps of Engineers Performance Metrics



- Navigation channel availability
- Scheduled and unscheduled lock closures
- Navigation system risks

Coast Guard Performance Metrics

- Aids-to-Navigation

- Average number of navigational accidents
- Availability of maritime navigational aids



Coast Guard Performance Metrics

Number of days critical waterways are closed to commerce due to ice



An aerial photograph of the Saint Lawrence Seaway locks. A large red cargo ship is in the foreground, moving through the locks. The locks are a long, narrow channel of water, flanked by green grassy banks. In the background, there are more locks and a large body of water. The sky is overcast.

The Saint Lawrence Seaway Development Corporation

Percentage of days in the shipping
season that the U.S. sectors of the St.
Lawrence Seaway locks are available

USDA: Number of barges with grain going through locks



Metric tons (in millions) of carbon equivalent emissions from marine spark-ignition and marine diesel engines (including NOx, hydrocarbons, CO, PM)



**Environmental Protection
Agency**

MARAD Port Performance Metrics



- Annual Shipment Weight
- Annual TEUs
- Total capacity of all calls (total metric tons of all ships loaded to water line)
- Total (tanker, product, crude oil, container ship, dry bulk, roll-on roll-off container, motor vehicle, gasoline carrier, combination vessel, general cargo vessel) calls and capacity

MARAD Performance Metrics

- U.S. Waterborne trade (million metric tons)
- Average Vessel Size per Call at U.S. Ports
- Containership Calls at U.S. Ports, Post-Panamax and Other
- Containership Calls at U.S. Ports by Size
- Average Age of Vessels per Call at U.S. Ports



Other Industry Reported Performance Metrics



- Delay days
- Ton-miles
- Revenue per ton-mile
- Towboats operated
- Stationary days reduction for covered hoppers
- Turn rate per 10,000 liquid barges
- Average working capital as a percent of revenue

Commonly Used Performance Metrics

- Average length of haul
- Operating Ratio
- Revenue per ton-mile
- Tonnage (total, all loads)
- Ton-miles or barrel-miles
- Terminal dwell time or empty miles factors



(Cottrell, 2008)

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- Do any of the metrics presented today provide a common operating picture of how the MTS is performing and what parts can be improved to improve performance?
- Which metrics are important for considering the entire MTS and improving links to other modes?
- Which metrics are needed to improve the communication of the importance of the MTS to the general public?

Thank you to the following individuals!



- Matthew Chambers, BTS/RITA
- Dan Crowther, USCG
- Marvourneen Dolor, SLSDC
- Jeff Lillycrop, USACE
- Nick Marathon, USDA
- Alan Stout, EPA
- Kathleen Welder, USCG

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