



THE PORT OF
VIRGINIA

Ports and Renewable Energy – Opportunities and Obstacles

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- Virginia approved construction of a single wind energy turbine. If completed on schedule, it may be the first offshore wind energy project built in the U.S.
- The wind turbine will stand 479 feet tall and be located in the lower Chesapeake Bay, three miles off the coast in state-owned waters.
- The turbine should be up by late 2013, in advance of other offshore wind projects in the U.S., according to a statement released by Virginia Gov. Bob McDonnell's office.



Virginia Governor Bob McDonnell



Attract major elements of a Mid-Atlantic offshore wind supply chain

- Including turbine assembly plants in the vicinity of The Port of Virginia
- Power cable manufacturing plants
- Large component staging areas for turbines
- Fed by 1st and 2nd tier suppliers in Virginia and neighboring states

Port of Virginia Advantages

- World class maritime industry is perfectly suited to build, deliver and maintain offshore wind farm.
- Great clearance on access routes to handle over-dimensional freight
- Ample laydown space
- Expertise in handling bulky heavy-load structures
- Optimum conditions exists with terminal infrastructure that can support heavy load turbine components
- Short sea route: creates efficiencies for service and maintenance of wind turbines
- Comprehensive worker expertise from local maritime industries; cluster of excellence

Creating An Industry Not Just A Project

An average 50 MW Wind Farm has as much steel below the water as is used to build an aircraft carrier.

Offshore Wind could produce an \$80 billion industry and 10,000 jobs for Virginians.

JOB CREATION

Landbased: jobs associated with the design, fabrication, transportation of components

Offshore: jobs associated with the installation and maintenance of turbines



Portsmouth Marine Terminal



Land Area: 285 acres (land and pier only.) Direct rail service with CSX; also Norfolk Southern. Shipperside rail service is available

Smulders, Wind Turbine Plant



Courtesy of Smulders, Hoboken, Belgium

Virginia Has The Available Space and Workforce



Wind Turbine Manufacturing Plant, Fairless Hills, PA
Burns Engineering, Inc. and Gamesa Wind Inc.

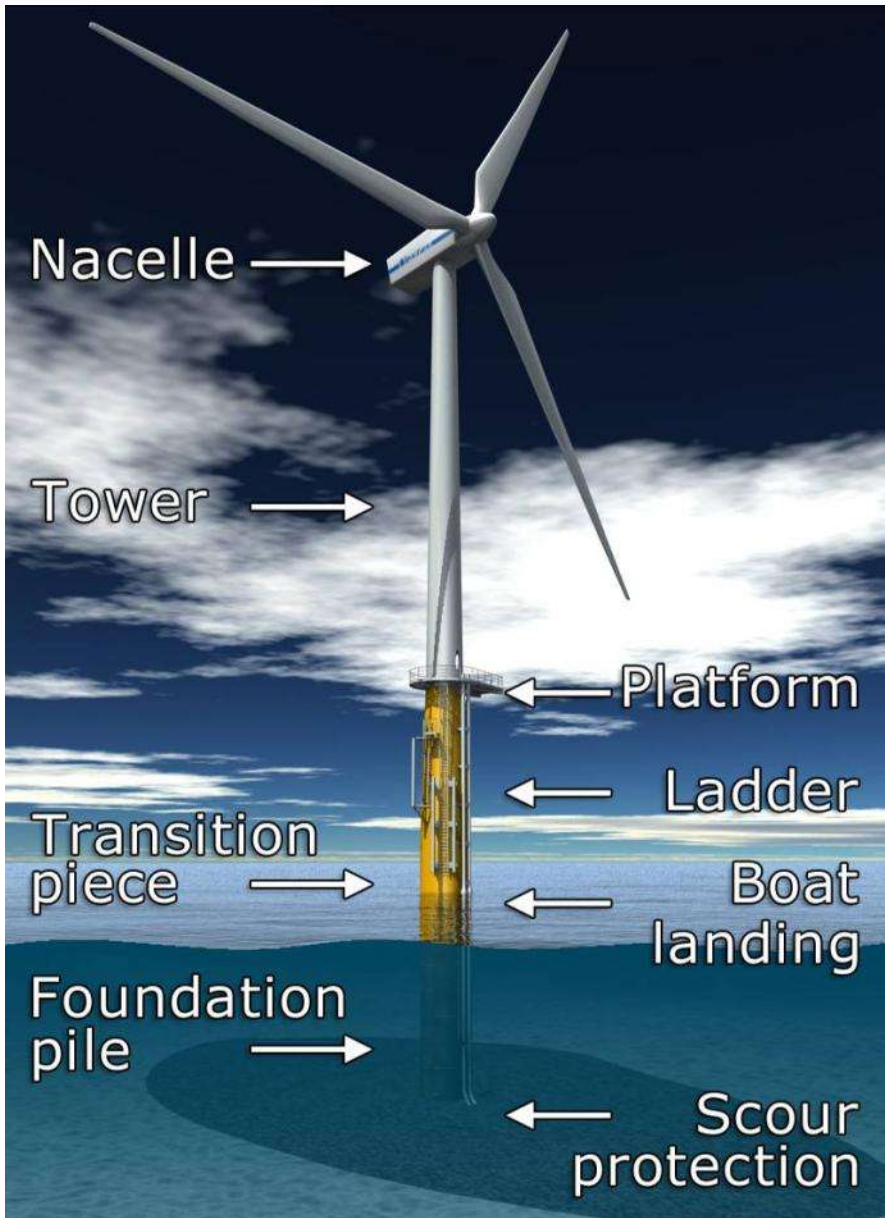
Offshore Wind Supply Chain = Business and Job Creation



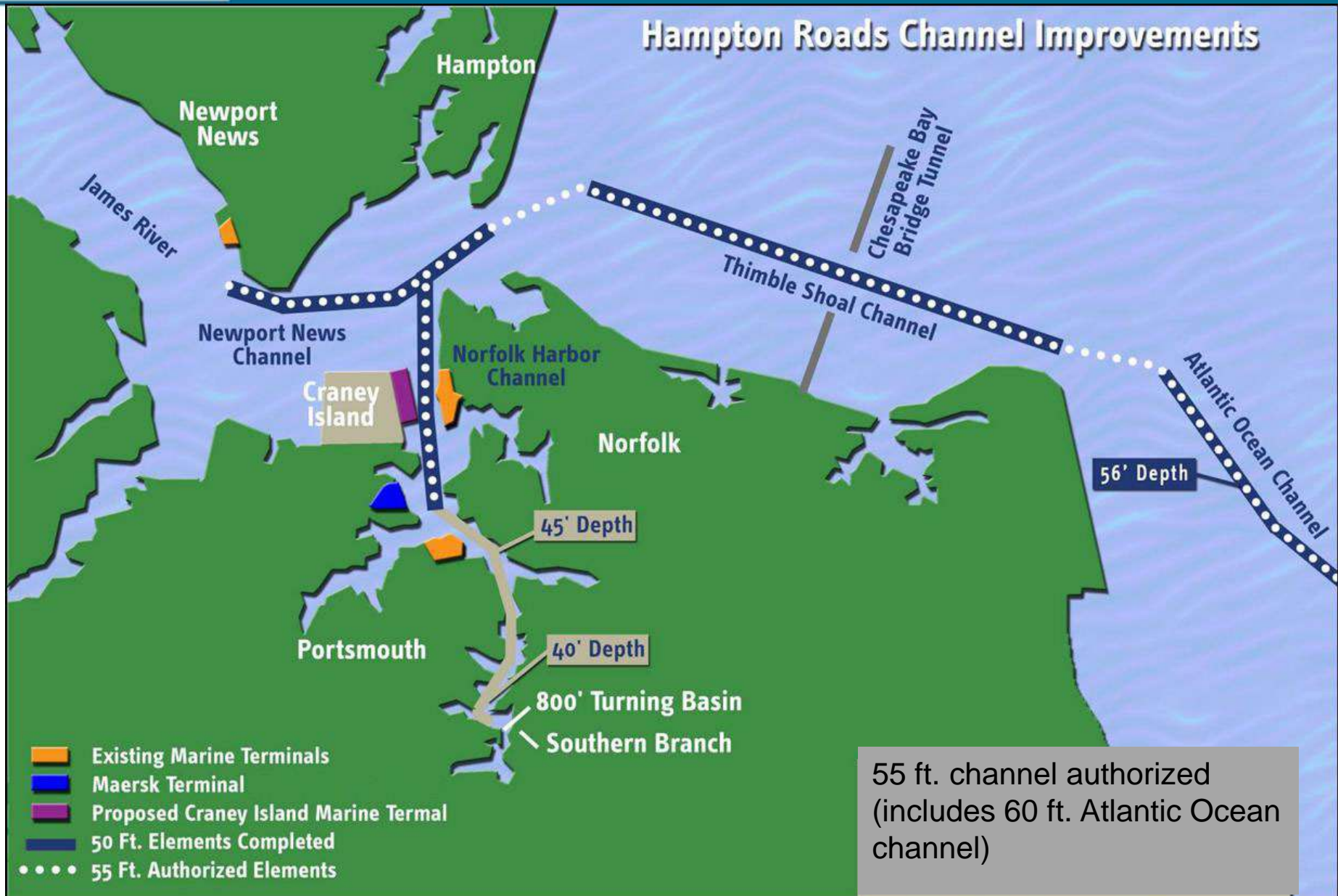
Sample Offshore Wind Farm



Manufactured Components of Wind Turbines



50 ft Channel, No Overhead Obstructions



Unobstructed Access



- The location of offshore wind supply chain participants (mostly Europe) is a direct result of where the markets have formed (Europe).
- Most offshore wind capacity to date has been deployed in Northern Europe due to favorable wind resources and government policies.
- Many manufacturers and developers are setting up operations in Northern Europe, especially in the UK, to better meet offshore demand.
- **Virginia's strengths-location, skilled workforce, and port are equitable to Europe.**

\$403 million investment in local economy
associated with the following activities

- Fabrication of turbine foundations
- Fabrication and outfitting of electric service platform
- Charter vessels, leasing of large waterfront areas, for component staging and load out operations
- Onshore transmission installations and upgrades
- Project management

Managing Possible Conflicts

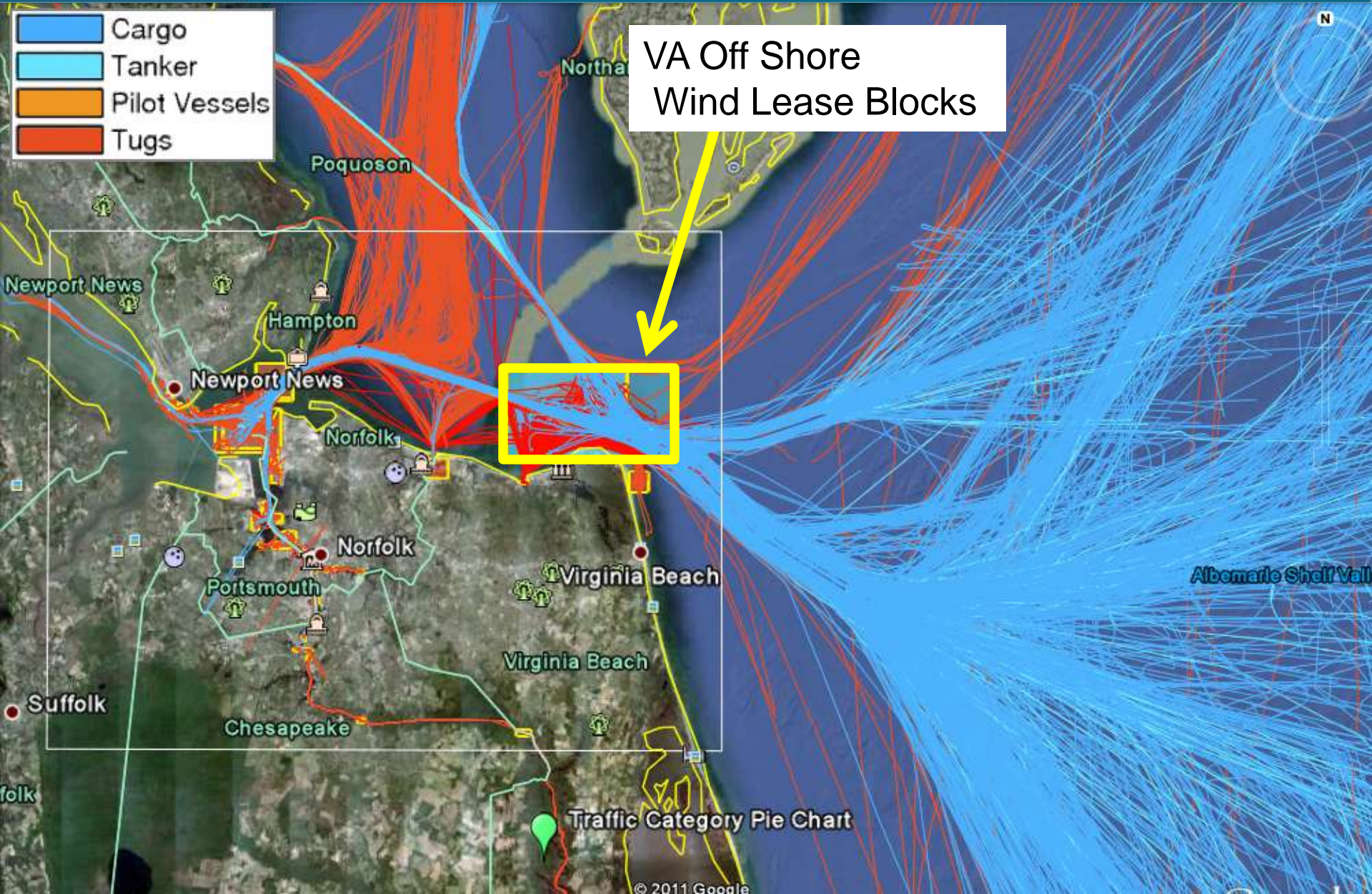
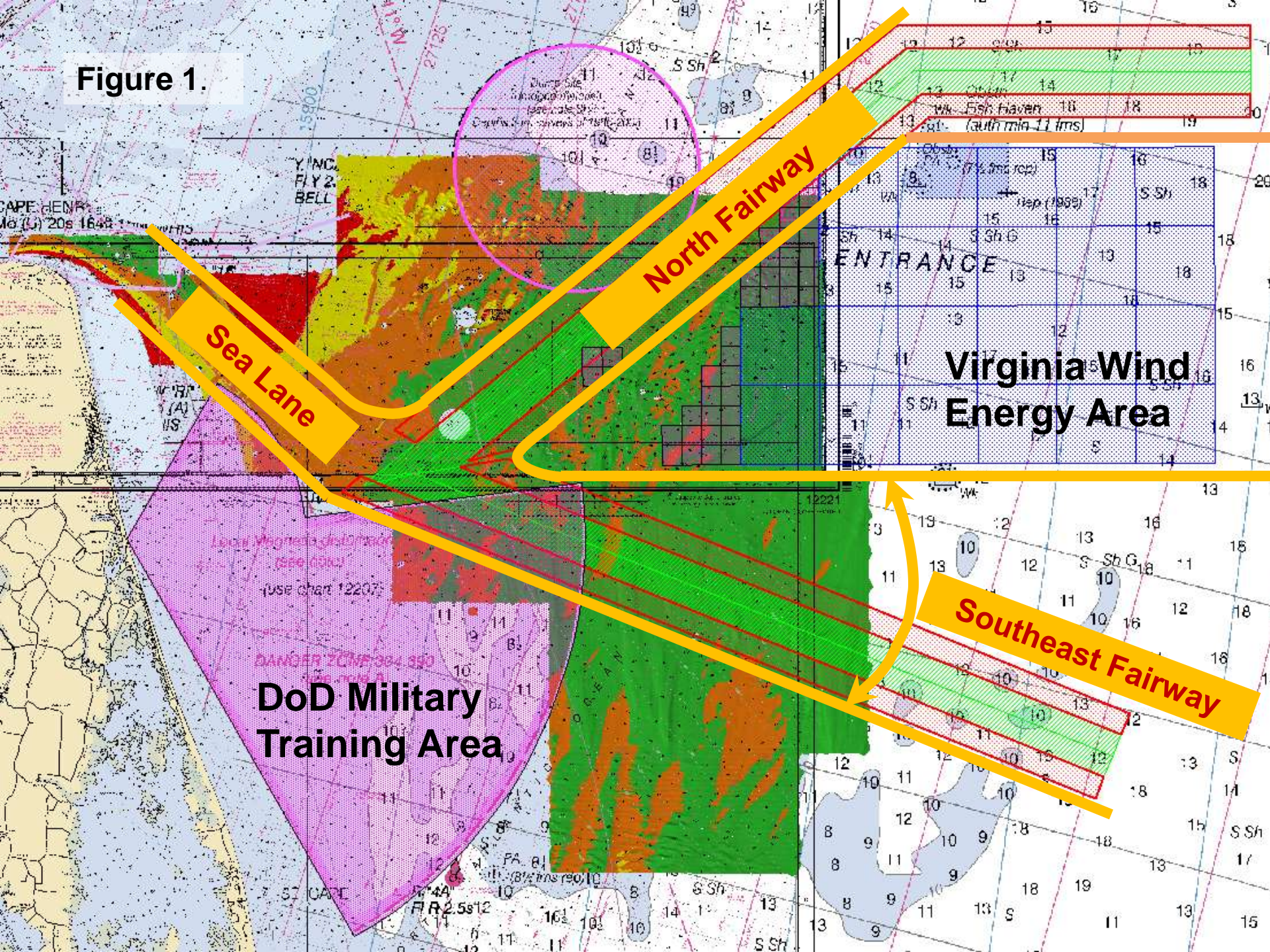


Figure 1.



Summary

- The maritime industry and the Port of Virginia support the development of off-shore wind
- The off-shore wind industry will provide long-term business and economic development opportunities for Virginia as well as neighboring states
- We believe that consensus among all users of the approaches to Chesapeake Bay can be achieved in support of the Commonwealth of Virginia's mission to be the off-shore energy capital of the East Coast.



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