www.nccommerce.com

NC TASKFORCE FOR OFFSHORE WIND ECONOMIC RESOURCE STRATEGIES (NC TOWERS)

THURSDAY, FEBRUARY 9, 2023

Economic Opportunity & Business Development Subcommittee

MICHELE QUERRY, Co-Chair
JUSTIN SOSNE, Co-Chair
CHRIS CHUNG
BRIAN CLARK
DAVE GOSS
HAYES FRAMME
KATHARINE KOLLINS
BOB PEELE
JOHN HARDIN, Staff Liaison
SUSAN FLEETWOOD, Staff Liaison

Economic Opportunity & Business Development Subcomm.

Charge from Task Force

Research, evaluate, and recommend policies and programs to help grow NC's OSW industry supply chain and build strategic economic partnerships

- Identify, articulate, map & publicize strategic advantages, assets, and priorities
- Educate, assist & train existing NC industries/companies about OSW opportunities
- Recruit new industries/companies to NC to serve OSW opportunities
- Develop new industries/companies/technologies in NC to serve OSW opportunities
- Identify organizations and entities with which to partner and champion outcomes
- Increase OSW industry research, development, and innovation

OSW Provides Large U.S Economic & Business Development Opportunity

A Supply Chain Road Map for Offshore Wind Energy in the United States

Matt Shields,[1] Jeremy Stefek,[1] Frank Oteri,[1] Matilda Kreider,[1] Elizabeth Gill,[1] Sabina Maniak,[1] Ross Gould,[2] Courtney Malvik,[2] Sam Tirone,[2] and Eric Hines[3]

1 National Renewable Energy Laboratory
2 Business Network for Offshore Wind
3 Tufts University

https://www.nrel.gov/wind/offshore-supply-chain-road-map.html

NREL is a national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
Operated by the Alliance for Sustainable Energy, LLC

This report is available at no cost from the National Renewable Energy Laboratory (NREL) at www.nrel.gov/publications.

Contract No. DE-AC36-08GO28308

Technical Report
NREL/TP-5000-84710
January 2023

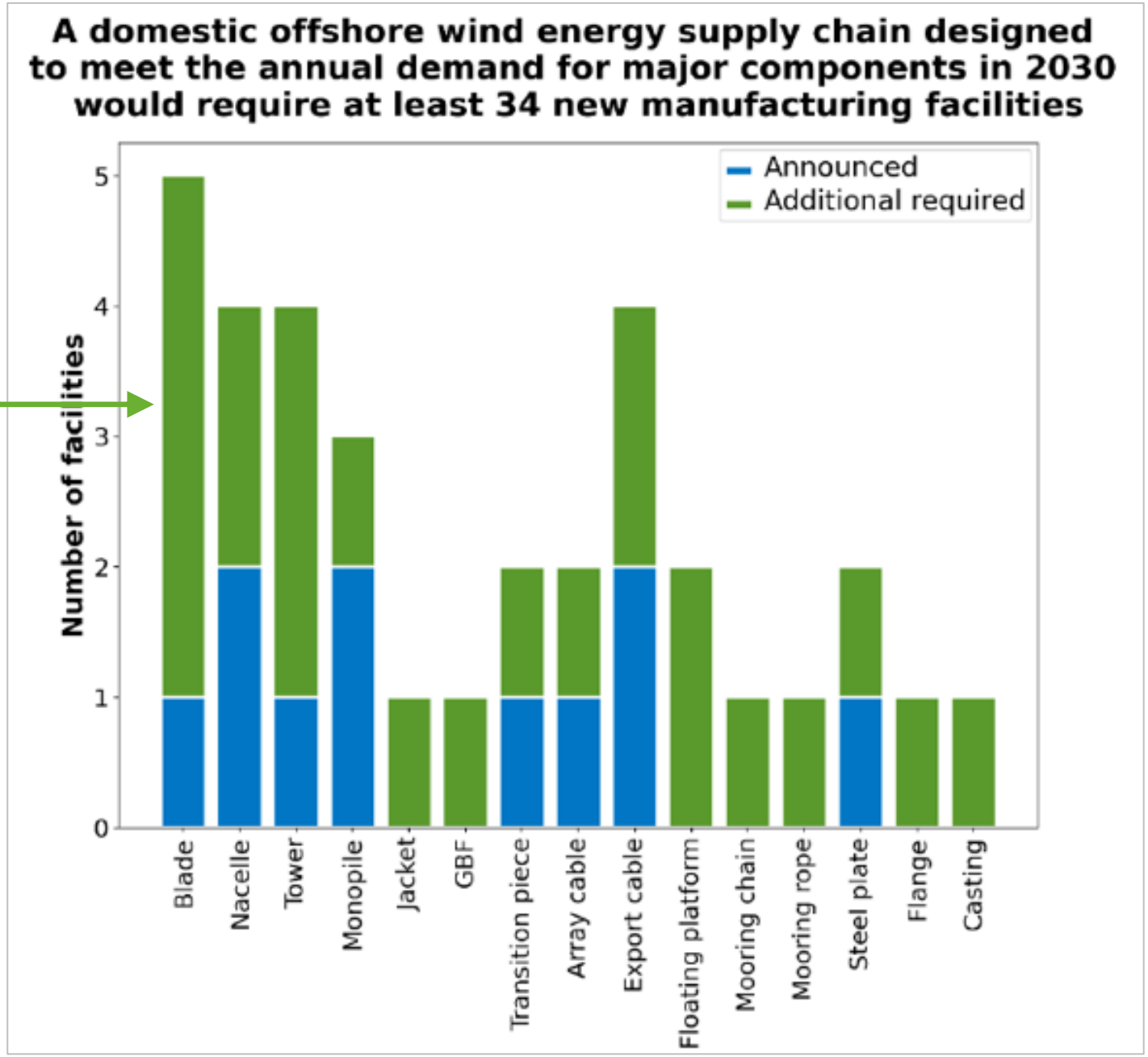
Required Resources To Deploy 30 GW of Offshore Wind Energy by 2030

- **2,100** Wind turbines
- **2,100** Foundations
- **6,800** Miles of cable
- **58** Crew transfer vessels
- **4–6** Wind turbine installation vessels
- **11** Service operation vessels
- **4** Cable lay vessels
- **2** Scour protection installation vessels
- **4–8** Transport vessels
- **4–6** Heavy lift vessels
- **12,300–49,000** Full-time equivalents average annual workforce

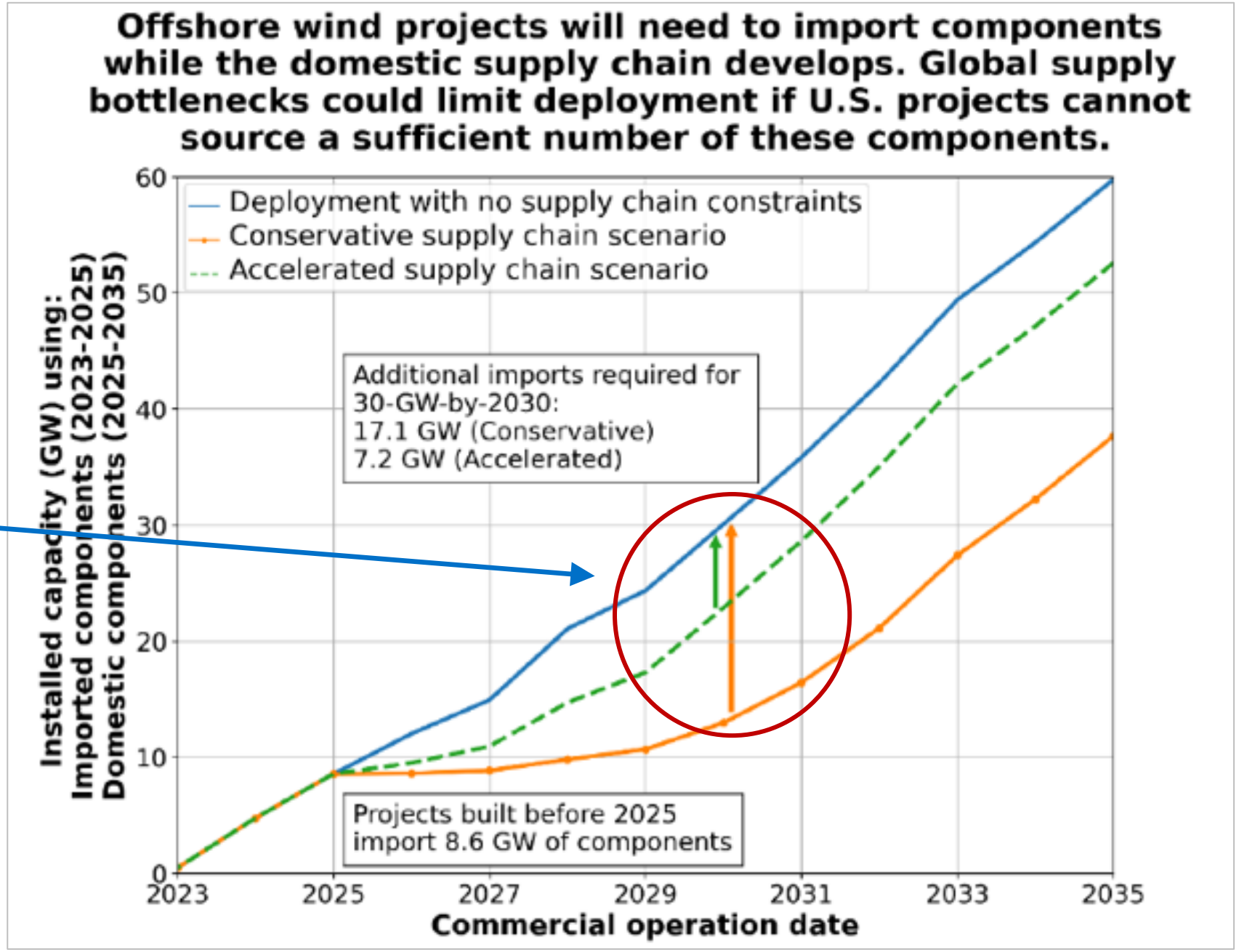
Investments in Manufacturing Facilities Needed To Establish a Supply Chain by 2030

- **$3.5 billion** Wind turbines
- **$1.3 billion** Substructures
- **$1.8 billion** Electrical components
- **$3.5 billion** Installation vessels
- **$8 billion** Ports
- **$3 billion** Steel plates
- **$1.3 billion** Other components

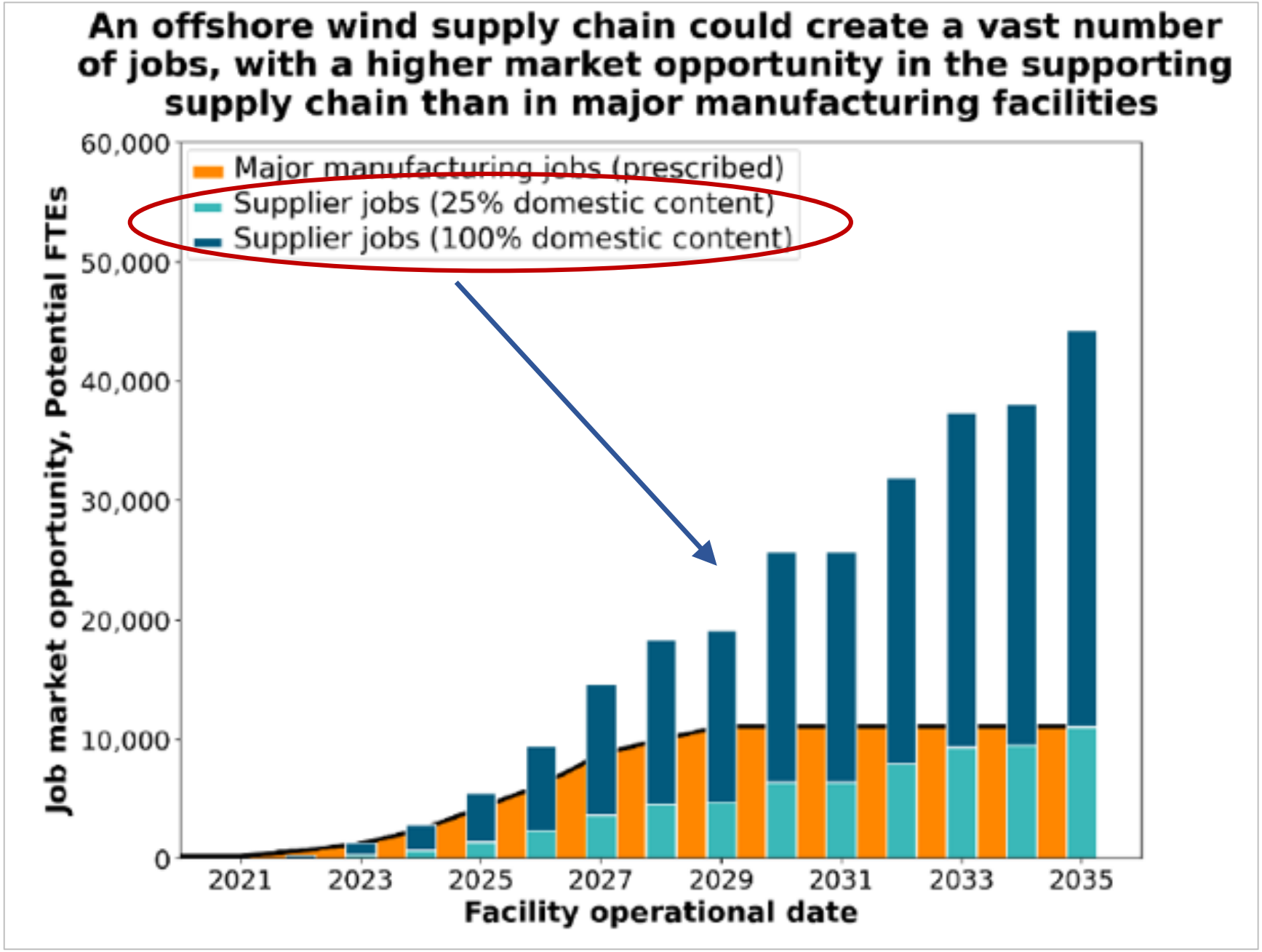
The Majority (green bars) of U.S. OSW manufacturing facilities have yet to be announced



Faster development of a U.S. OSW supply chain would increase the pace of project deployment



Greater U.S. job market opportunity in supporting supply chain than in major manufacturing facilities



N.C. projected to be a leading state for OSW manufacturing supply chain facilities

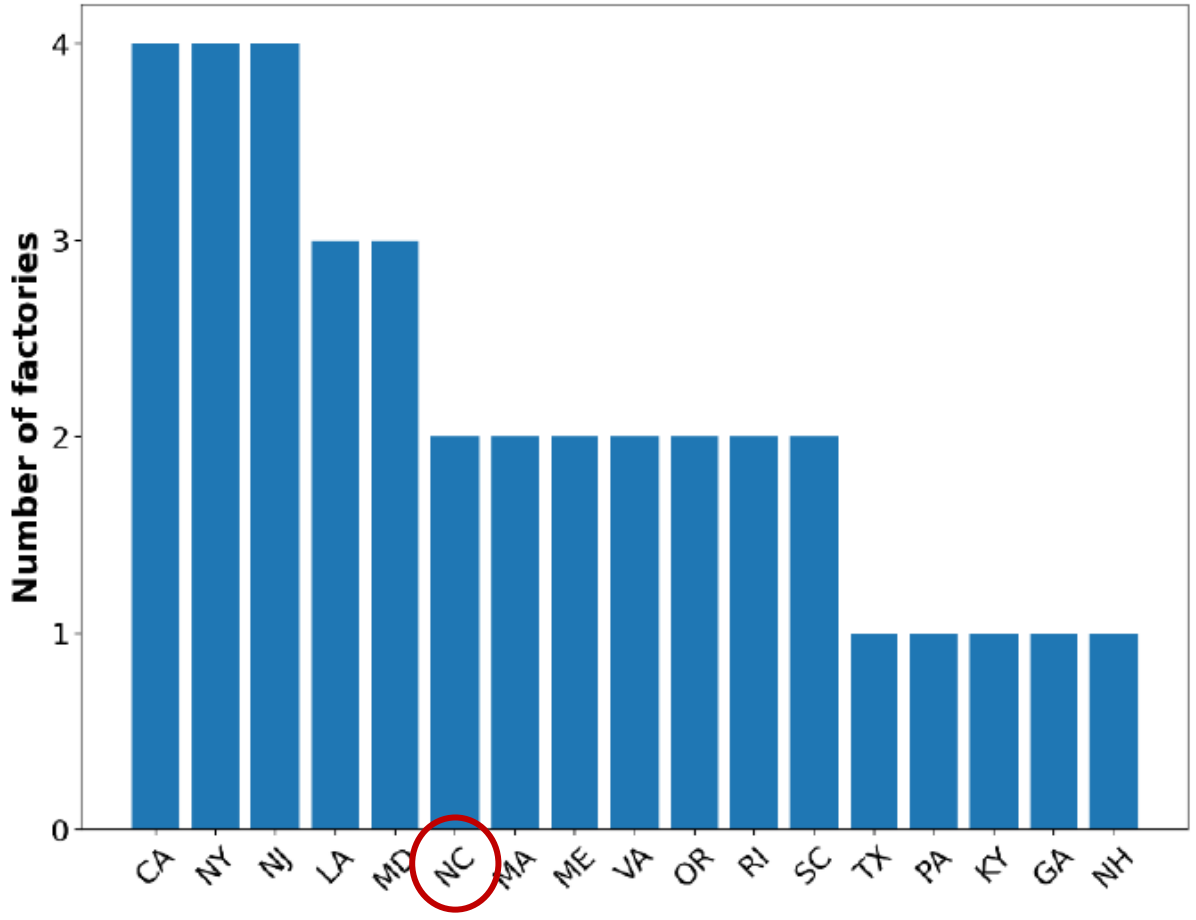


Figure 14. Distribution of manufacturing facilities by state in the domestic supply chain scenario

N.C. projected to be leading state for OSW Tier 2 and Tier 3 OSW subassemblies and subcomponents

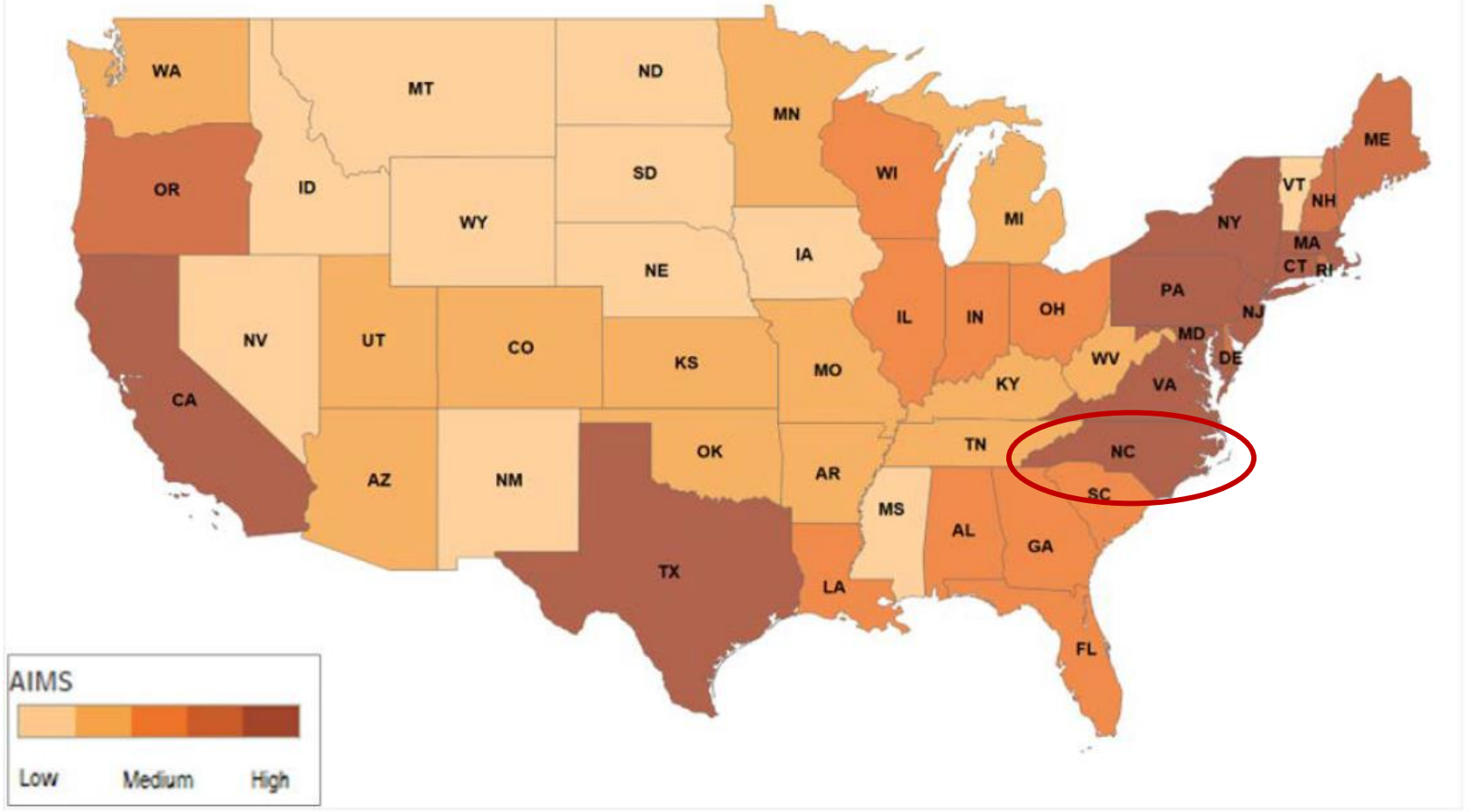


Figure 20. State adjacent industry manufacturing scale (AIMS) levels to produce Tier 2 and Tier 3 subassemblies and subcomponents for major offshore wind components for the domestic supply chain scenario

N.C. projected to be leading state for OSW job market opportunities

A domestic offshore wind energy supply chain would create a significant job market opportunity throughout the United States. Regional coordination on supply chain activities could build upon the assets of existing industries to create a more efficient supply chain with broadly distributed benefits.

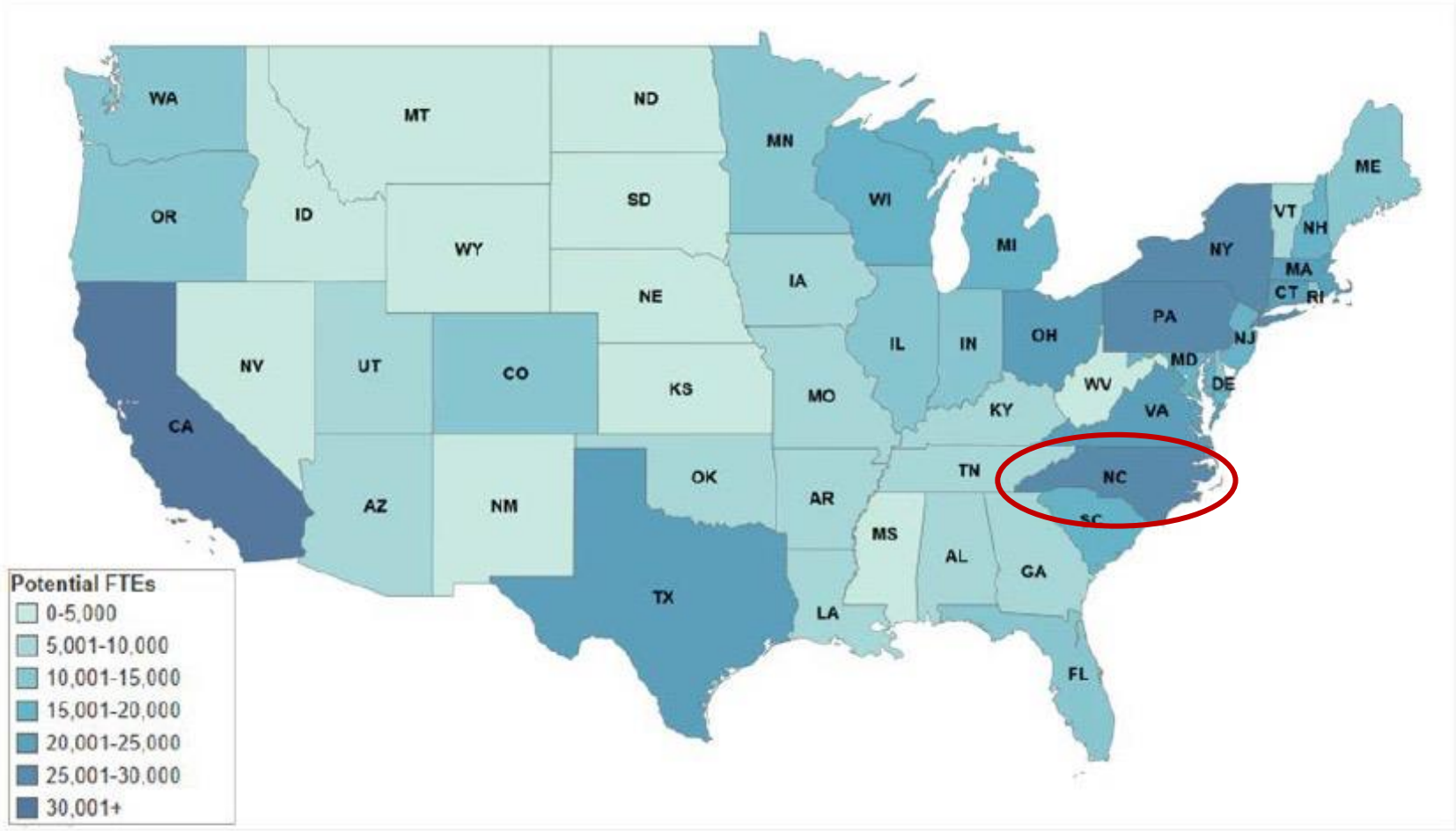


Figure ES6. Total job market opportunity for major manufacturing and supplier jobs by 2035, assuming 100% domestic content.

N.C. projected to be leading state for OSW total GDP contribution

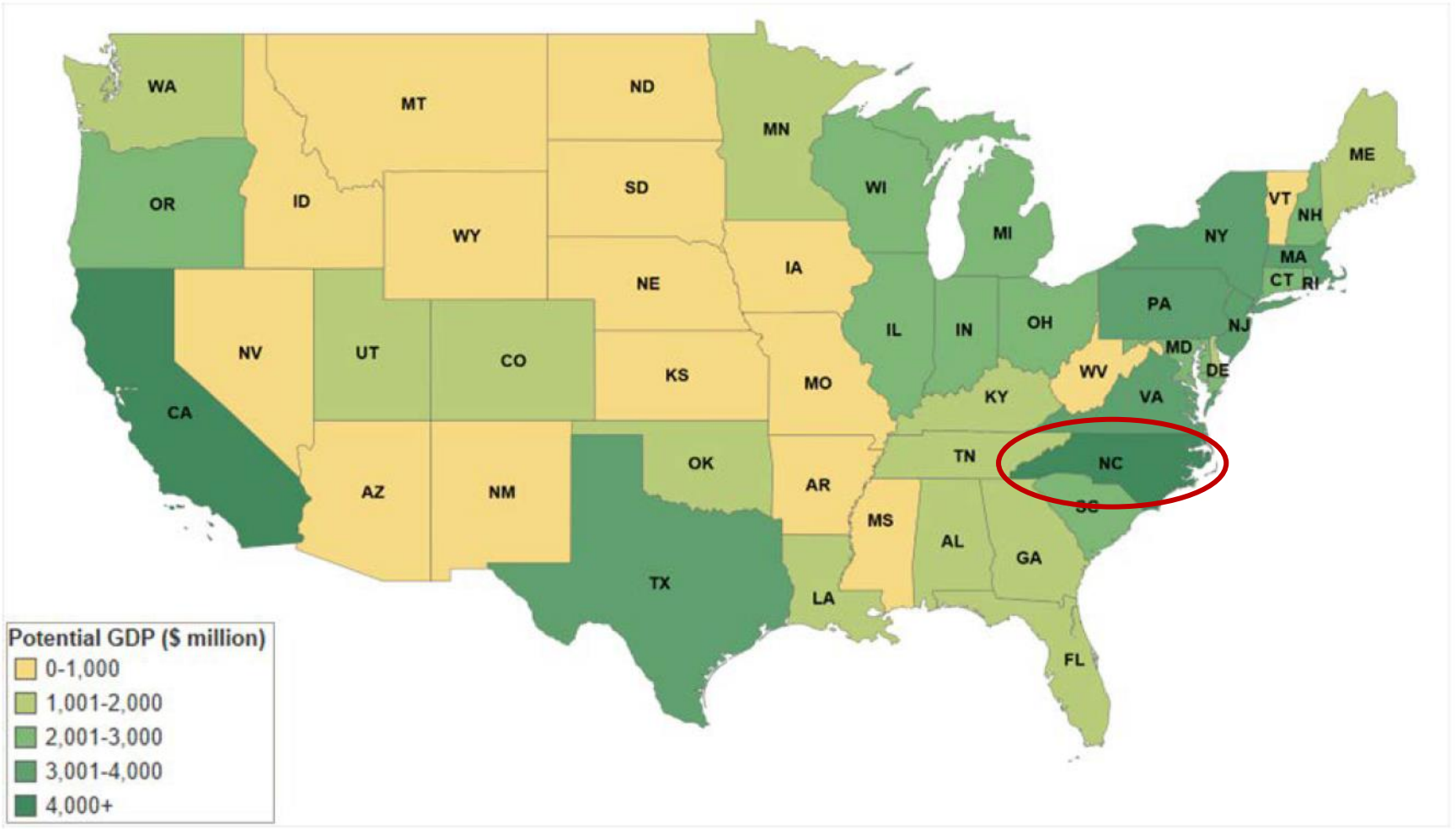


Figure 22. Total GDP ($ millions) opportunity (major manufacturing jobs [prescribed] scenario and supplier jobs) assuming 100% domestic content

N.C. listed as strong candidate for additional blade manufacturing and gravity-based foundations (GBF) manufacturing

Table 10. Fabrication Port Locations for Each Manufacturing Facility in the Domestic Supply Chain Scenario.

Facilities that have already been announced are highlighted in blue, and additional required facilities are highlighted in green. The port facilities for announced facilities are also provided.

Component	Factory Name	Type	State
Blade	SGRE	Announced	Portsmouth Marine Terminal, Virginia
	Blade 1	Additional	North Carolina
	Blade 2	Additional	Massachusetts
	Blade 3	Additional	New Jersey
	Blade 4	Additional	Oregon
Nacelle	General Electric	Announced	New Jersey Wind Port, New Jersey
	Vestas	Announced	New Jersey Wind Port, New Jersey
	Nacelle 1	Additional	Rhode Island
	Nacelle 2	Additional	California
Tower	Marmen Welcon	Announced	Port of Albany, New York
	Tower 1	Additional	Maryland
	Tower 2	Additional	Maine
	Tower 3	Additional	California
Monopile	EEW	Announced	Port of Paulsboro, New Jersey
	US Wind	Announced	Tradepoint Atlantic, Maryland
	Monopile 1	Scenario	Virginia
Jacket	Jacket 1	Additional	Louisiana
GBF	GBF 1	Additional	North Carolina
Transition piece	Smulders	Announced	Port of Albany, New York
	Transition piece 1	Additional	New York
Array cable	Hellenic	Announced	Tradepoint Atlantic, Maryland
	Array cable 1	Additional	New York
Export cable	Nexans	Announced	South Carolina
	Prysmian	Announced	Massachusetts
	Export cable 1	Additional	Rhode Island
	Export cable 2	Additional	South Carolina
Steel plate	Nucor	Announced	Brandenburg, Kentucky
	Steel plate 1	Additional	Georgia
Casting	Casting 1	Additional	Pennsylvania
Flange	Flange 1	Additional	New Hampshire
Floating platform	Floating platform 1	Additional	California
	Floating platform 2	Additional	California
Mooring chain	Mooring chain 1	Additional	Texas
Mooring rope	Mooring rope 1	Additional	Maine

Key Takeaways

- Achieving the national offshore wind energy target of 30 gigawatts (GW) by 2030 and establishing a domestic supply chain would provide **numerous economic benefits**, including providing existing suppliers with the ability to produce thousands of components while creating tens of thousands of U.S. jobs.

- **However, achieving these benefits will require a significant ramp-up** in domestic manufacturing, ports, vessels, and workforce, all of which are currently too limited to support the needed levels of commercial-scale offshore wind energy deployment.

- **The report referenced above develops a roadmap consisting of suggested short-, medium-, and long-term actions** to overcome barriers to development and create a resilient, equitable, and comprehensive offshore wind energy supply chain.

- **North Carolina is well positioned to realize these benefits; the degree to which it realizes the benefits depends on how well and quickly it seizes the opportunity by taking actions consistent with the roadmap; many of this subcommittee's activities do that (see next slides)**

For more Information: Upcoming NREL Webinar

Topic	**Gearing Up for 2030: Building the Offshore Wind Supply Chain and Workforce Needed to Deploy 30 Gigawatts and Beyond**
	https://nrel.zoomgov.com/webinar/register/WN_huQfukY6SWWLfvjIeb27-w
Description	Reaching the United States' target of 30 gigawatts of offshore wind energy by 2030 will require a significant ramp up in domestic workforce and supply chains to support the industry's growth and ability to provide domestic benefits. During this hour-long webinar, leading researchers from the National Renewable Energy Laboratory (NREL), Matt Shields and Jeremy Stefek, will highlight new, first-of-its-kind research on the challenges and solutions needed to produce thousands of components while creating tens of thousands of U.S. jobs. Join us to learn more about the increasing demands on manufacturing, ports, vessels, and related gaps and opportunities for a domestic workforce and a detailed analysis presented by the NREL's recent workforce and supply chain reports.
Time	Mar 2, 2023 11:00 AM in Mountain Time (US and Canada)

Economic Opportunity & Business Development Subcomm.

(1) Existing Business Support Workstream

Targeted Activity	Key Tasks	Latest Update
• Enhance NC OSW Supply Chain Registry	• Develop specific objective(s) for the registry and how it will be utilized • Connect with Southeastern Wind Coalition (SEWC) on potential for collaboration • Research and other states' (MD, ME, NJ, VA) experience with connecting to Business Network for Offshore Wind's (BNOW) registry • Determine timeline and cost for integrating NC registry with BNOW registry	• Determined NOT to integrate with BNOW registry at this time • Will focus on making existing NC database more prominent and searchable by end of Q1 2023

Economic Opportunity & Business Development Subcomm.

(1) Existing Business Support Workstream

Targeted Activity	Key Tasks	Latest Update
• Develop Website Page(s) for Existing & New Businesses • Educate, assist & train existing NC industries/companies about OSW opportunities	• Determine audiences(s), objectives and location(s) for page(s) • Assemble content for page(s)	• Met with Commerce Public Affairs team to brainstorm new content and organization • Will implement changes by end of Q1 2023 • Will plan & host UK webinars focused on OSW infrastructure, supply chain, etc.

Economic Opportunity & Business Development Subcomm.

(2) New Business Recruitment Workstream

Targeted Activity	Key Tasks	Latest Update
c) Identify Supply Chain Categories and Key Targets	• Identify 3-5 targets in each supply chain category and strategy for engagement with each (should include both US and international companies) • Reach out directly to OEMs and Tier 1s to inquire about their needs • Prepare for future business development opportunities (i.e., IPF and Wind Europe)	• Developing targeted appointments for IPF in March 2023 • Developing targeted appointments for Wind Europe and Danish Energy tour in April 2023

Economic Opportunity & Business Development Subcomm.

(2) New Business Recruitment Workstream

Targeted Activity	Key Tasks	Latest Update
• Identify Workboat Manufacturers (and Service Providers) Targets	• Identify 3-5 targets and develop strategy for engagement with each (both external companies and existing NC companies)	• Targets identified • Working on strategy for engagement

Economic Opportunity & Business Development Subcomm.

(3) Site Preparation Workstream

Targeted Activity	Key Tasks	Latest Update
• Identify and Assess Available Sites with Direct Water Access or that are Well Suited for OSW Supply Chain	• Develop "ideal" site parameters needed for Tier 1 or 2 suppliers • Survey coastal communities for details regarding available site with water access • Update EDPNC buildings and sites database and make adjustments for OSW requirements	• Developed spreadsheet of sites with direct water access – to be added to EDPNC buildings and sites database • Updated EDPNC buildings and sites database searchable filter to direct water access instead of barge access