New Jersey Manufacturing Assessment & Offshore Wind Readiness Gap Analysis

Sponsored by:

Attentive Energy Two

Authored by:

New Jersey Manufacturing Extension Program

About The New Jersey Manufacturing Extension Program

In 1996, the New Jersey Manufacturing Extension Program (NJMEP) was established by the Department of Commerce and The National Institute of Standards & Technology. MEP's work with U.S. manufacturers to help them become more profitable and globally competitive. The MEP network is comprised of more than 60 individual MEP centers, which span across all fifty U.S. states and Puerto Rico. Each MEP center has programs and services geared towards helping manufacturers improve efficiencies, boost productivity, embrace innovation and spur job creation. Since inception NJMEP programs and best practices have expanded to include planning, energy, tech transfer, innovation engineering and a host of other tools to drive the quality levels, productivity levels and profitability of the businesses it has served in New Jersey.

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Table of Contents

Introduction

The State of New Jersey is well positioned to support offshore wind (OSW) projects along the East Coast due to its central location proximate to a number of offshore wind lease areas located in federal waters, as well as its significant investments in port and Supply Chain development. New Jersey's target for 11 GW of OSW and accompanying infrastructure investments by 2040 is projected to spur approximately 20,000 new jobs related to OSW, from both in-state and regional demand. New Jersey is home to over 10,000 manufacturing companies. Small- to mid-sized minority, women, and veteran owned businesses (SMWVBEs) have a new opportunity to be a part of supply chain development in the early stages of the industry's growth.

To prepare for the emerging OSW industry, The New Jersey Manufacturing Extension Partnership (NJMEP) took the initiative in 2021 to understand the needs of the nascent supply chain and began the OSW Supplier Identification Project (OSW-SIP). This analyzed the 8,000 + components of an offshore wind turbine. These products are purchased by Original Equipment Manufacturers (OEMs) and their subcontractors to create the fully assembled, specialized product. It is within this segment of the supply chain that these tiered sub-components offer opportunities for SMWVBE's to get involved and supply products. NJMEP used the NAICS code system to link the known capabilities in the New Jersey market with the typical bill of materials for wind turbines. This process identified approximately 1,464 local firms that can supply parts for New Jersey's OSW projects.

To better understand the State's needs, Attentive Energy Two and NJMEP have partnered with support from MRV Group to build upon this 2021 project to conduct an in-depth New Jersey Manufacturing Assessment and Offshore Wind Readiness Gap Analysis. Through a series of interviews targeting business needs and challenges to growth, this assessment arrived at a clear picture of the Strengths, Weaknesses, Gaps, and Hurdles that NJ SMWVBEs are facing in their pursuit of offshore wind opportunities.

New Jersey's commitment to OSW opens opportunities for innovation in renewable energy technologies, supply chain development, and workforce training programs to ensure the successful implementation and sustainability of these OSW projects. The installation of 11 GW of OSW capacity will significantly contribute to New Jersey's renewable energy targets, create over 20,000 new jobs by 2030, and stimulate economic growth.[1]

NJMEP has created this whitepaper to identify opportunities for NJ manufacturing in the OSW industry. This document serves as a roadmap for stakeholders to understand the current landscape, identify areas for improvement, and take actionable steps towards a sustainable and prosperous OSW manufacturing supply chain in New Jersey. The NJMEP OSW Operations Team conducted analysis and discovery sessions to determine how the New Jersey manufacturing base can support OSW projects. Critical data was provided by Attentive Energy[2] based upon its Attentive Energy Two project and experience gained through its sponsors in developing offshore wind globally. Attentive Energy Two (AE2) is an OSW project that was awarded the capacity to deliver 1,342 MW of offshore wind energy to New Jersey in the New Jersey Board of Public Utilities' third solicitation.

Located approximately 42 miles from its nearest point in New Jersey, AE2 is designed to help New Jersey meet its nation-leading OSW targets by powering more than 650,000 homes and generating $3.1 billion in economic activity across New Jersey. The AE2 project has been informed by Attentive Energy's engagement with hundreds of stakeholders since 2018 leading to a project that will create economic opportunities statewide reaching all 21 counties.

[1] New Jersey's Offshore Wind Workforce Assessment Through 2035 Whitepaper (NJ EDA September, 2022)
[2] Information about Attentive Energy and its projects can be found at www.attentiveenergy.com

NJMEP has created an OSW Operations Team that is currently engaged in all aspects of New Jersey's Wind Projects. These areas of interest include research and development, conservation, training curriculum, certifications, workforce assessment, local supplier discovery and advocacy. NJMEP continues to work with The New Jersey Wind Institute, the NJ Economic Development Authority, the State of New Jersey and other OSW experts to ensure the provided training is commensurate with requirements.

The NJMEP OSW Operations Team includes:

- Robert Mazzuca - Sr. Engineering Manager OSW Policy & Operations
- Todd Veneziano - OSW Supply Chain Management & Research
- Teresa Tarulli - Industrial Engineer & Supply Chain Specialist
- Stephanie Casano - Director of Business Growth & Development
- Andrew Duda – Vice President of Operations

For this project to be successful and yield usable data it was critical that NJMEP have a deep understanding of New Jersey's manufacturers. This required a thorough understanding of current output capabilities and the ability to pivot to new product lines. An engineering-based assessment was used to analyze the manufacturers that participated in this study. This involved understanding the end-to-end flow of goods, information, and processes used to manufacture items that can support the OSW industry.

OSW Manufacturer Identification

To prepare for the emerging OSW industry, in 2021 NJMEP began the OSW Supplier Identification Project (OSW-SIP) which analyzed the 8,000 + components that reside in an OSW turbine.[3] These products are purchased by Original Equipment Manufacturers (OEMs) and their subcontractors to create the fully assembled, specialized product. It is within this segment of the supply chain that these tiered subcomponents offer opportunities for small, minority, woman, or veteran-owned business enterprises (SMWVBEs) to get involved and supply products. NJMEP used the *North American Industry Classification System* (NAICS) code system to link the known capabilities in the New Jersey market with the typical bill of materials for wind turbines. This process identified approximately 1,464 local firms that can supply parts for New Jersey's OSW projects. The companies that were reviewed in this study were native to the OSW-SIP database.

The tiers of a supply chain are typically broken down based on the relation of a good, service, or material to a final product. In the context of OSW, the tier can vary depending upon the type of product (i.e. wind turbine or marine vessel). Figure 1 and Table 1 provide a simplified explanation of the tiers referenced in OSW.

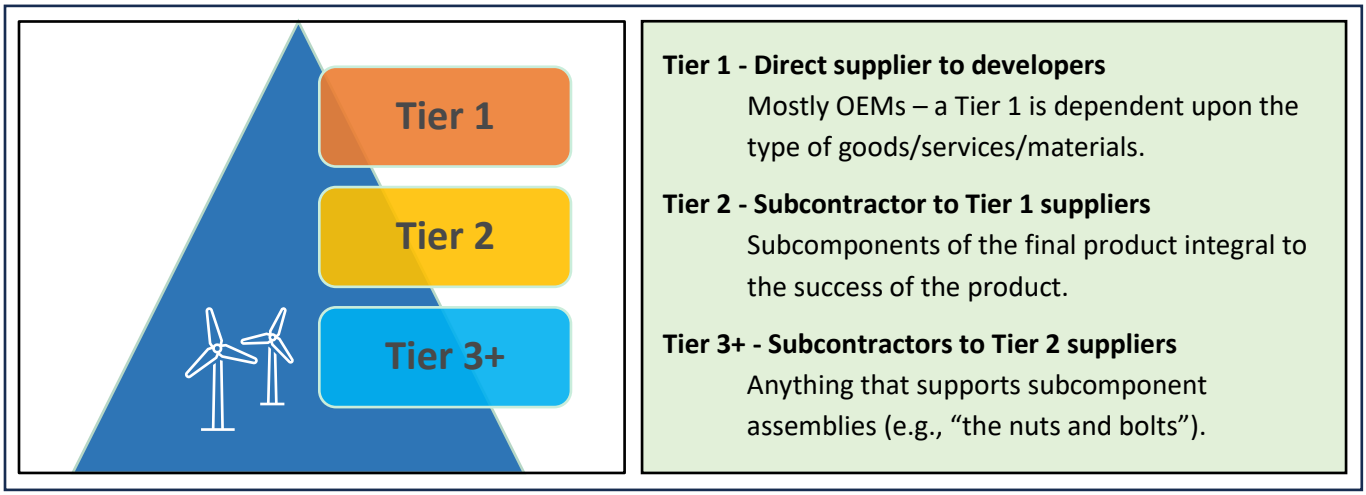

Figure 1 - Tiers of the Supply Chain

Supply Chain Tier	Vessel Example	Wind Turbine Example
Tier 1	Marine Installation Provider	Wind Turbine Manufacturer
Tier 2	Tugs & Barges Supplier	Industrial Elevator Supplier
Tier 3	• PPE • Industrial Lubricants • Low Sulphur Diesel Fuel • Passive Acoustic Monitoring • Weather Forecasting • Communication Equipment • Medical Equipment	• Galvanized Steel • Nuts • Bolts • Fasteners • Guide Wires • 400-690V Electrical Equipment • Braking System

Table 1 - Supply Chain Tiers Example

[3] OSW Supplier Identification Project (OSW-SIP) R. Mazzuca, Nov 5, 2021

NJMEP used the North American Industry Classification System (NAICS) code system to link the known capabilities in the New Jersey market with the typical bill of materials for wind turbines. This process identified approximately 1,464 local firms that can supply parts for New Jersey's OSW projects. The process of cataloging and assessing the capabilities of these in-state supply chain firms will help to quantify and categorize opportunities for our New Jersey Manufacturers. The companies that were reviewed in this study were native to the OSW-SIP database. Figure 2 shown below breaks down each manufacturer by New Jersey county. This data was collected in September 2023.

Figure 2 - New Jersey Offshore Wind Manufacturers by County

The Assessment Process

To help the OSW industry fully understand local content capabilities, NJMEP used a supply chain mapping process to identify current and future capabilities of the manufacturers surveyed. The supply chain mapping process followed a multi-step approach to take what is a vast and diverse supply chain and highlight key goods and commodities that will be prevalent to the success of OSW.

The first step was to narrow down a list of 137 NAICS codes which NJMEP had identified in a previous assessment as OSW related goods and commodities. Attentive Energy provided technical feedback on this list to identify 13 NAICS codes which would be highly relevant to the supply chain and worth exploring localization opportunities in-depth.

The selected NAICS codes were:

Manufacturing Description	NAICS Code
Plastics material and resin manufacturing	325211
Iron and steel mills and ferroalloy manufacturing	331110
Iron and steel pipe and tube manufacturing from purchased steel	331210
Steel wire drawing	331222
Other aluminum rolling, drawing and extruding	331318
Copper rolling, drawing, extruding and alloying	331420
Nonferrous metal (except copper and aluminum) rolling, drawing, and extruding	331491
Iron and steel forging	332111
All other misc. Fabricated metal product manufacturing	332999
Turbine and turbine generator set units manufacturing	333611
Power, distribution and specialty transformer manufacturing	335311
Other communication and energy wire manufacturing	335929
Ship building and repair	336611

Table 2 - Assessed NAICS Codes

Based on these NAICS codes and similar manufacturing types, NJMEP searched the NJ market for manufacturers that met specific criteria for the assessment. The criteria included geographic diversity (e.g. North, Central, and South New Jersey), ranging company size and maturity (targeted employee count under 100), and diversity certification (small, minority, women, and veteran-owned business enterprises). NJMEP invited 18 local New Jersey manufacturers to participate in the assessment, to act as a representative sample of the broader New Jersey manufacturing community.

The OSW Operations Team completed discovery sessions on the selected 18 New Jersey manufacturers. These manufacturers underwent an assessment process that allowed NJMEP to discover how they could best support the OSW industry using their specialized expertise. The participating companies are shown below in
Figure 3. The list supports the data presented in the New Jersey OSW Supply Chain Mapping Report.[4]

[4] New Jersey (OSW Supply Chain Mapping Report) R. Mazzuca, Jan 19, 2024 click here to request a copy

Bioneat Inc.	Brenner Metal Products	Brewster Washers	ColeZar Flood Protection
Custom Welding Inc.	GLE Painters LLC.	Innovative Resin Systems	Jalacontora Inc.
L E M Plastics	MESYS	ModTek Converting	Patwin Plastics
PCS Crane Services	Portadam Inc.	Switlik Survival Products	Technik Products Inc.
	Warfighter Oil	ZaGO Manufacturing	

Figure 3 - Overview of 18 Participating NJ-Based Manufacturers

The supply chain mapping process allowed NJMEP to frame a roadmap of capabilities needed to build out a local New Jersey based supply chain. This information was collected via discovery, written surveys, interviews, data mining and observations. Additionally, NJMEP used secondary sources like existing MEP databases and manufacturer literature.

During this process, NJMEP identified areas for improvement, equipment upgrades and certifications that could be used to develop a total quality management approach. These recommendations can help New Jersey manufacturers drive success in the renewable energy industry.

NJMEP and Attentive Energy designed a 35-question intake form to assist with the data capture process. With expertise provided by MRV Group, the questionnaire was developed with a perspective towards the challenges that diverse businesses are facing in the current supply chain climate.[5] The questionnaire was sent in advance of the interview and then became an area of discussion during the interview.

Throughout this assessment, MRV Group served as a subject matter expert regarding NJ diverse businesses and the hurdles they deal with for procurement opportunities. At the close of the interview process, MRV led a focus group with NJMEP and Attentive Energy to pinpoint the reasons why manufacturers have gaps to access opportunities and what those manufacturers would need from the OSW decision-makers to be more competitive in bidding.

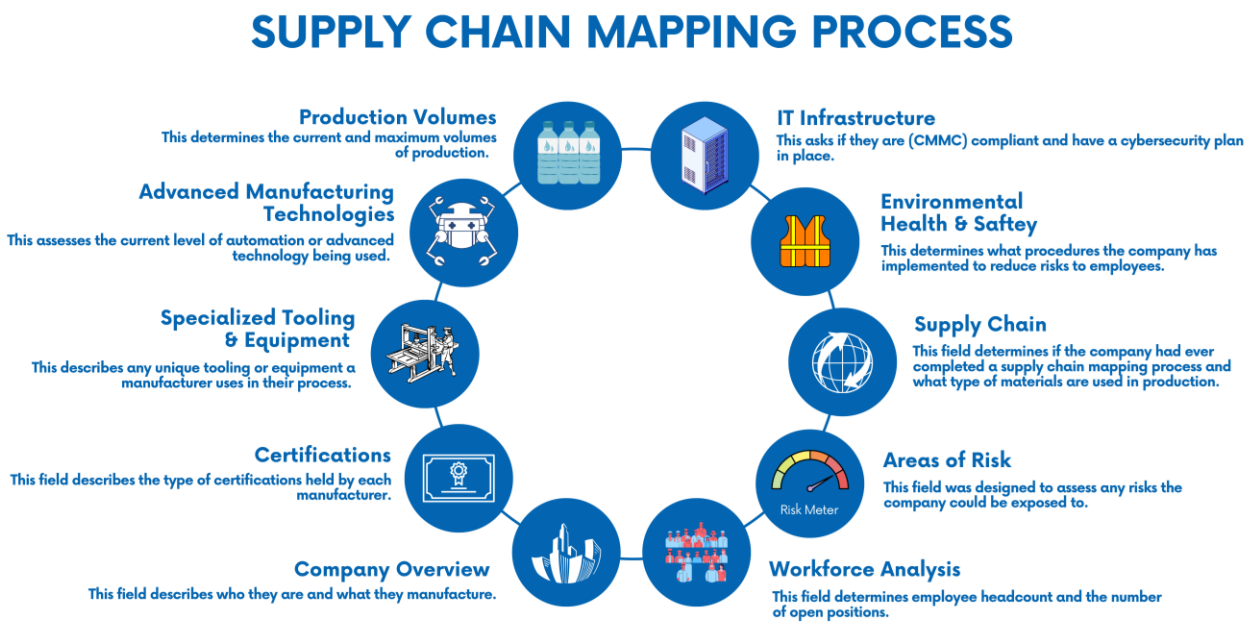

Figure 4 - Information Collected During the Mapping Process

[5] MRV Group Provides market analysis for the renewable energy industry, retrieved, Aug 5, 2024

The data collection provided each manufacturing company's overview of its products and services. This discovery process was categorized into ten unique categories, as described below.

1. **Company Overview -** This field describes who they are and what they manufacture along with any unique information or company history.

2. **Certifications** - This field describes the type of certifications held by each manufacturer (i.e. ISO 9001, ISO 14001, ISO 27001, ISO 45001, MIL-STD, OSHA 10, OSHA 30, ASMEAWS, API, NAVSEA, etc.).

3. **Specialized Tooling & Equipment** – This field describes any unique tooling or equipment a manufacturer uses in their process.

4. **Automation & Advanced Manufacturing Technologies** - This field assessed the current level of automation or advanced technology being used with a one to three-year outlook for any technology upgrades.

5. **Production Volumes** - This field tried to determine the current and maximum volumes of production. Many of the manufacturers did not want to reveal this data set for reasons of competition.

6. **IT Infrastructure** - This field asked the manufacturers if they were Cybersecurity Maturity Model Certification (CMMC) compliant, had a cybersecurity plan in place, business continuity plan in place or had ever been breached in a ransomware attack.

7. **Environmental Health & Safety -** This field determined what procedures, tools or controls the company has implemented to reduce risks to employees.

8. **Supply Chain -** This field determined if the company had ever completed a formal supply chain mapping process. What type of materials were used in production and the volume of inventory surplus kept on hand. Additionally, we tried to determine the diversity of SMWVBE distributors in their supply chain.

9. **Areas of Risk -** This field was designed to assess any risks the company could be exposed to. Many of the manufacturers did not want to reveal this answer.

10. **Workforce Analysis -** This field determined employee headcount, open positions and timeline for sunsetting employees.

Local Content Analysis

The NJMEP analysis is presented in this section with findings from discussions with the 18 interviewed suppliers. The data shown describes the associated OSW opportunity for each supplier based on their manufactured products. These are simply starting points that can be expanded upon into additional product lines and services.

Assessed company statistical data highlights:

- All companies are interested in supporting the OSW supply chain
- Average employee headcount of assessed companies is 27.5
- 16 of these companies have a registered Disadvantaged Business Enterprise (SMWVBE)
- Average company has 3.17 NAICS Codes registered
- Average number of certifications per company is 1.22
- 11 of these companies provide critical items or services required for offshore

New Jersey Manufacturers

1. Bioneat Inc.

Bioneat's products are safer alternatives to many leading chemical cleaners and are chemical alternatives for the industry. Bioneat Marine is USDA Approved. BioNeat products contain surfactants that are safer and derived from, renewable resources. BioNeat is safe to use, store, and dispose. BioNeat Products DO NOT contain: Acids; Ammonia; Animal Products; Chlorine; Glycol Ethers; Harmful Detergents; Ozone Depleting Substances; Petroleum Distillates; Phosphates; Synthetic Chemicals; Volatile Organic Compounds (VOCs).

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	325998	North	10	Tier 2+	Vessel Operators Turbine Manufacturer Port Operators

Supply Chain Opportunity

- Engine degreasers
- Mechanical equipment cleaners
- Bilge flush
- Crew transport vessels (if spill non-hazmat)
- OSW platforms (if spill non-hazmat)

2. Brenner Metal Products

BRENNER METAL PRODUCTS has been serving our warfighters for over 60 years. Located in Passaic, NJ, Brenner manufactures field hospital equipment and emergency management products for the US Dept. of Defense and other State & Local Agencies.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
WBE, SBE	314910, 332710, 339112, 339113, 339114, 423450	North	7	Tier 2+	Vessel Operators Turbine Manufacturer

Supply Chain Opportunity

- Folding cots for offshore assembly crew
- Hospital beds for site first aid stations
- Stretchers
- Folding tables and benches
- Folding cots for emergency usage on wind turbines
- Metal fabrication and specialized parts manufacturing

3. Brewster Washers

BREWSTER WASHERS has been in business since 1919. Brewster manufactures precision washers and is an expert in precision metal stamping, shims, discs and spacers. Customers include Aerospace & Defense, Medical, Dental, Optical, Computer and Automotive Industries.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
WBE, SBE	332722	North	7	Tier 3+	Vessel Operators Turbine Manufacturer Substation Fabricator Shipbuilders

Supply Chain Opportunity

- Scaffolding
- Assembly fixtures
- Staging fixtures
- Small parts inventory

4. ColeZar Flood Protection

Overview: ColeZar Flood Protection is a company involved in the fabrication and assembly of specialized flood mitigation technology. These devices are patented under the “Flood Guardian” brand. This is used to protect buildings against rising and flooding devastating storms.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	237990, 332312	North	2	Tier 2+	Utility operators Port operators Warehouse operators

Supply Chain Opportunity

- Transmission facilities
- Electrical substations
- Office and manufacturing buildings
- Warehousing

5. Custom Welding Inc.

Custom Welding Inc. is a specialized manufacturer of steel structures since 2013. The company is continuously evolving by using technology and advanced manufacturing methods. CWI uses a Total Quality Management (TQM) approach to improve the quality of their products and processes.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
WBE, SBE	236115, 238120, 238190, 238130, 332312, 332313, 332323	North	12	Tier 2+	Vessel Operators Turbine Manufacturer Substation Fabricator Port Operators

Supply Chain Opportunity

- Custom fabrication / welding of large steel and high tower structures
- Custom catwalks and mezzanines for outdoor and indoor warehouses
- Safety railings for turbines
- Safety railings for crew transport vessels
- Additional custom metal fabrication

6. GLS Painters Inc.

GLS Painters is a fully licensed and insured painting company based out of South Jersey. They primarily service companies in New Jersey. They specialize in interior and exterior applications, residential, commercial and industrial painting. They offer corrosion protection painting and a guarantee against all worker defects. GLS Painters has become a member of the PDCA (Painting and Decorating Contractors Association). This organization is a group of professionals, committed to excellence. Being a member of the PDCA means GLS Painters adheres to higher standards than many other painters in the area.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
MBE, SBE	238160, 238320, 325510	South	15	Tier 2+	Turbine Manufacturer Substation Fabricator Industrial Equipment Operators

Supply Chain Opportunity

- Corrosion protection paint application on offshore wind components
- Commercial/industrial facility painting

7. Innovative Resin Systems

Overview: Innovative Resin Systems is a leading formulator and manufacturer of a wide range of high-performance epoxy, polyurethane, silicone and radiation cure adhesives, coatings, sealants, potting and encapsulating systems designed for use in general assembly, filter, electrical, electronic, automotive, aerospace and related industries.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	325520	North	21	Tier 2+	Vessel Operators Turbine Manufacturer Electrical Systems Supplier

Supply Chain Opportunity

- Epoxies
- Polyurethanes
- Acrylics
- Radiation cure (UV/EB) adhesives
- Encapsulates
- Coatings

8. Jalacontora Inc.

Jalacontora is an experienced fabrication shop. They have 30 plus years working experience working with all types of metals. Specialized experience with welding marine structures, to include stairs, railing, ramps, towers and safety platforms. They have capabilities of design and prototype to manufacturing of small and medium sized products. They have experience working with utility companies, food suppliers, marine equipment suppliers and railroad restoration companies.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	336612, 332322	South	3	Tier 2+	Vessel Operators Turbine Manufacturer Substation Fabricator

Supply Chain Opportunity

- Safety railings for wind turbines, offshore platforms, and vessels
- Custom fabrication and welding steel structures
- Custom catwalks and mezzanines for warehouses
- Additional custom metal fabrication

9. L E M Plastics

L E M PLASTICS & SUPPLY Inc. provides build-to-print fabrication servicing the aeronautical division, space division, medical products, radio engineering, and more. A fabricator and distributor of raw material plastics, sheet, rod, tubing, and film. They make products out of this world, literally their products are flying on the International Space Station. OSW is a natural progression based on their familiarity with military specifications and high reliability manufacturing for the harsh environments of outer space.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
WBE, SBE	332710, 326199, 424610, 326113, 326130, 326121, 326220	North	9	Tier 3+	Vessel Operators Turbine Manufacturer

Supply Chain Opportunity

- Build-to-print specialized plastic components
- Assembly fixtures
- Staging fixtures
- Electronic enclosures
- Machined plastics parts
- Rubber components

10. MESYS

Overview: MESYS (former Marine Electric Systems) has been manufacturing mission critical equipment for the Department of Defense since 1942. Their CAGE Code is 00062. Over the years, the Company has grown from a designer and installer of electrical installations to a rebuilder of electric motors, and, through a series of acquisitions, to the electronics company that exists today.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	334515, 334513	North	31	Tier 2+	Vessel Operators Turbine Manufacturer

Supply Chain Opportunity

- Power supplies
- Battery chargers
- LED lighting (for NAVY), which will be needed for offshore platforms and crew transport vessels
- Electric control panels
- Proximity switches
- PC board and electronic assemblies
- Customer designed, build-to-print projects
- Well-equipped machine and sheet metal shop

11. ModTek Converting LLC.

ModTek Converting is a manufacturer of pressure sensitive labels and tags. Founded in 2006, ModTek has quickly become a major supplier in the primary label market. Thanks to its dedicated team of industry professionals, strong vendor partnerships and an unrivaled commitment to quality and service. ModTek continues to find ways of being environmentally responsible in an industry in which it is typically difficult to do so. Earning an environmental stewardship award has been a shining jewel in our crown as we have strived to reduce our carbon footprint through our 150-kilowatt solar array, full conversion to LED lighting throughout our 33,000 square foot facility.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	323111	South	28	Tier 2+	Vessel Operators Turbine Manufacturer Substation Fabricator

Supply Chain Opportunity

- Safety and emergency identification stickers
- Safety signage for electrical substations

12. Patwin Plastics

PATWIN PLASTICS Inc. is a manufacturer of extruded plastic products; including tee molding; bumper molding; U-Channel; and architectural molding. Through the use of advanced equipment and a skilled staff; Patwin can produce dependable; cost-effective; and innovative products. They currently have 9 extrusion lines output ranging from 350 lbs. to 1200 lbs. per hour. Founded by Thomas Hannen in 1971, Patwin is still managed by the Hannen family.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	325211, 326199	North	42	Tier 2+	Onshore Facilities

Supply Chain Opportunity

- Onshore facility products for offices, substations, warehouses, and staging areas (e.g. fencing, moldings, door tracks, and decking)

13. PCS Crane Services Inc.

PCS Crane Services, Inc. is an overhead crane and hoist manufacturer and service company. Their service department works with all brands of overhead cranes & hoists and have technicians on call 24/7/365. They maintain a full stock of slings, both endless round nylon & flat webbing, shackles, lever hoists, manual chain hoists, come alongs, beam clamps, beam trolleys and drum lifters. Additionally, they feature a full range of transport lashing gear such as tie downs & load binders. PCS is a distributor for R&M Materials Handling & Bison Lifting Equipment. PCS Crane is currently supporting the OSW industry through their sister company, Granada Cranes.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	333923	North	21	Tier 1+	Vessel Operators Turbine Manufacturer Port Operators

Supply Chain Opportunity

- Single & double girder overhead cranes
- Gantry cranes
- Workstation cranes
- Jib Cranes
- Monorails
- Chain hoists
- Wire rope hoists
- Slings
- Tie downs
- Load binders

14. Portadam Inc.

For nearly five decades, Portadam has provided superior customer service and product quality in the water diversion, flood protection and temporary water storage industries. All our projects are related to controlling water with our services being custom tailored for each site. Our exceptional service and unique products deliver advantages in both cost and

schedule to our customers, enabling project success. Our team of experts have executed over 6000 projects in the US and internationally.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	238990, 221310, 221320, 236220, 237110, 237990, 238910, 332312	South	30	Tier 2+	Utility operators Port operators Warehouse operators

Supply Chain Opportunity

- Transmission stations
- Electrical sub stations
- Offices and production buildings
- Warehousing
- Cofferdams
- Flood production barriers

15. Switlik Survival Products

Established in 1920, SWITLIK has been owned and operated by the Switlik family for four generations and is known worldwide as a manufacturer of the highest quality sewn and heat-sealed safety and survival products for the aviation, marine, and military markets. Switlik is currently manufacturing safety products for use in the European OSW market. Their specialty is offshore marine safety gear for use in boats and aircraft.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	315990	South	145	Tier 1+	Vessel Operators Turbine Manufacturer OSW Developers

Supply Chain Opportunity

- Man overboard modules
- Crew transport safety suits
- Life rafts
- Life vests

16. Technick Products Inc.

Technick Products, Inc and Polymer Dynamix, LLC, collectively is a specialty chemical additives, coatings, and plastics compounding company based in South Plainfield, NJ. Their chemistries and technologies are utilized in a wide range of industries from building, construction, infrastructure, medical, and consumer products. Their focus has been on using greener more sustainable chemistries which in turn reduce toxicity and increase public safety. Technick Products can manufacture various composites for the OSW with regards to building and construction.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
SBE	325998	North	60	Tier 2+	Turbine Manufacturer High Voltage Cable Manufacturer Substation Fabricator

Supply Chain Opportunity

- Electrical insulators
- Components for electrical substations
- Components for transmission stations
- Wire and cable insulation

17. Warfighter Oil

WARFIGHTER OIL is a local manufacturer of natural non-hazmat Petroleum Lubricating Oils. WARFIGHTER OIL (WO) supports DoD NO HAZMAT purchase requirements for grease oils and lubricants. As Subject Matter Experts (SME), Warfighter Oil owns a patent process for Earth Oil products that exceed DoD and Federal Procurement Laws. The products are environmentally safe, biodegradable, bio based and biostatic, no chemicals – NO HAZMAT.

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
VBE	324191, 424720, 352611, 352180	North	4	Tier 2+	Vessel Operators Turbine Manufacturer & Operators Substation Operators Port Operators

Supply Chain Opportunity

- Oils, lubricants, and grease provider for various mechanical systems in heavy industrial equipment and vessels

18. ZaGO Manufacturing

ZaGO MANUFACTURING COMPANY specializes in producing self-sealing fasteners including seal screws; nuts and bolts for a wide range of industrial and military applications. ZaGO self-sealing fasteners are designed and manufactured with a groove under the head to accommodate a rubber O ring which; when compressed; forms a complete seal and permits full metal-to-metal contact. Their customers include major military contractors; aerospace industry suppliers; computer and electronic equipment makers; medical; marine products; and motor vehicle manufacturers. Their products are both ROHS and DFAR compliant. ZaGO currently manufactures products for the OSW industry. Their precision components are ideal for the harsh environment of OSW. They manufacture to Mil Specs and are ISO9001 Certified.

“ZAGO is ready to serve offshore wind in New Jersey. ZAGO sealing fasteners are used in offshore wind projects in Europe and Canada. We are DFARS, REACH, RoHS compliant and ISO 9001: 2015 and WBE (Women Business Enterprise) certified. Our sealing fasteners are Made in USA/Buy American Act compliant and manufactured at our headquarters in Newark, NJ.” - Gail Friedberg Rottenstrich, Co-Founder & CEO, ZAGO

SMWVBE Status	NAICS Codes	Region	Employees	Supply Chain Tier	Typical Buyer
WBE, SBE	326291, 332722	North	35	Tier 3+	Vessel Operators Turbine Manufacturer

Supply Chain Opportunity

- Wind Turbines, Face Covers & Inner Components
- Self-sealing fasteners
- Sensors, LiDAR, Radar & Sonar
- 3D Vision Technology & Underwater Cameras
- Electronics & Enclosures
- Electronic Dashboards (Marine Use)
- Subsea Lighting & Laser Assemblies
- Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles & Subsea Robots
- Hydraulic Systems, Pumps & Valves
- Electric Batteries & Charging Stations

Actionable Recommendations for Addressing NJ Manufacturer Qualification Gaps

There was a total of 18 companies that participated in the supply chain mapping process. NJMEP has determined that 66.67% of interviewees could benefit from additional machinery, technology or some form of Advanced Manufacturing Technology. Additionally, training and specialized certifications are needed to help these manufacturers with overall process improvements. Interviewed companies were identified to require one or more of the following types of upgrades or trainings:

- Modernized CNC machining
- Automation equipment
- Energy-efficient equipment
- Specialized equipment
- OSHA safety training
- Equipment user training
- Lean and six sigma training

The figure shown below provides a SWOT Analysis demonstrating the Strengths, Weaknesses, Opportunities and Threats of the NJ manufacturers, with a particular focus on SMWVBEs. Comparing New Jersey's existing strength within the maritime sector and Dept of Defense contracts, NJ's SMWVBEs already have a market advantage in supplying heavy industrial parts, materials, and goods which have direct uses in OSW.

However, supply chain development of a novel sector can only be achieved with an informed ecosystem. The experienced European OSW manufacturers (e.g., wind turbines, foundations, electrical substations) need to educate the market about their procurement processes and keep vendors informed of upcoming opportunities with enough time for them to prepare for those opportunities (e.g., qualification, certification, equipment upgrades, training).

NJ SMWVBEs need to know where to go for support through advocates who can guide them through a new sector with an understanding of how to strategically position themselves to be competitive, whether that is by pivoting to new products or expanding their production capabilities.

Unfortunately, industrial pivots and training programs can be costly for many growing businesses. For example, for equipment upgrades identified for the 18 participating companies it was estimated that a single investment in new equipment can range from $40k - $150k. Meanwhile, employee training courses can vary from $6k - $31k, depending on the type of course and intensity. Many SMWVBEs are burdened by a lack of resources to actively pursue grant funding for equipment upgrades, staff training, and relevant certifications. This challenge can stem from complicated application processes for grants, time constraints to apply, or a lack of visibility of their support network.

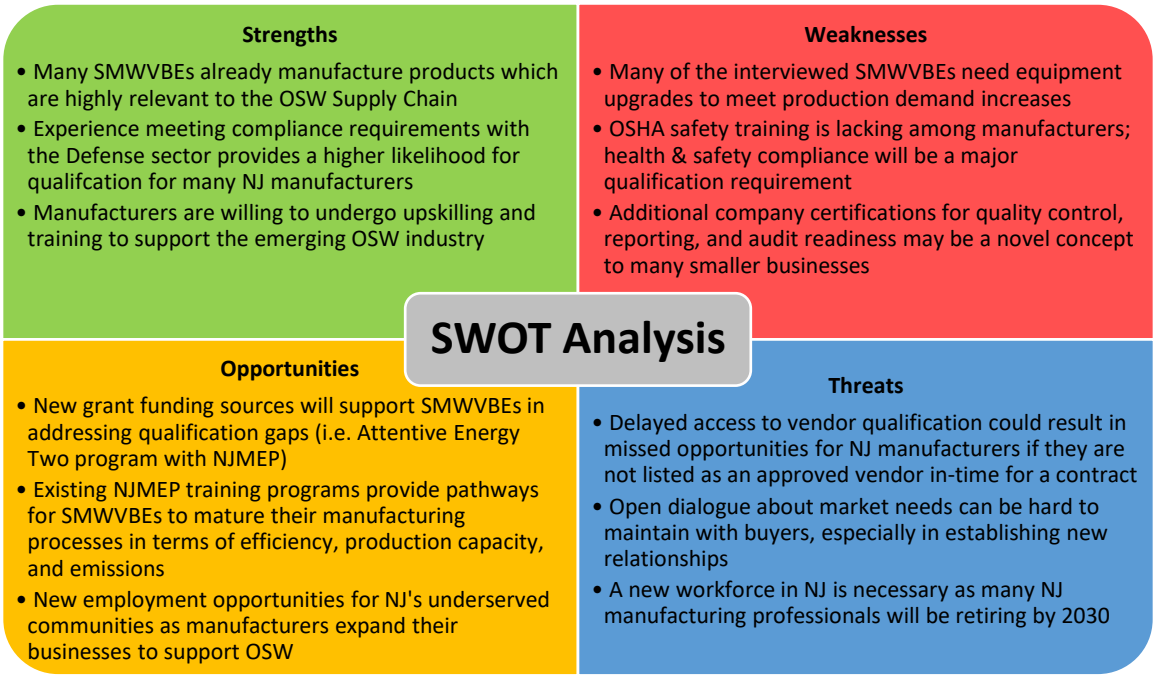

Figure 5 - SWOT Analysis of NJ Manufacturers

A newly proposed grant program, in partnership between NJMEP and Attentive Energy, plans to subsidize various process or technology upgrades. The AE2 project has committed funds over a 7-year term to be administered via NJMEP to conduct certification, training and consulting services for New Jersey's manufacturers. Included, but not limited to, this project could touch up to approximately 500 manufacturers depending upon the services required. NJMEP will study and recommend various methods of improvement for each manufacturer. These enhancements may be in the form of Specialized Training, Certifications, Advanced Manufacturing Technologies, Apprenticeship Programs, Workforce Development, Process Improvement and Equipment Upgrades. The three key pillars of development are shown below in Figure 6 with key services offered directly tailored towards OSW readiness.

Figure 6 - NJMEP's Key Pillars of Manufacturing Development

By offering these comprehensive services, NJMEP helps and will continue to help manufacturers in New Jersey close production gaps, enhance their competitiveness, and drive sustainable growth.

As part of a grassroots-facing campaign to promote a localized supply chain in support of their commitments to grow the state economy, Attentive Energy has outlined a roadmap to help local New Jersey SMWVBEs determine their readiness for contracting with a globalized sector. Attentive Energy created the below figure to provide NJ's SMWVBEs with a guide to navigating the OSW market so they can find their answer to how they can strategically position themselves to be competitive in this market.

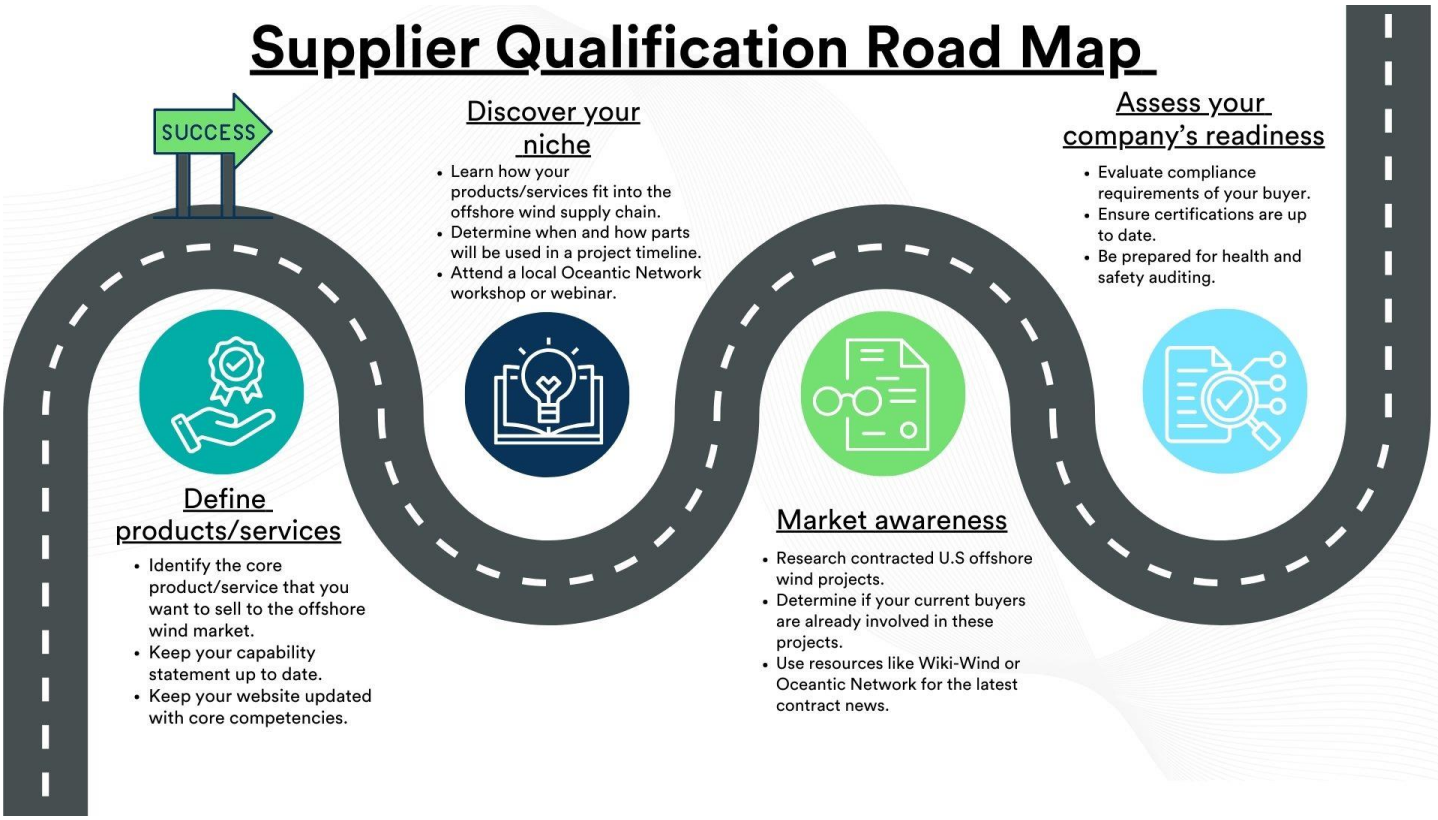

Figure 7 - Offshore Wind Supplier Qualification Roadmap (Source: Attentive Energy)

Final Thoughts

This supply chain mapping exercise provided a positive analysis demonstrating that each of the 18 companies interviewed can indeed be a part of the OSW supply chain. Throughout this process, the NJMEP Operations Team learned more about Attentive Energy as a company. More importantly, we had the pleasure of getting to know their team members. It became very apparent their corporate culture is based upon a forward-thinking and community-first approach. Our analysis has determined they are fully engaged with numerous stakeholders across New Jersey.

Additionally, Attentive Energy has shown a concerted effort to assemble a diverse and inclusive local supply chain from the ground up that uses a wide range of suppliers, vendors, and partners from different backgrounds, demographics, and ownership structures. The goal of this model is to foster inclusion, equity, and equal opportunities for businesses owned by individuals from various ethnic, racial, gender, and socio-economic backgrounds. Their supply chain model is an intelligent design that will eliminate many of the supply chain risks companies face daily. The more goods and services that can be purchased using a local content model is directly proportional to de-risking the supply chain. This model will significantly impact economic development, job creation, and increase the GDP of New Jersey's manufacturing sector.

While the Attentive Energy wind turbines would be located approximately 42 miles off the shores, the jobs and economic benefits will flow inland through the entire Garden State where the parts are engineered, manufactured, assembled and maintained. The NJMEP OSW Operations Team will continue its research and strategic planning efforts to help Attentive Energy achieve success with their build outs. NJMEP will also continue to act as a bridge between Attentive Energy and the New Jersey manufacturers that will soon begin supplying goods for New Jersey OSW programs.

New Jersey has a history of success in manufacturing and has provided a robust offering of goods to US industries such as onshore infrastructure and the Department of Defense. Opportunities will come for those same businesses in the blossoming OSW sector. Each contract won will be a new success story to show the best practices for navigating this vast ecosystem.

A supplement to this whitepaper was released by NJMEP, MRV Group and Attentive Energy on May 20, 2024. It can be found here: New Jersey Manufacturing Assessment[6].

[6] New Jersey Manufacturing Assessment and Offshore Wind Readiness Gap Analysis (One-Pager) R. Mazzuca, May 20, 2024.

List of Acronyms

Disabled Veterans' Business - means a business which has its principal place of business in the State of New Jersey, is independently owned and operated and at least 51% of which is owned and controlled by persons who are disabled veterans or a business which has its principal place of business in the State of New Jersey and has been officially verified by the United States Department of Veterans Affairs as a service-disabled veteran-owned business for the purposes of department contracts pursuant to federal law. N.J.S.A. 52:32-31.2.

HUD Zone - A HUD Zone or opportunity zones are economically distressed communities, defined by individual census tract. Under certain conditions, new investments in Opportunity Zones may be eligible for preferential tax treatment. There are 169 Opportunity Zones in New Jersey.

Minority-Owned Business - A sole proprietorship owned and controlled by a minority; a partnership or joint venture owned and controlled by minorities in which at least 51% of the ownership interest is held by minorities and the management and daily business operations of which are controlled by one or more of the minorities who own it; or a corporation or other entity whose management and daily business operations are controlled by one or more minorities who own it, and of which at least 51% of the legal beneficial ownership is held by one or more minorities. This definition is pursuant to N.J.S.A. 52:27H-21.18 (pursuant to legislation (S3013) enacted on January 8, 2024).

Small Business - Pursuant to N.J.A.C. 17:13-1.2, "small business" means a business that meets the requirements and definitions of "small business" and has applied for and been approved by the New Jersey Division of Revenue and Enterprise Services, Small Business Registration and M/WBE Certification Services Unit as (i) independently owned and operated, (ii) incorporated or registered in and has its principal place of business in the State of New Jersey; (iii) has 100 or fewer full-time employees; and has gross revenues falling in one (1) of the three (3) following categories: For goods and services – (A) 0 to $500,000 (Category I); (B) $500,001 to $5,000,000 (Category II); and (C) $5,000,001 to $12,000,000, or the applicable federal revenue standards established at 13 CFR1221.201, whichever is higher (Category III); For construction services: (A) 0 to $3,000,000 (Category IV); (B) gross revenues that do not exceed 50 percent of the applicable annual revenue standards established at 13 CFR 121.201 (Category V); and (C) gross revenues that do not exceed the applicable annual revenue standards established at CFR 121.201 (Category VI).

Small Business Set-Aside Contract - means (1) a Contract for goods, equipment, construction or services which is designated as a Contract with respect to which bids are invited and accepted only from small businesses, or (2) a portion of a Contract when that portion has been so designated. N.J.S.A. 52:32-19.

Small, Minority, Woman, or Veteran-owned Business Enterprise ("SMWVBE") - sole proprietorship, partnership, joint venture or corporation that meets certain requirements and is registered with the State.

Veteran-Owned Business - A business, as defined in N.J.S.A. 52:32-49 et seq., which has its principal place of business in the State, is independently owned and operated, and not less than 51 percent of the business is owned by one or more veterans; and the management and daily business operations of which are controlled by one or more veterans.

Women-Owned Business - A sole proprietorship owned and controlled by a woman; or a partnership or joint venture owned and controlled by women in which at least 51% of the ownership is held by women and the management and daily business operations of which are controlled by one or more women who own it; or a corporation or other entity whose management and daily business operations are controlled by one or more women who own it, and of which at least 51% of the legal beneficial ownership is held by women. This definition is pursuant to N.J.S.A. 52:27H-21.18 (pursuant to legislation (S3013) enacted on January 8, 2024).

Index of Tables and Figures

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