

Transition Piece Secondary Steel

More than Just Steel

New York & New Jersey Offshore Wind Supplier Forum

October 28, 2024

Atlantic City, New Jersey

RAMBOLL

Bright ideas.
Sustainable change.



Content

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About Ramboll



Independent Wind engineering
consultancy since

1989

Enabling so
far more than

100 GW

renewable energy
production

Dedicated
teams for

Floating and
Bottom-fixed

Offshore
wind

4,500+

individual foundation designs for
Wind farms globally

Involved in more than

70%

of the installed OFW
farms worldwide

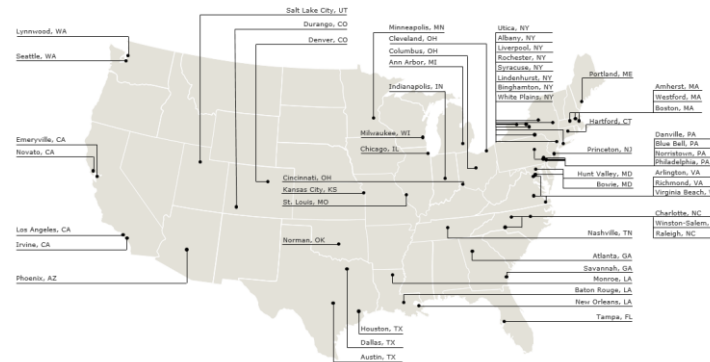
Ramboll – World-leading Offshore Wind Consultant with Nationwide U.S. Presence

World-leading offshore wind consultant with more than 30 years experience and a powerful global work force

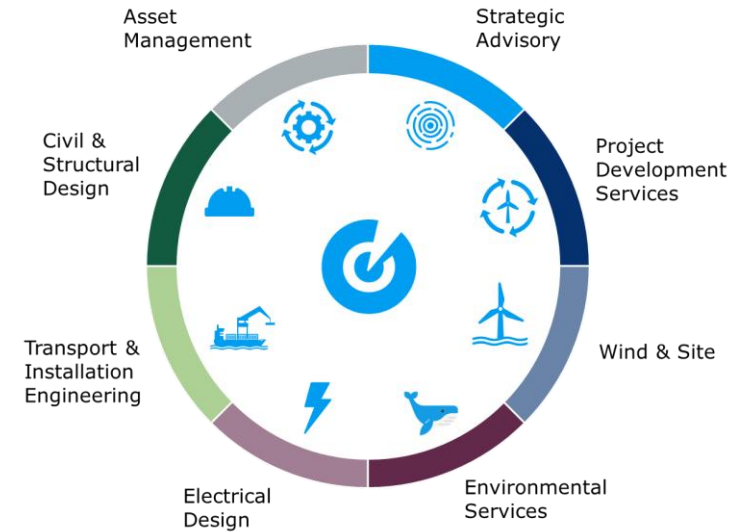


- 900 wind experts
- 4,500 projects
- 35+ countries

56 locations across U.S. with 2,000+ local experts working on innovative solutions and projects



More than 50 local colleagues offering a comprehensive range of offshore wind services covering the entire value chain



Ramboll – The Leading U.S. Offshore Wind Consultant

Leading offshore wind consultant in the U.S. market with more than 10 years of market involvement and more than 50 project references across U.S Atlantic, Pacific, and Gulf of Mexico

Project Development

- Demonstrated ability to execute end-to-end project development of a GW-scale offshore wind farm (Owner’s Engineer to Dominion Energy’s CVOW-C project)
- First-hand experience on key U.S. topics, such as ITC, COP, and local content strategies
- Team comes with experience from supporting the largest offshore wind procurement in the U.S.

Ports & Logistics & Industrialization

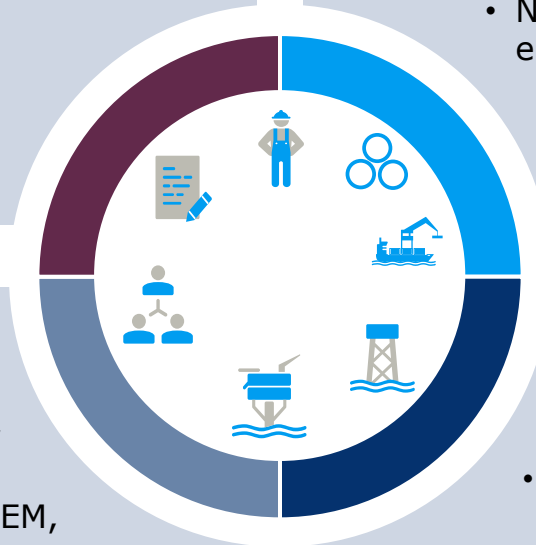
- Applied port design, such as in Virginia (PMT), incl. layout of marshalling facilities, related infrastructure, supply chain
- Numerous studies regarding domestic fabrication to enable local content in several U.S. states
- Well maintained database of suppliers and ports along East and West coasts, incl. floater logistics and industrialization concepts, vessels and permitting/costing projections

Public Stakeholders

- Established reputation as trusted public sector expert through involvement in state offshore wind strategies, including New Jersey, Virginia, and Massachusetts
- Existing relationships with key Federal authorities (BOEM, BSEE) and relevant state agencies
- Respected and trusted brand proactively supporting growth of the U.S. offshore wind industry, i.e. by being part of BNOW Board of Directors and as BOEM/NREL committee member and peer reviewer

Design & Engineering

- Strong U.S. team with local track record of more than 10 years and insights into PE, FDR, FIR, etc.
- World-leading designer of all types of foundations and offshore substations (experience from designing more than 20 different floater options)
- Technology-agnostic striving for the best technical solution fitting the purpose of the local conditions



Secondary steel industry requirements

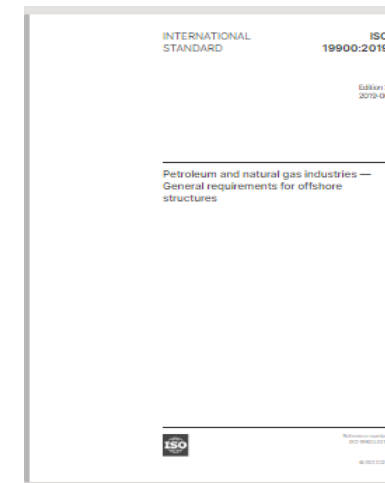
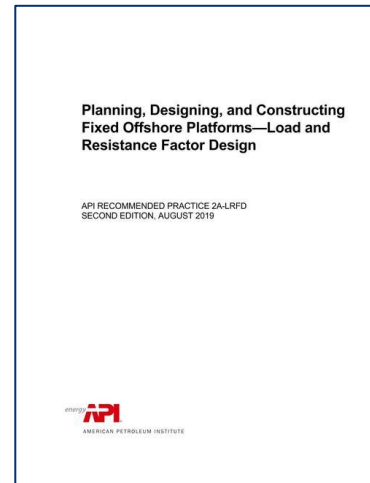
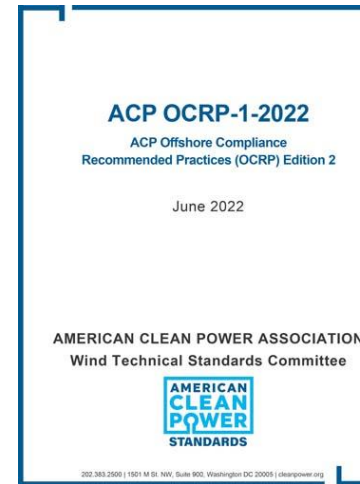
Parts specification

Most secondary steel is specified to readily available AISC shapes and ASTM grades

Secondary steel	Approx. mass (tons)
Boat Landing	25
Intermediate Platform	2
Upper External Ladder	2
External Platform	40
Bolting Platform	5
Switchgear Platform	7
Equipment Platform	8
Airtight Platform	7
Internal Ladder	0.5
Grout Arrangement	3
ICCP Arrangement	2
Ventilation System	0.25
Dehumidification Pipe	0.05
Installation guides	3

Industry codes

- US Industry Overarching Recommended Practice – ACP OCRP-1 (2022)
- Welding Qualification – AWS D1.1
- Quality Certification – ISO 9001
- Fabrication Tolerances – API RP2A; ISO 19900
- Steel Material Specifications - ASTM



Identifying the client

Potential clients

Foundation manufacturers are typical client but developers and EPCI contractors can be the buyer as well

Foundation manufacturers



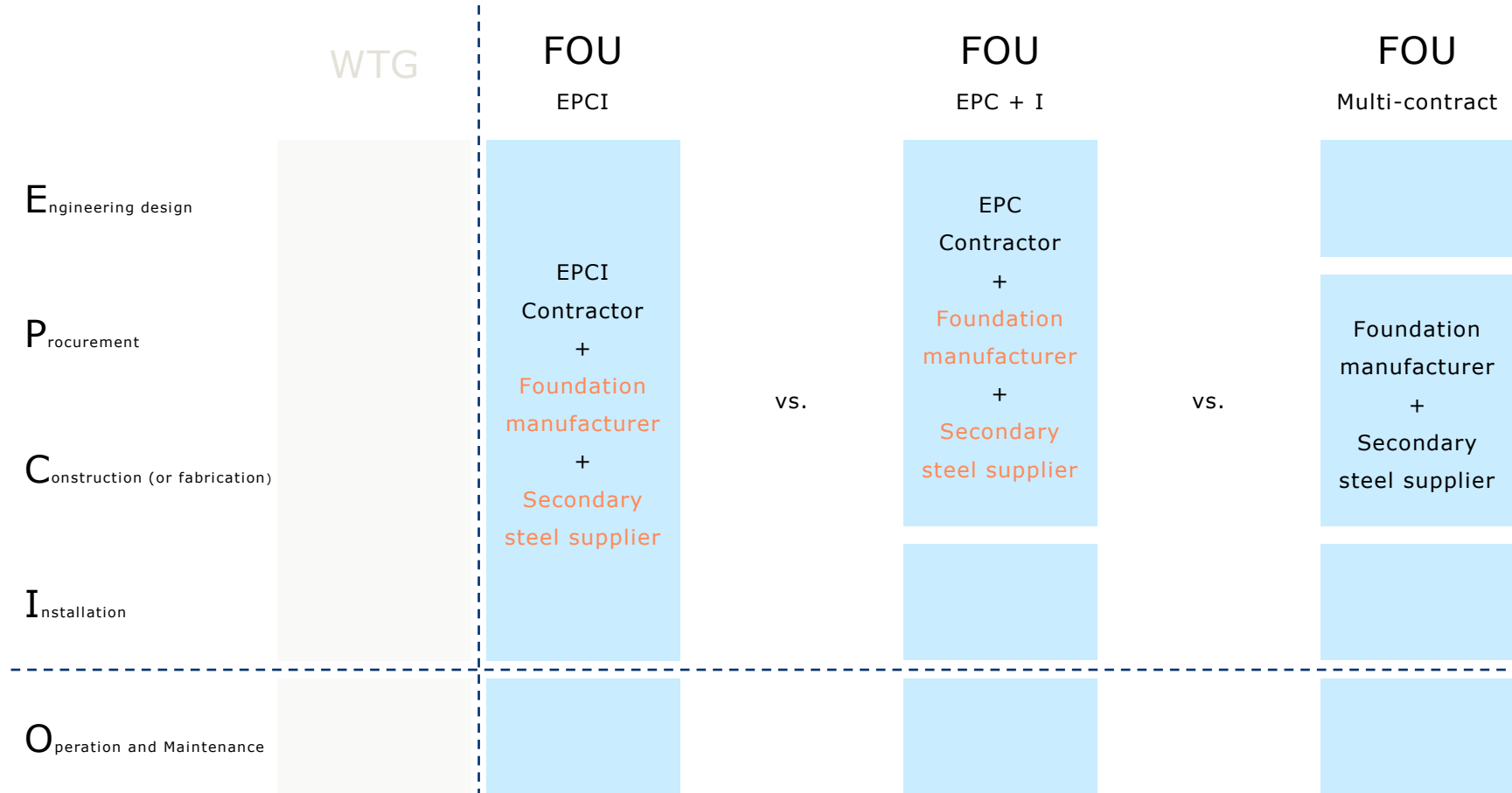
Offshore wind developers



EPCI contractors



Contracting strategies in offshore wind (foundations)



EPCI

- FOU package procured by the developer via a single EPCI contract
- Foundation manufacturer could be the secondary steel buyer

EPC+I

- FOU package procured by the developer via two major contracts: EPC + I
- Foundation manufacturer could be the EPC contractor

Multi-contract

- FOU package procured by the developer via multiple major contracts
- Foundation manufacturer could be the secondary steel buyer

Local Opportunity

What are local content requirements?

Local content requirements are statutes, rules, regulations, solicitation evaluation criteria, or policy instruments, which:

Implicitly or expressly require offshore wind developers to source project components and/or undertake project-related activities locally.

In the U.S. context, “**requirement**” is an overstatement. More accurately described as a preference and/or incentive for localized sourcing.



Market potential in the U.S.

- ~ 4 GW under construction (~6 GW if onshore cabling incl.)
- ~ 12 GW awarded offtake
- ~ 46 GW active procurement to meet state deployment goals
- Potential for upwards of 80 GW by 2040

Secondary steel market potential¹

- ~ 56-83k tons by 2030
- ~ 256-450k tons by 2040

Federal requirements driving local content

BOEM lease auction bidding credits

- In May 2022, BOEM conducted the Carolina Long Bay auction, which was the first **multiple-factor auction** for an offshore wind lease area in U.S. federal waters.
- Multiple factor bidding involves developers submitting bids that are a combination of **cash plus bidding credits**.
- BOEM's bidding credits have focused on:
 - Supply chain development and workforce training
 - Community benefits agreements with other ocean users

Inflation Reduction Act

- Signed into law Aug. 2022
- To earn 30% (base) Investment Tax Credit:
 1. pay prevailing wages, and
 2. meet registered apprentice requirements
- Two stackable bonus credits (10% each)
 - Domestic content bonus credit
 - Energy community bonus credit

State approaches to local content

New Jersey

- Procurement mandate based upon OWEDA and Executive Orders. OWEDA requires offshore wind projects to have net economic and environmental benefit to New Jersey.
- Key elements of New Jersey's offshore wind strategy
 - New Jersey Wind Port (marshaling & manufacturing)
 - EEW monopile facility
 - State Agreement Approach planned transmission
 - Potential multi-user offshore wind O&M and logistics hub
 - Atlantic City O&M sites
- State gov't invested **\$400 million** to develop the purpose-built New Jersey Wind Port (phase one).
- **NJEDA** offers a wide range of initiatives to support New Jersey businesses seeking to enter the offshore wind market.

New York

- Procurement mandate based on CLCPA.
- Key elements of New York's offshore wind strategy
 - Port of Albany
 - Port of Coeymans
 - South Brooklyn Marine Terminal
 - Port Jefferson & East Setauket O&M sites
 - Montauk Harbor O&M site
- NYSERDA has pursued a **public-private match** funding model for port and supply chain investments.
- New York is making a targeted investment of **\$500 million** in offshore wind supply chain development including a **\$200 million** supply chain RFP which is decoupled from an OREC solicitation.

How New York and New Jersey could benefit

Opportunity for local secondary steel suppliers

- Existing and new suppliers could secure offshore wind work and support the State-level and U.S. ambition on offshore wind development and local content
- Secondary steel market in the U.S. could be upwards of ~ 3.0bn USD by 2040 (upwards of ~ 0.5-1.0bn USD by 2030), given the offshore wind market development potential¹
- Opportunity to manufacture secondary steel parts for WTG towers and offshore substations as well

Opportunity for other local suppliers

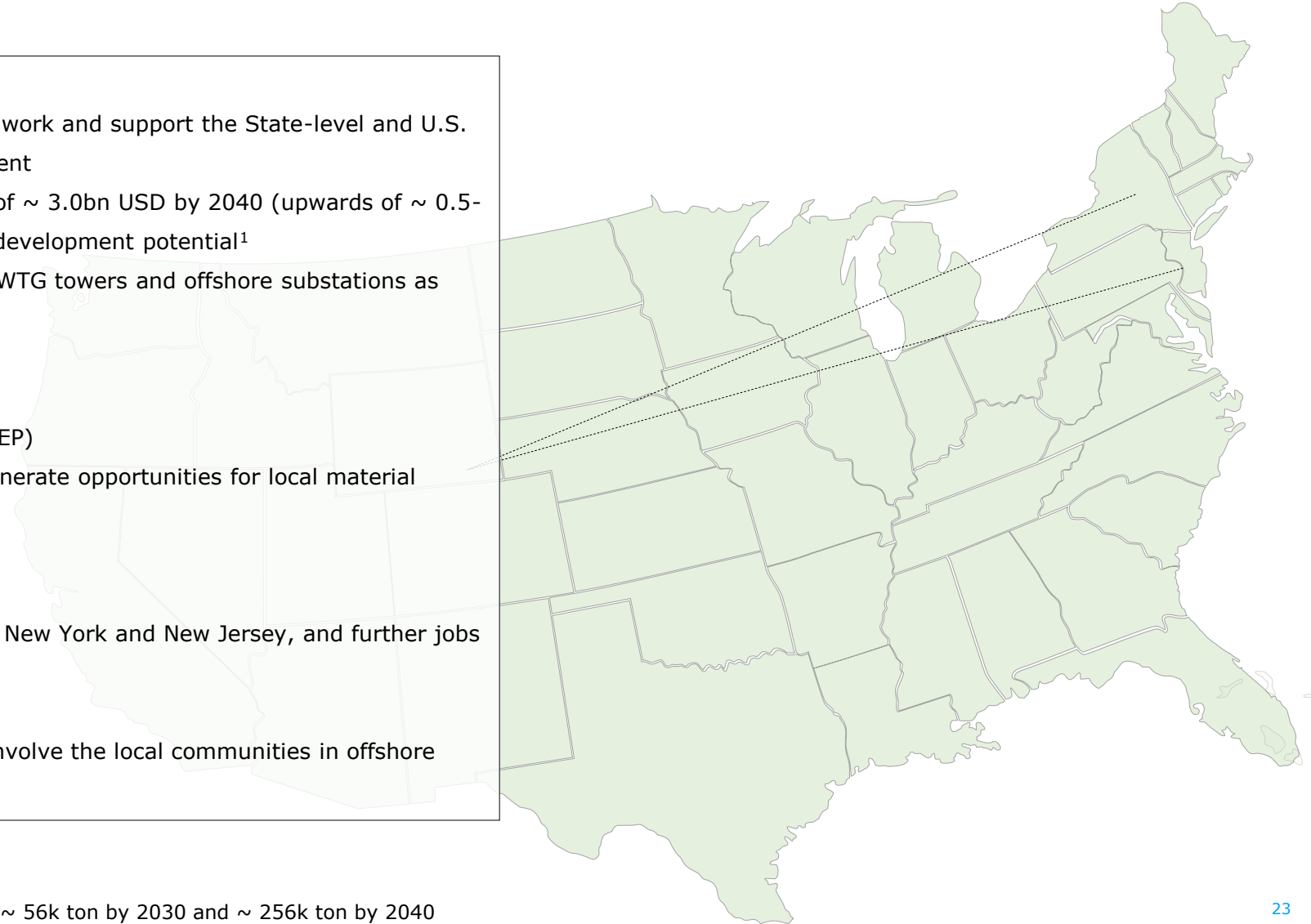
- New Jersey Manufacturing Extension Partnership (NJMEP)
- Parts manufactured and delivered locally could also generate opportunities for local material vendors, logistics firms, service providers, etc.

Opportunity for local economic benefit

- This activity could generate further gross value add to New York and New Jersey, and further jobs

Opportunity for benefitting local communities

- This activity could enable further initiatives to better involve the local communities in offshore wind



How to take this opportunity as a local supplier

Active market engagement

- Reach out to potential clients
- List your company in offshore wind supply chain databases & registries
- Attend supply chain and meet-the-buyer events
- Consider strategic partnerships to create a stronger offer

Meeting industry requirements

- Build to design specs – materials, mass, dimensions, corrosion protection, etc.
- Keep in mind overall parts quality, personnel access and/or health & safety requirements

Benchmarking cost and schedule

- Be cost-competitive and deliver on time
- Understand and work with the critical path of project
- Leverage your serial production capabilities

Driving local content

- Find U.S. suppliers for your own supply chain
- Consider potential investments that could be seen favorably by both potential clients and the States

Let's connect

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Sustainable change.