

WELCOME

**Icebreaker Windpower LLC
Lake Erie Energy Development Corporation
Fred. Olsen Renewables USA Inc.**

ICEBREAKER WIND SUPPLY CHAIN OPEN HOUSE EVENT

December 8th, 2016

4:00 PM to 7:00 PM

With Presentations at 4:30 PM and 6:00 PM

Responsible for Icebreaker Wind	
 <small>Lake Erie Energy Development Corporation</small>	
Our Supply Chain Development Partners	
	



Project Overview

Icebreaker Wind

6 Vestas V126-3.45 turbines

8 – 10 miles offshore

Water depth ≈ 60 feet

20.7 MW capacity

Power for 7,000 homes

Mono Bucket foundations

Grid connection at CPP
Lake Road substation

Port of Cleveland
staging & assembly site

Construction planned to
begin in 2018



Build an Offshore Wind Industry in Northeast Ohio to Create Jobs and Generate Clean Energy Locally

- Community-driven initiative dating back to 2004
- LEEDCo formed in 2009 to accomplish the vision
 - 1st step ⇒ build a demonstration project
 - Blaze the trail to attract the private sector
 - Significant support from City of Cleveland – Ashtabula, Cuyahoga, Erie (PA), Lake, Lorain Counties – Cleveland Foundation - DOE – Ohio Congressional Members – national environmental groups – labor – lakefront communities – universities – maritime industries
- Achieved significant progress in development of Icebreaker Wind with local sources as well as DOE funding
- Attracted the investment of Fred. Olsen Renewables
- Transitioning development and construction to Fred. Olsen Renewables USA
 - Transition to be completed January 2017



Turbine Contract

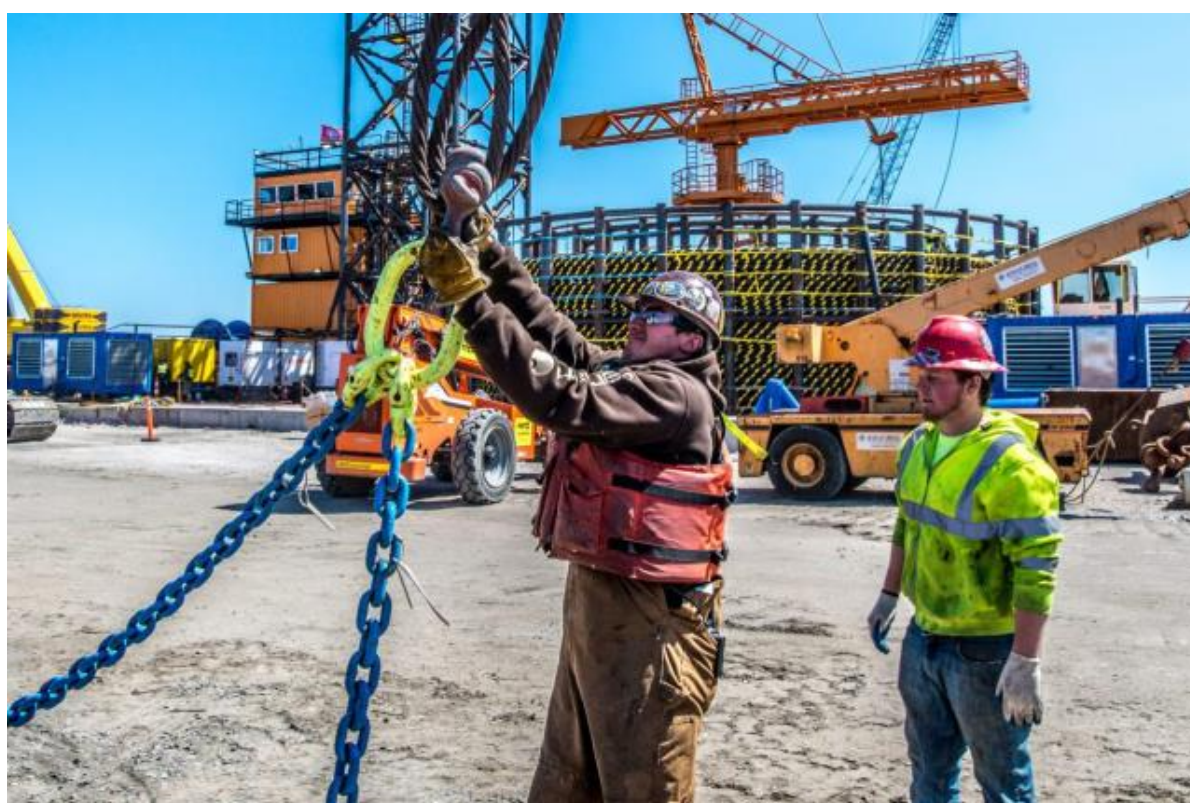
MHI Vestas Offshore Wind

- Turbine engineering, supply, delivery, support of installation, and commissioning
- Staging and pre-assembly at the Port of Cleveland prior to installation on site



Approximate Specifications

- Rotor diameter: 413 ft (126 m)
 - Blade weight: 13.67 tons (12.6 tonnes)
- Hub height (above water): 272 ft (83 m)
 - Nacelle weight: 134.2 tons (121.7 tonnes)
- Overall height (above water): 479 ft (146 m)
 - Tower weight: 220.5 tons (200 tonnes)



Local Opportunities for:

- Logistics support
- Skilled labor
- Accommodations
- Transport services
- Guard services
- Inspection services

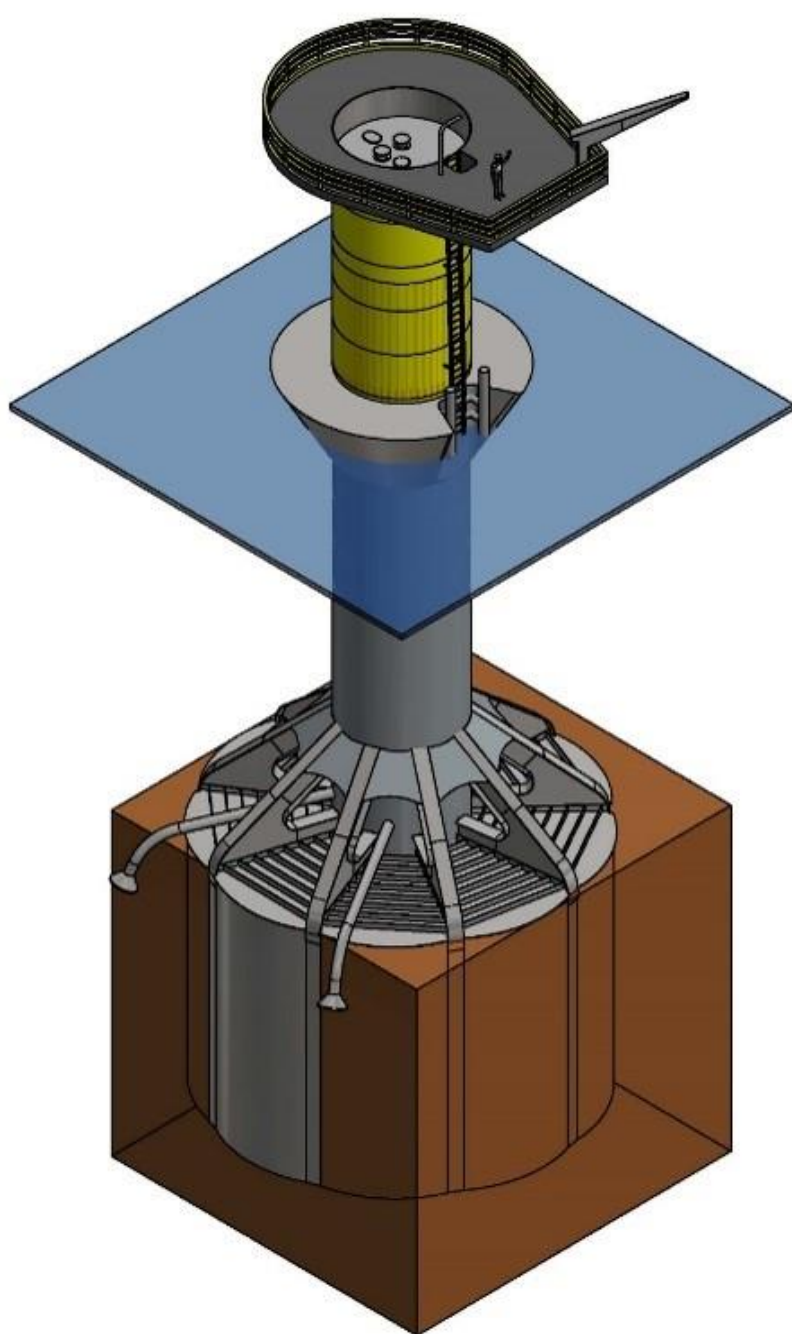


Foundations Contract



Universal Foundation

- Mono Bucket: one-piece “suction bucket” steel structure
- Engineering, fabrication, delivery, support of installation, and commissioning
- Foundations will be fabricated in US
 - Fabrication subcontract will be awarded based on a competitive bid process



Approximate Specifications

- 490 tons
- 15 ft. shaft diameter – 55 ft. bucket diameter
- 120 ft. overall length – 30 ft. skirt length

Local Opportunities for:

- Material & equipment supply**
- Fabrication services**
- Fabrication support**
- Inspection services**
- Skilled labor**
- Engineering support**
- Barges, vessels & cranes**
- Lifting gear**
- Guard services**





Submarine Cable Contract

Prime Contractor:

- to be selected through competitive bid process
- Engineering, supply, delivery, installation, and commissioning of the submarine cable
- Horizontal drilling (HDD) under harbor from Lake Road substation to north of Breakwater
- Cable laying and burial; pull-in operation at substation and turbines



Local Opportunities for:

Logistics support
**Marine operations
& installation services**
Fabrication services
Horizontal drilling of conduit
Diving and/or ROV services
Equipment supply
Accommodation
Transport services
Guard services



Onshore Substation and Grid Connection Contract

Prime Contractor:

- to be selected through competitive bid process
- Supply and construction of new Icebreaker Wind onshore substation and grid connection at CPP's Lake Road Substation
- Design, supply of equipment, civil works including removal of abandoned structures, installation, testing, commissioning and start-up



Approximate Specifications

- 34.5 kV export cable (wind farm)
- 138 kV substation interconnect
- 20 MW substation

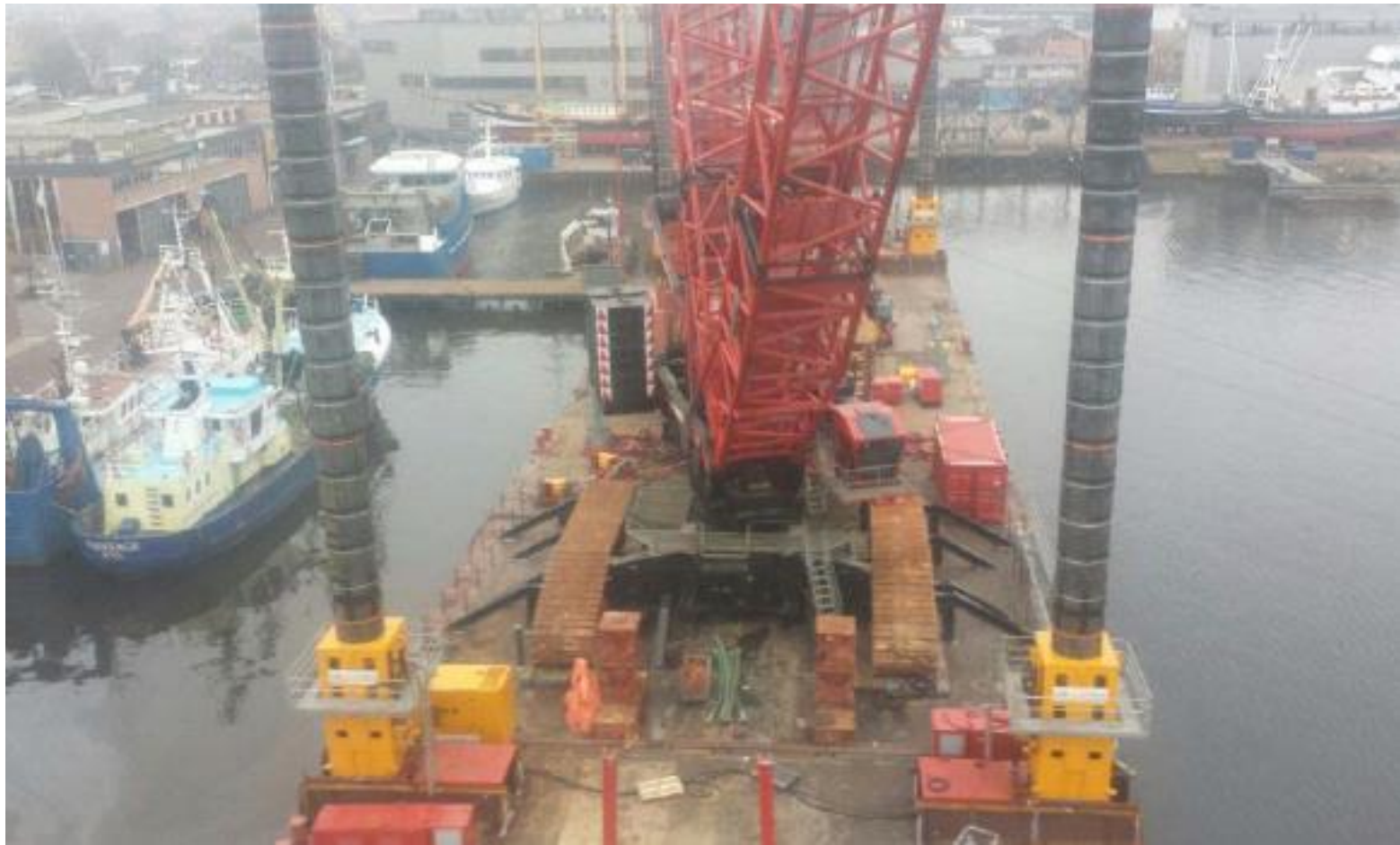


Local Opportunities for:

- Engineering support
- Material & Equipment supply
- Civil works
- Demolition of abandoned structures
- Installation support
- Skilled labor
- Guard services



Marine Operations and Logistics Contract

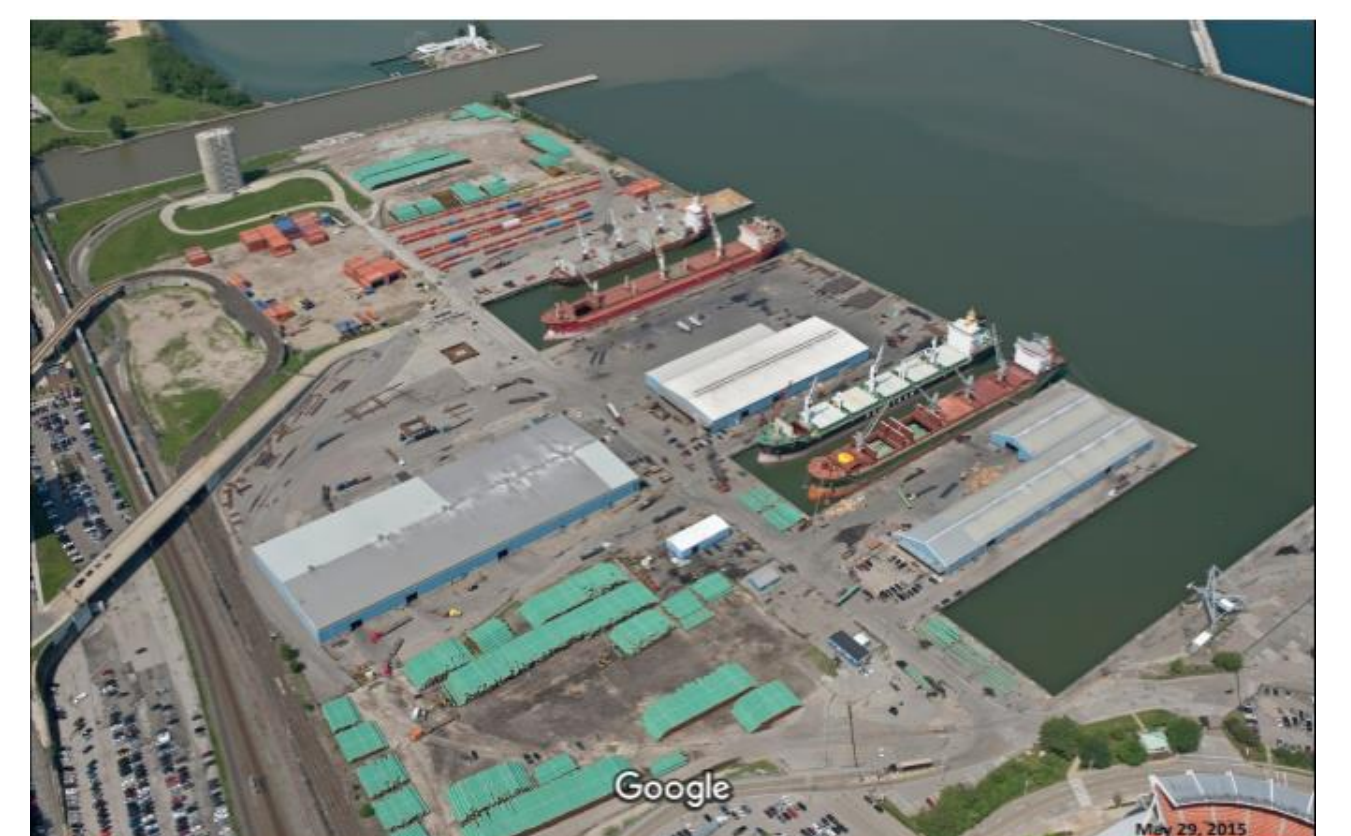


Fred. Olsen Windcarrier

- All marine operations including provision of vessels, barges, cranes, storage facilities, etc.
- Port of Cleveland will be the staging port for turbine components and potentially for assembly & completion of foundations

Local Opportunities for:

Logistics support
 Inspection services
 Stevedore
 Barges, tugs & guard vessels
 Crew transfer vessels
 Fabrication of grillage
 & seafastening
 Lifting gear
 Tooling
 Forklifts, trucks etc.
 Skilled labor
 Accommodation
 Transport services
 Civil works

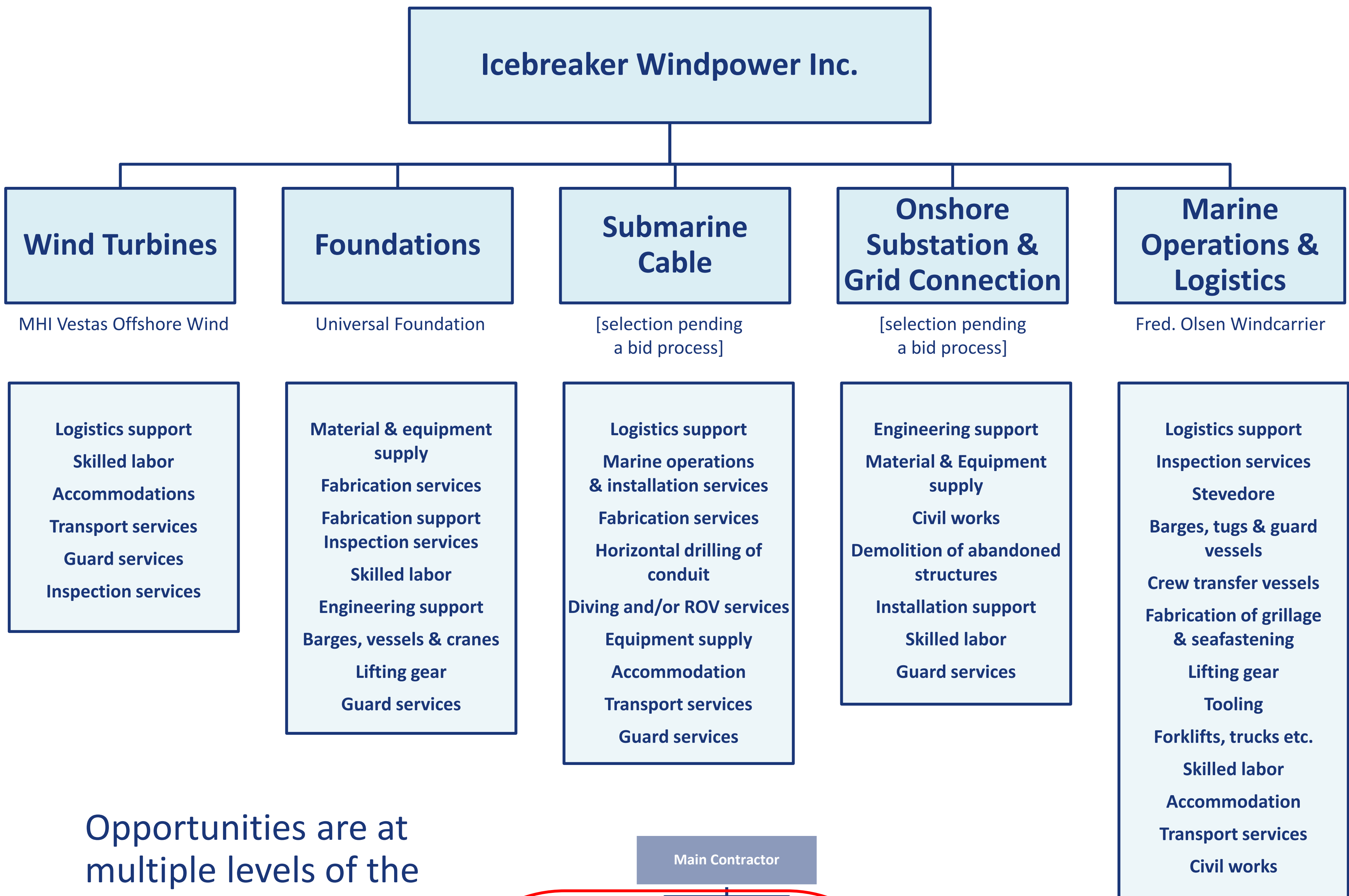


Local Opportunities

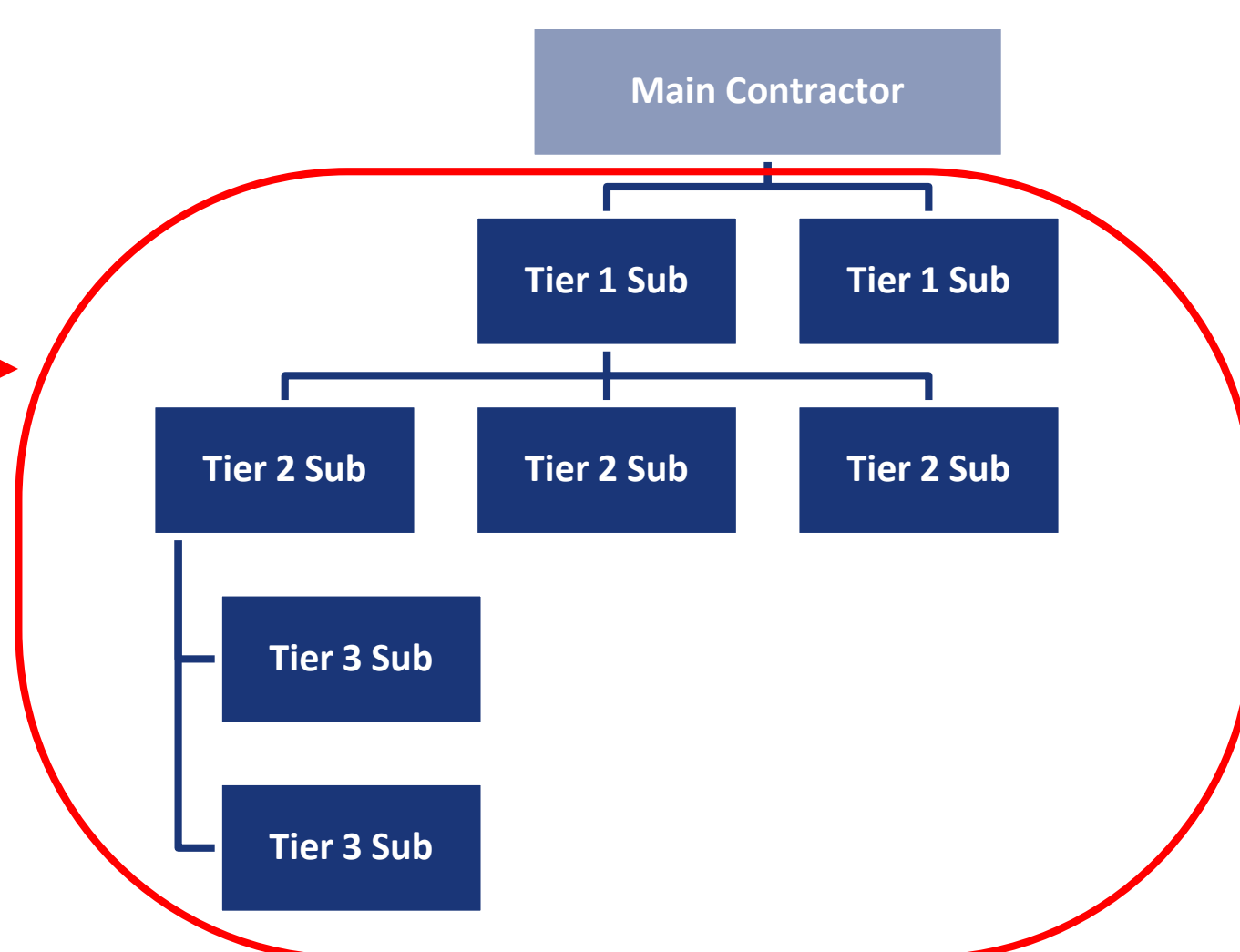
- Icebreaker Wind will include local content and MBE/FBE/SBE requirements in the five main contracts
- The five main contractors will be the main source of local and MBE/FBE/SBE opportunities

5 main contracts planned for construction of Icebreaker Wind

Lump Sum EPC(IC) basis: Contractor will be responsible for Engineering, Procurement, Construction, Installation and Commissioning



Opportunities are at multiple levels of the supply chain





Getting Involved

How do you participate?

1. You must get listed in the Directory

- Visit www.leedco.org or www.glwn.org
- We'll keep you informed throughout the contracting process
- If you have any questions along the way, engage with us

GLWN: Dee Holody, dee@glwn.org, (216) 920-1959

Emerald Cities: SeMia Bray, sbray@emeraldcities.org, (216) 682-5349

- Please spread the word to other local companies

2. We will include MBE/FBE/SBE and local requirements in the bid packages and main contracts

- Local directory will be provided to bidders/main contractors
- If you're not in the directory – they may not find you

3. You will be contacted by main contractors/bidders

- You will have to be qualified by them

4. You must respond promptly and adequately to requests from the main contractors/bidders

- We can provide some assistance to help you respond

TIMING: 1st and 2nd Quarter 2017, depending on the contract