



 **GREEN VOLT** *cenOS* 

**Keith Johnston / Steve Penny**

# Partnering for Success

A strategic team with unrivalled expertise in North Sea offshore wind



- Flotation Energy created after founders' experience developing Kincardine
- Actively developing its INTOG projects from Day 1
- Clear understanding of the drivers for O&G decarbonisation



- Vårgrønn owned by Plenitude (Eni) and energy investor HitecVision
- Brings specialist offshore wind expertise
- Has a share in the world's largest wind farm under construction, Dogger Bank

An exceptionally strong partnership, leveraging collective strengths

Focused on innovative floating wind projects with unique opportunities to scale

# Pioneering a new era of floating wind

The next generation of projects reaches commercial scale



The world's largest operational floating wind farm is 88MW



Up to **560 MW**



>35 turbines



Up to **1.4 GW**



>100 turbines



# Demand for oil & gas electrification

Net Zero Targets reinforce the need for floating wind



**Crown Estate Scotland's leasing round for 'Innovation and Targeted Oil and Gas' projects in Scotland – Green Volt and Cenos awarded exclusivity**



Significant contributor to the **North Sea Transition Deal's** goal of halving offshore emissions **by 2030**



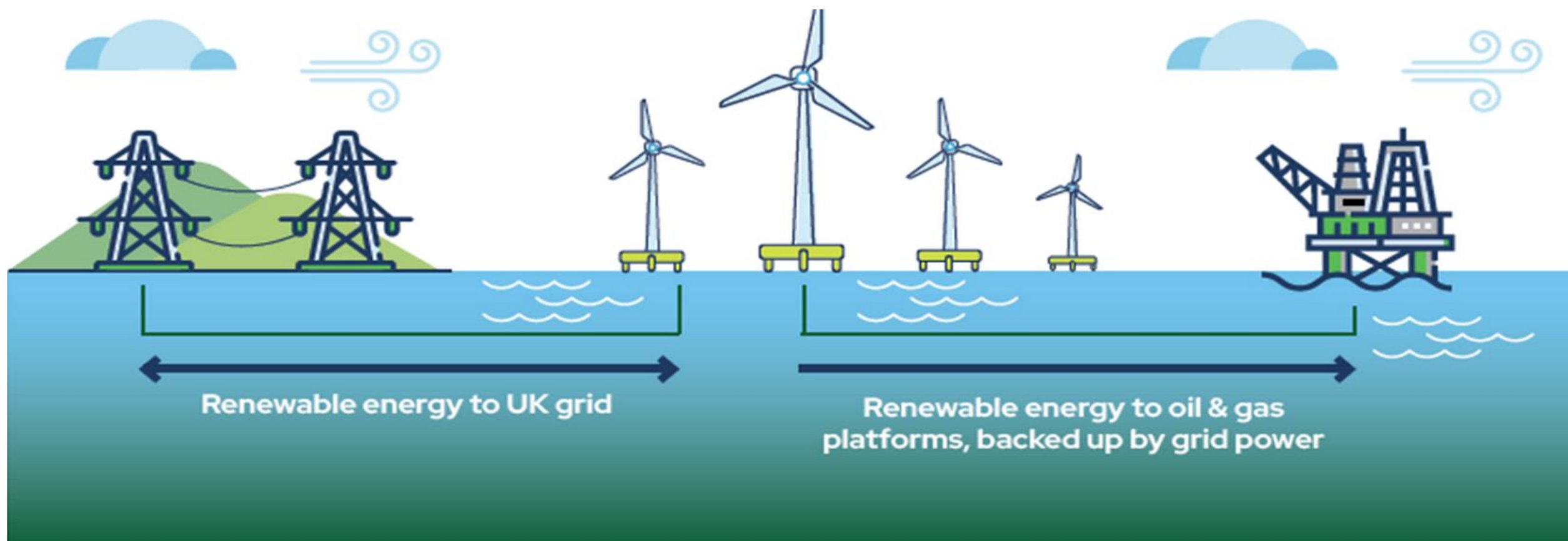
Participating oil and gas platforms **reduce emissions from electricity up to 85%**

# Platform electrification

## How does it work?

Renewable power, with grid security

- Displace existing, open cycle gas turbine power generation
- Provide security of grid supply to O&G operations
- Export surplus power to shore, enabling further decarbonisation of UK grid
- Floating wind, further offshore with excellent wind resource

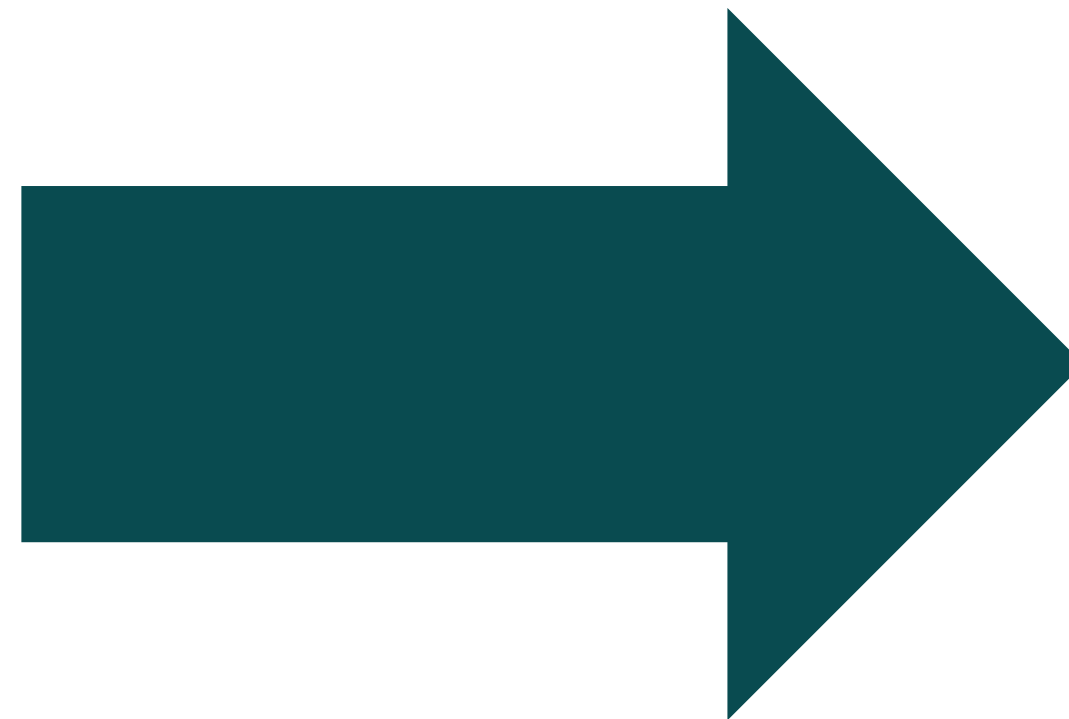


- ✓ 100% electrification
- ✓ Rapid deployment
- ✓ Maximum decarbonisation
- ✓ Grid availability / reliability to meet O&G requirements
- ✓ Optimal CapEx – retained by the wind farm
- ✓ UK offshore wind growth targets

# The first commercial-scale projects

## Establishing a world-leading supply chain structure


- Significant parts of the supply chain are not yet established
- Location of work and jobs are still for the taking
- UK must capitalise on first mover advantage



# Location

Two offshore windfarms in the heart of the UKCS

**85%**  
reduction in **CO<sub>2</sub>** emissions



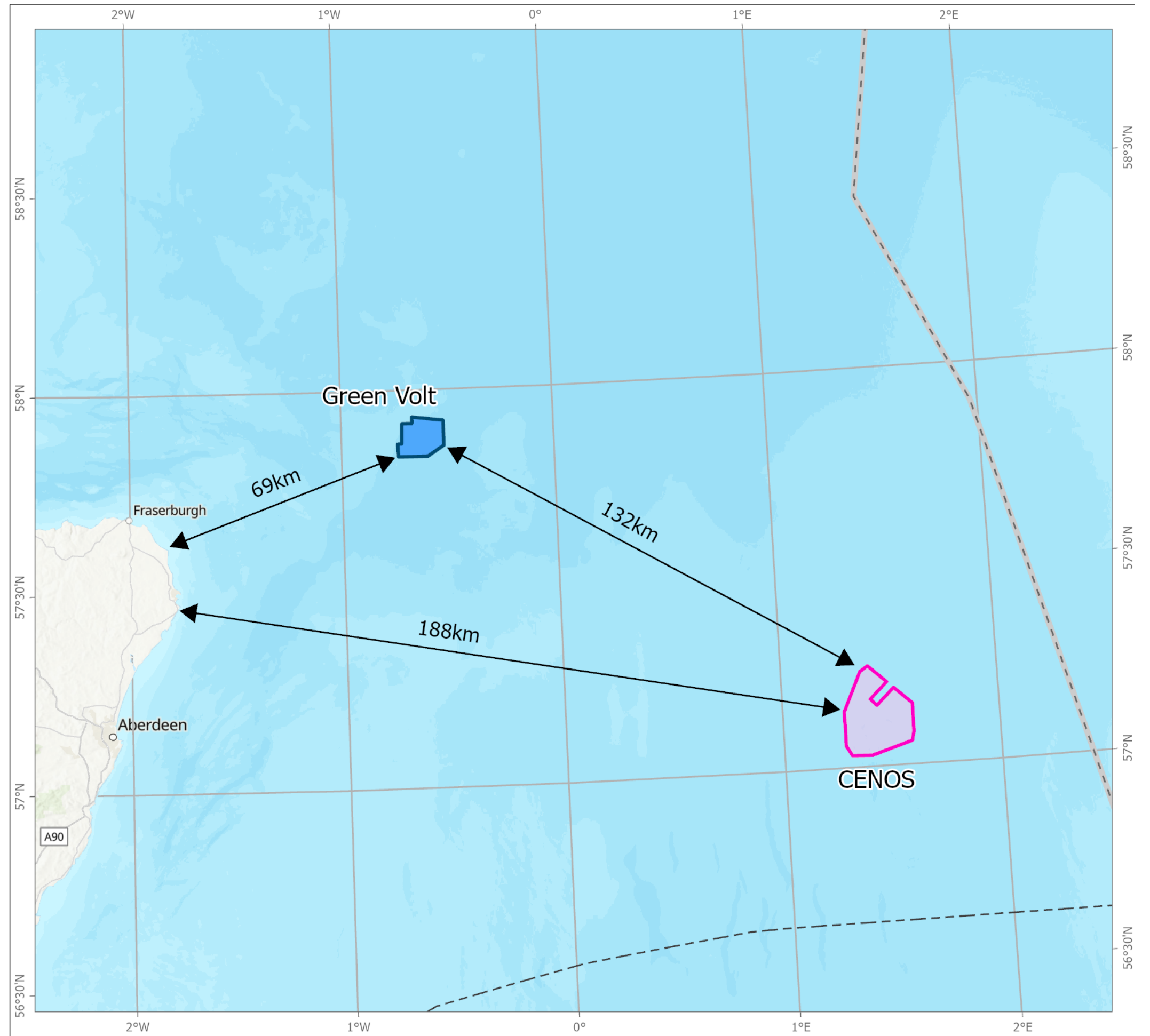

**3m** tonnes  
**CO<sub>2</sub>** reduction p.a.



**£6bn+**  
**GVA**  
to global economy



**8k+**  
jobs created during construction  
+ several hundred jobs over lifetime of the windfarm





# Green Volt

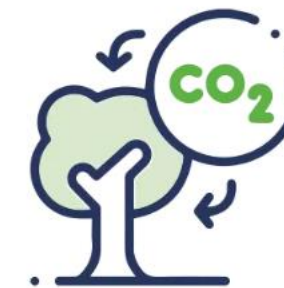
## First mover floating wind farm

Parameter	Value for assessment
Windfarm area	Approx 110 km <sup>2</sup>
Water depth	100-115 m
Windfarm Rating	330-560MW
Distance to shore	70 km
No. of WTG	Up to 35 turbines
WTG capacity	Up to 15 MW each
Substructure	Semi-submersible or tension leg platform
Anchors	3 – 6 per turbine, drag embedment or suction pile

Parameter	Value for assessment
Substation platform	One x 4-legged jacket Inc transformers
Voltage	220-275 kV HVAC
Export cables	To O&G platforms: To Grid: 1 or 2 parallel cables
Inter-array cables	Up to 42 total



up to  
**560 MW**  
nominal capacity



around  
**1 million**  
tonnes of CO<sub>2</sub>, each year



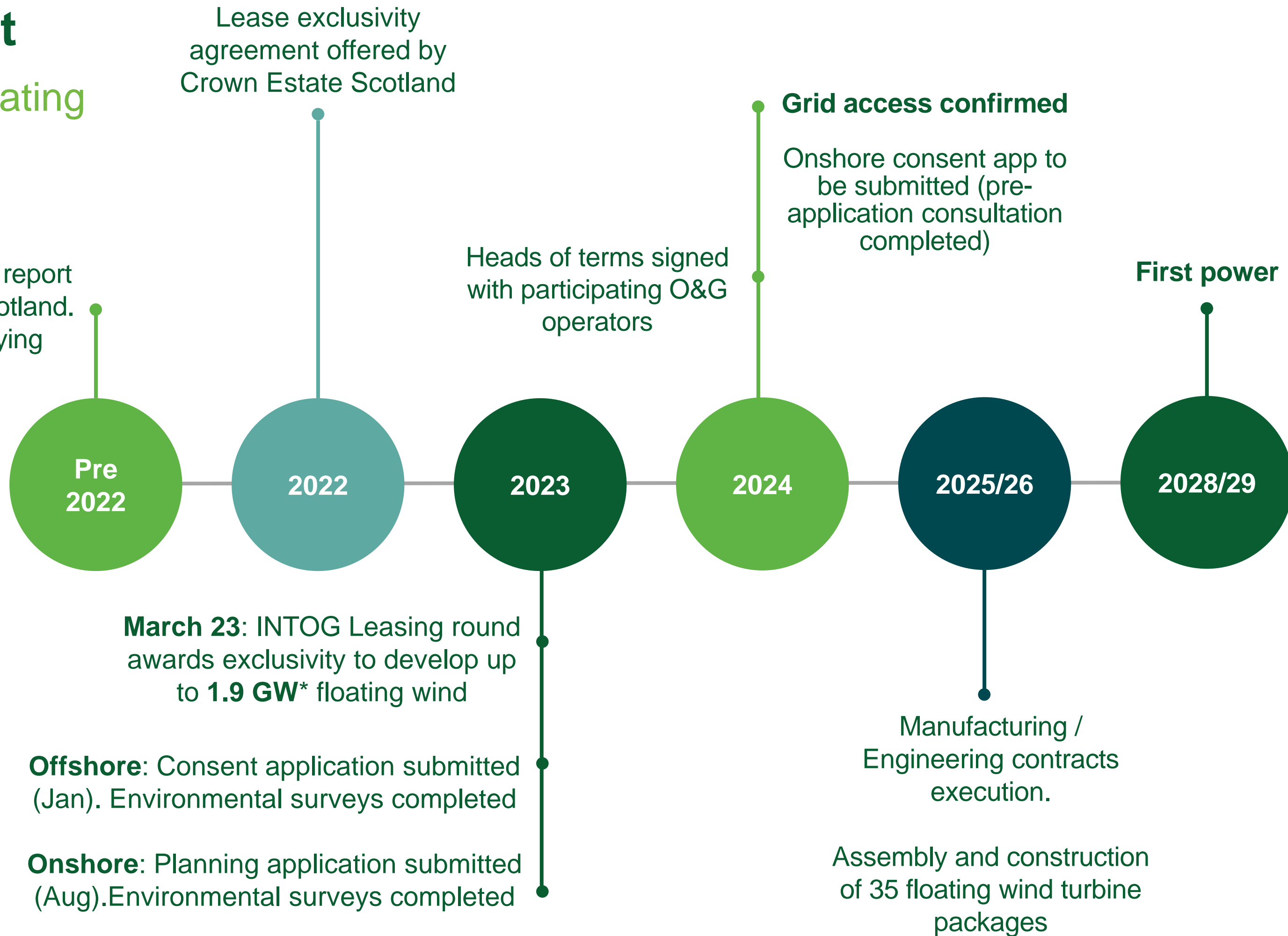
**1.5TWh**  
renewable power annually  
to the UK Grid



# Green Volt

## First mover floating wind farm

Environmental scoping report submitted to Marine Scotland. Formative site surveying



# Cenos

Set to be the world's largest floating wind farm

Parameter	Value for assessment
Windfarm area	Approx 333 km <sup>2</sup>
Water depth	100-115 m
Windfarm Rating	1.4GW
Distance to shore	190 km
No. of WTG	Up to 95 turbines
WTG capacity	Up to 15 MW each
Substructure	Semi-submersible or tension leg platform
Anchors	3 – 6 per turbine, drag embedment or suction pile

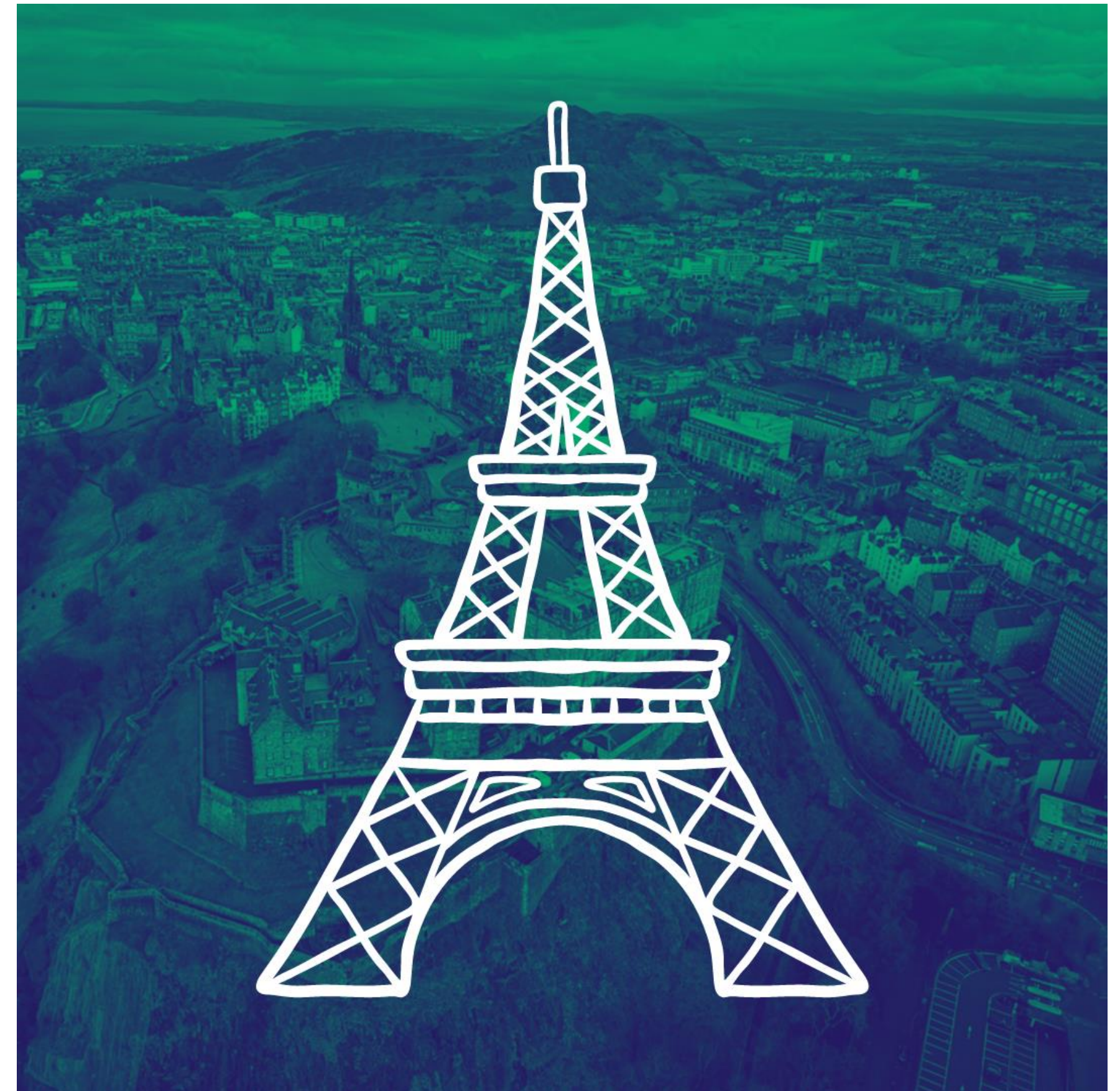
Parameter	Value for assessment
Substation Platform	One x 4-legged jacket Inc transformers
Voltage	320 kV HVDC
Export cables	To O&G platforms: To Grid: 1 circuit, 2x HVDC cables
Inter-array cables	Up to 100 total



# Cenos

Set to be the world's largest floating wind farm

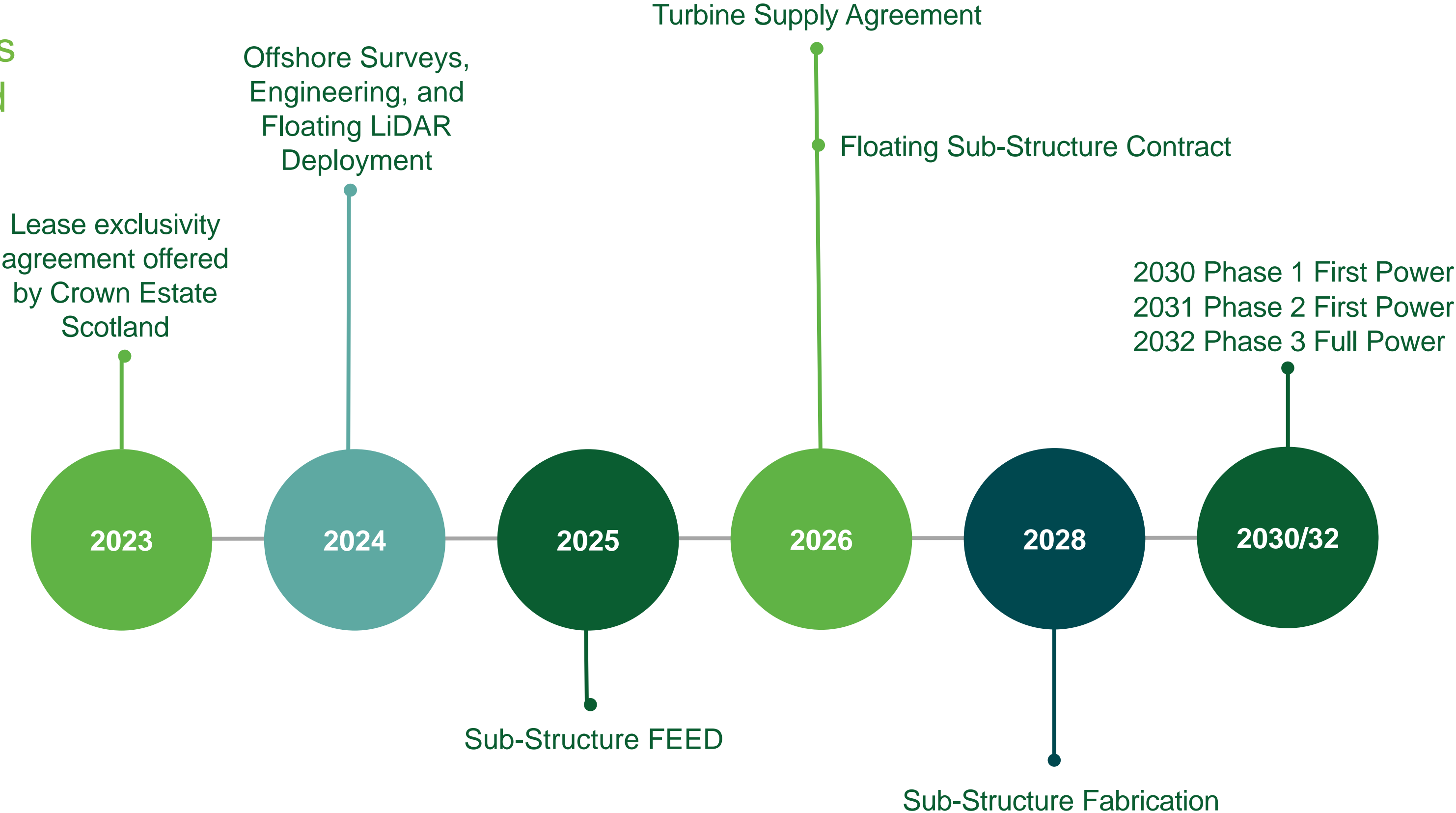
- 95 turbines - the height of the Eiffel Tower
- Over an area the size of Edinburgh





# Cenos

Set to be the world's largest floating wind farm



# Supply chain delivery model

## Our approach

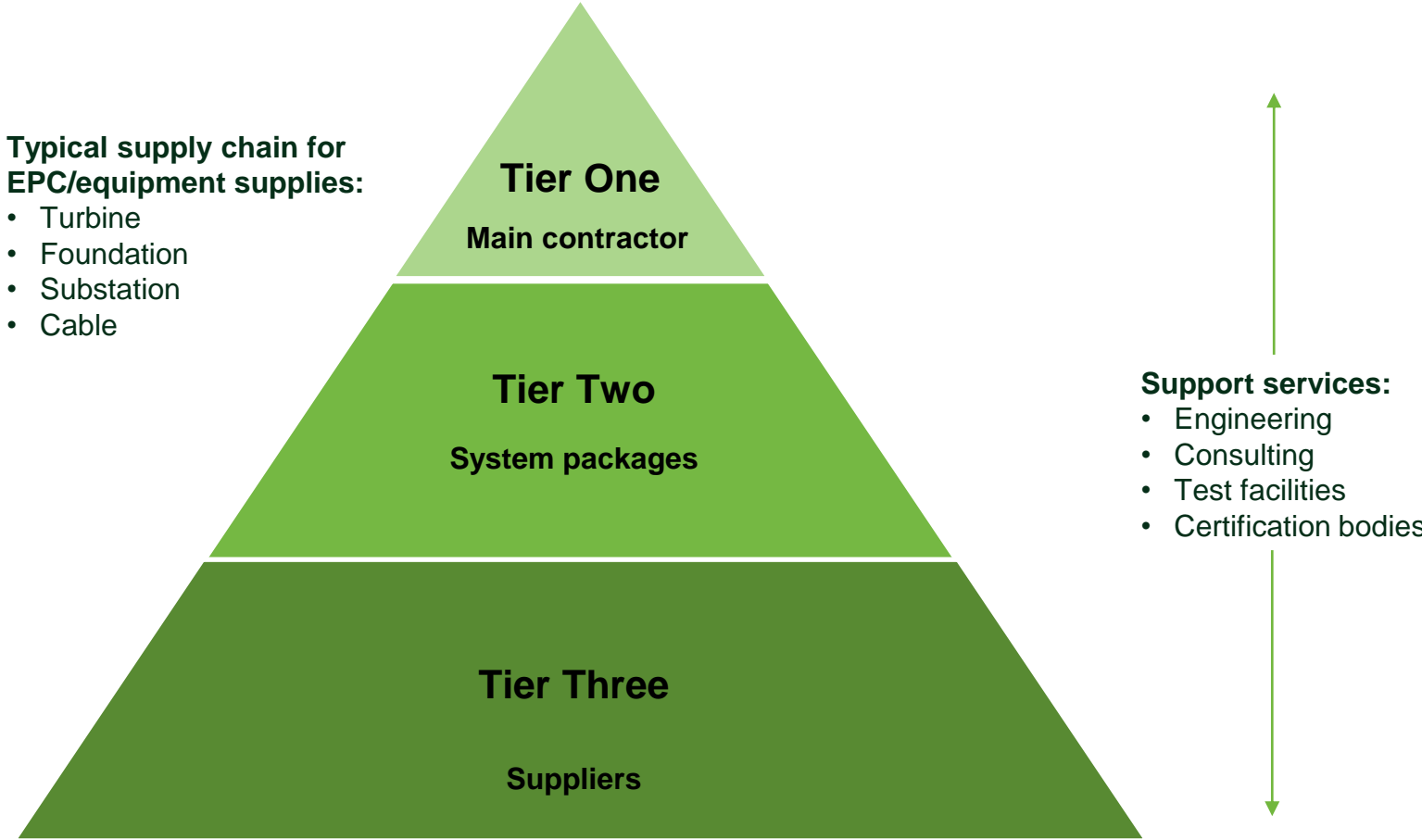
- Lean integrated project team
- Supplier led solutions
- Extensive use of local suppliers
- Use of multi-contracts – a strategy of 5-9 larger contracts

## Recommendations for suppliers:

- Understand the tiers of the supply chain relevant to you
- Engage with the supplier above you in the supply chain
- Energy Pathfinder / NSTA

## Examples of Scottish opportunities:

- Port and Harbour Services
- Fabrication / Turbine Integration
- Operations and Maintenance Support
- Onshore Civils
- Hospitality





# Ports and harbours

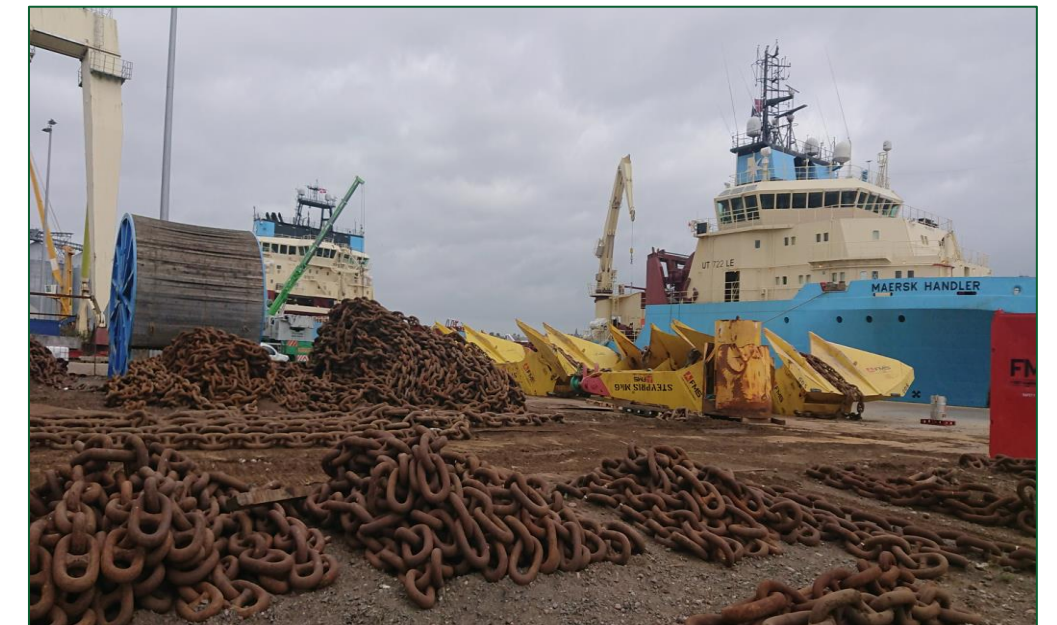
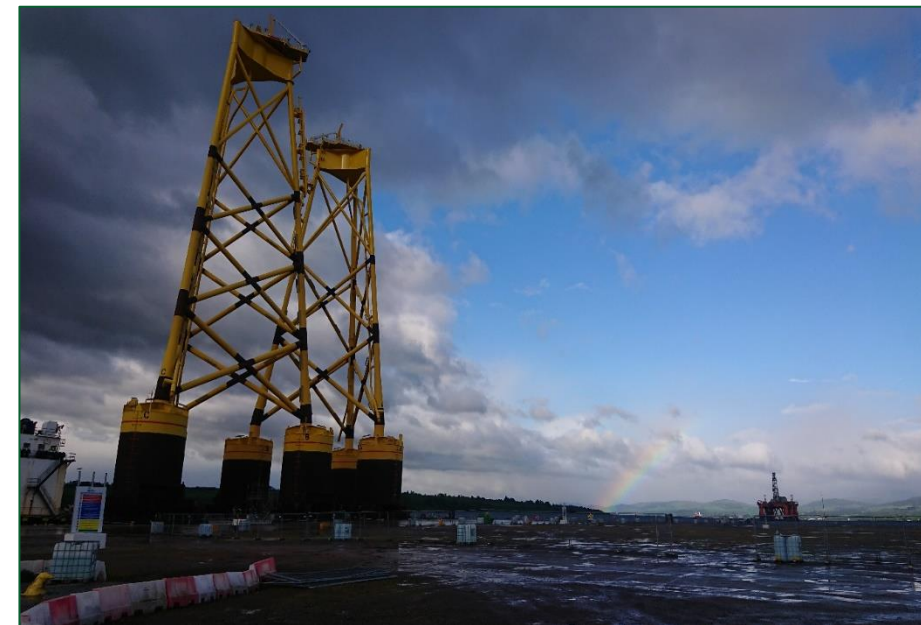
## Increased definition

### 2022 – 2023 engagement

- 6 locations - focus on Aberdeenshire and Cromarty Firth
- NDAs in place and development plans shared
- Verify availability and commitment needs
- Extend engagement to Firth of Forth area (New Freeport status)

### 2024 engagement

- Green Volt and Cenos joined Strategic Investment Model (SIM) process led by SOWEC / CES to support infrastructure investment / development





# Near term focus

## Increased definition

- Continued WTG package engagement
- Substructure pre-FEED completion / FEED
- Electrical system pre-FEED completion / FEED
- Develop O&G heads of terms
- Update focus on ports
- Integration and O&M facilities
- Increased engagement
- Strategic investment model
- Market engagement / developing contract strategies
- Focus on local content maximisation

Package
WTG
Substructure Floater
Inter Array Cables
Marine Works
Onshore and Offshore HVDC substations
Export Cable HVDC
Onshore Enabling Works
Offshore Substation HVAC
Onshore substation HVAC
Export Cable Offshore HVAC 85km x 2 = 170,000m
Export Cable Onshore HVAC 35km
Marshalling & Assy port & harbour
Onshore land (route and substation)

Green Volt & CenOS
CenOS
Green Volt

**THANK YOU.**

**Questions?**