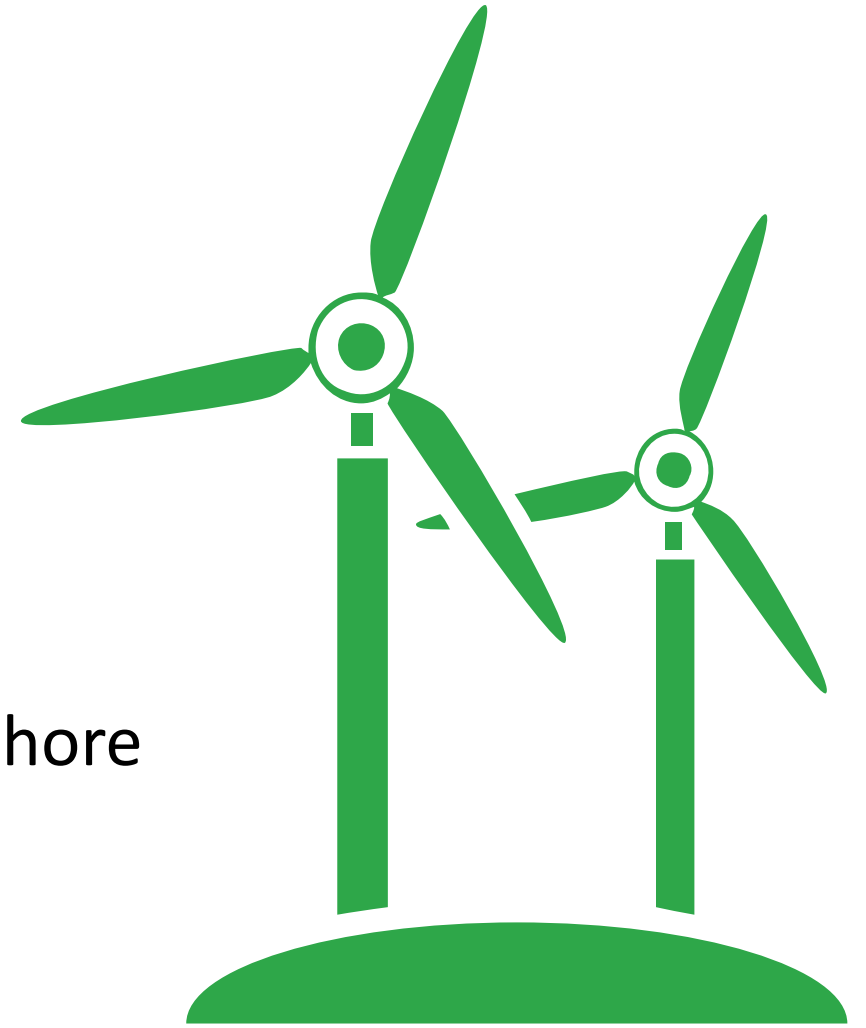




Cleaner, cheaper and faster

We help our clients to produce energy from offshore wind farms and marginal oil fields



Majan Green Entrans

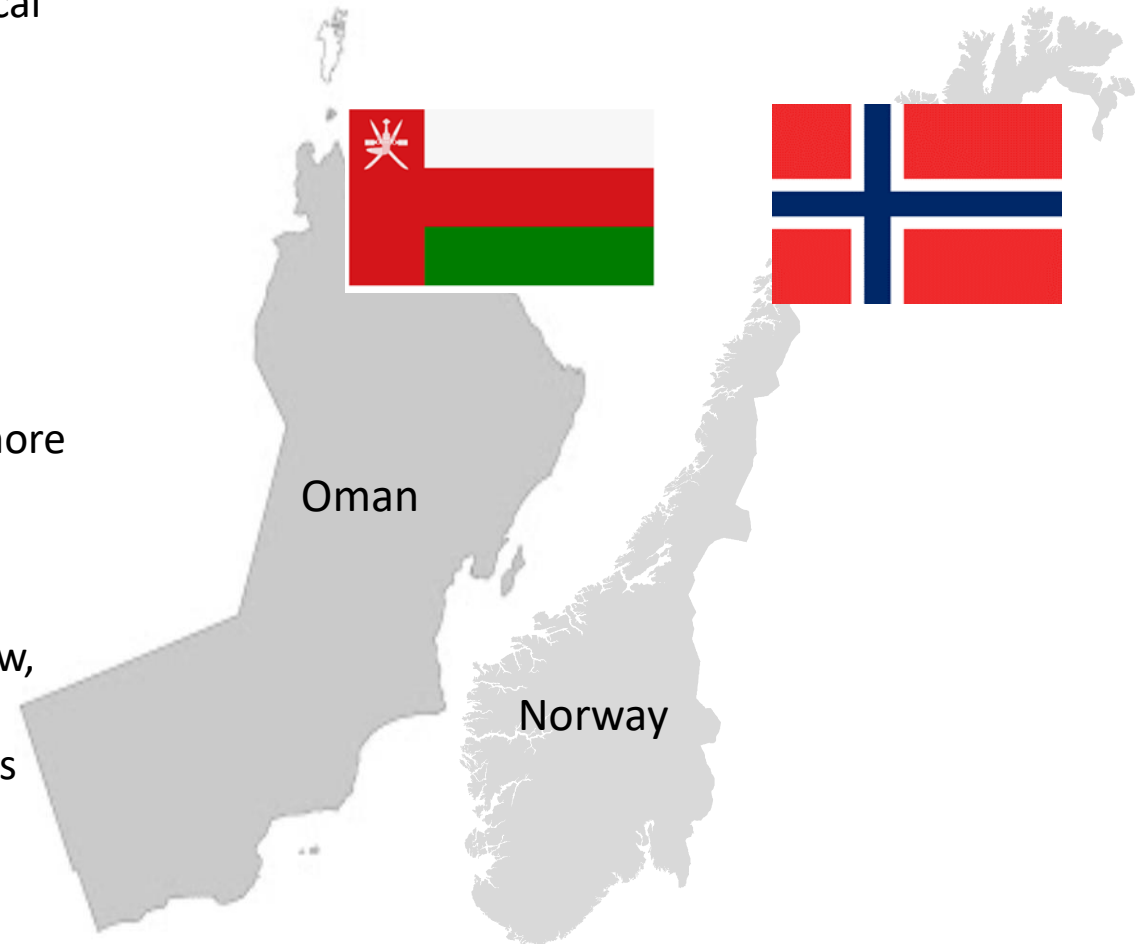
Who we are



Majan Modern Solutions (MMS) was established in 2018 as a local family owned SME and is under the Riyada Oman. MMS are experts specialising in transferring innovative solutions to the renewable energy and Oil and Gas production markets in Oman and beyond.

Green Entrans AS - Norway (GEN) was established in 1992 as a family owned company. GEN has a function as an innovative incubator for new technology. GEN's main expertise lies in offshore Oil field development, marine and remote subsea solutions and operations including related EPC & I contracts.

Since January 2016, GEN main activity has been to develop a new, offshore structure called the MC-7 (Mono Column) with related installation method & tools called MINT. The MC-7 technology is the core in the windfarms turbine and substation solutions.



The jointly owned company Majan Green Entrans (MGE) seeking to become a green energy technology and power provider is in progress to be established in Ad Doqm.

Majan Green Entrans

Who we are

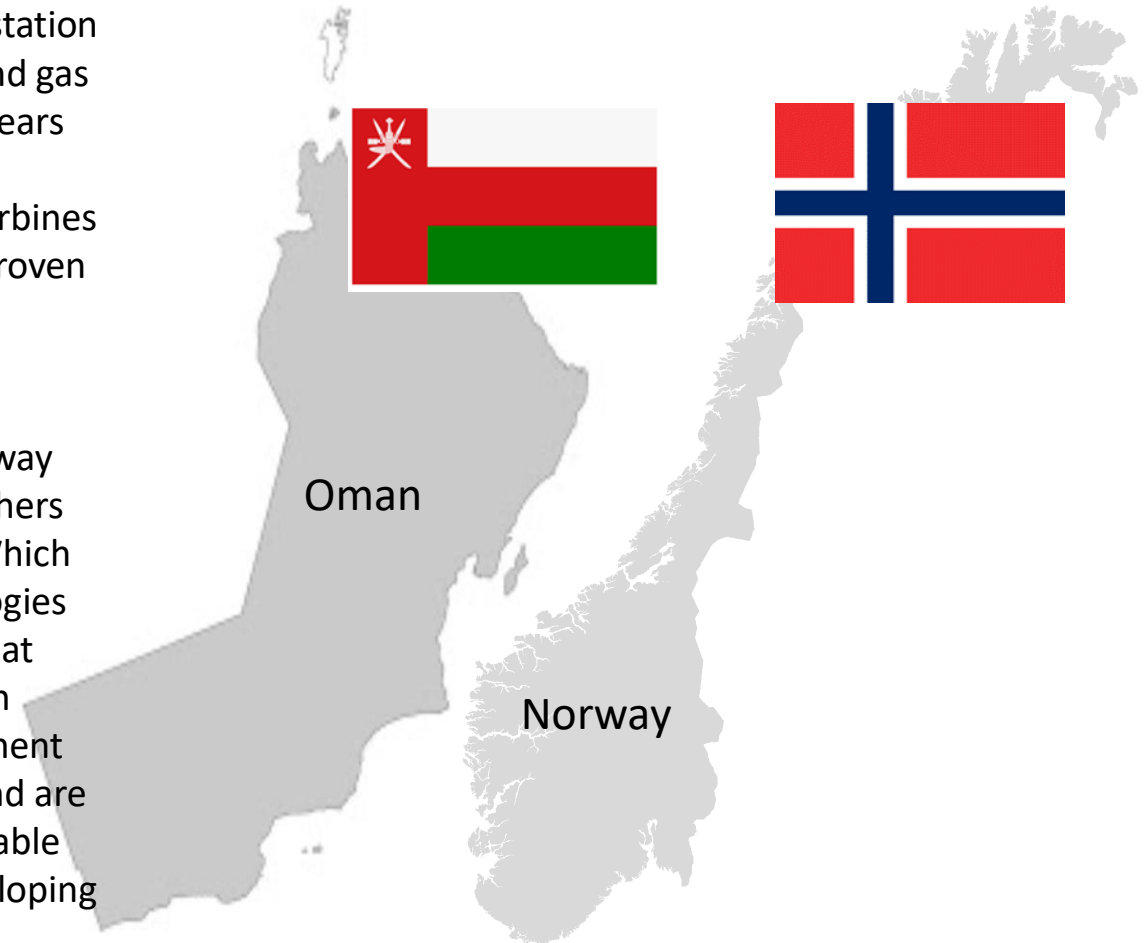


Experience

MMS main expertise lies in the offshore oil field development, remote substation solutions and operations related to EPC for renewable energy and the oil and gas production markets in Norway and Oman in the last 15 years. During my 7 years experiences working with Equinor in Norway I have closely worked with Scientists and Engineers who have developed technologies for windfarm turbines from these offshore substation solutions these technologies were tested, proven and then put to operation in the UK sea (10,980 offshore wind turbines).

Collaboration

MMS has built a strong collaboration and relationship innovators from Norway (GEN) who in turn also has strong collaboration with industries and researchers for the next technology advancement for the offshore wind application. Which makes me as the MD of MMS so excited to have lived to see these technologies from its inception to now new and improved. IRENA recent report shows that Solar and wind are of best efficiency and the most matured technology with competitive pricing for total installation cost, with proven return on investment and low electricity costs. Furthermore these technologies have matured and are already existing in the European market which means they are readily available to be placed to fulfil the specific energy demands for Oman and other developing nations



The jointly owned company Majan Green Entrans (MGE) seeking to become a green energy technology and power provider is in progress to be established in Ad Dqmq.

Our products

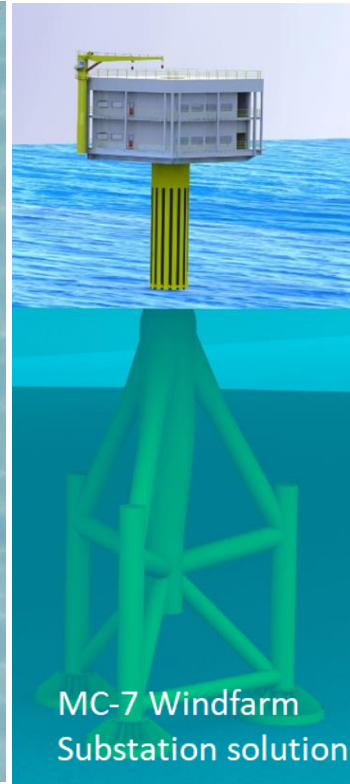
One technology – two markets – 3 products + services



MC-7 Petro - UWP



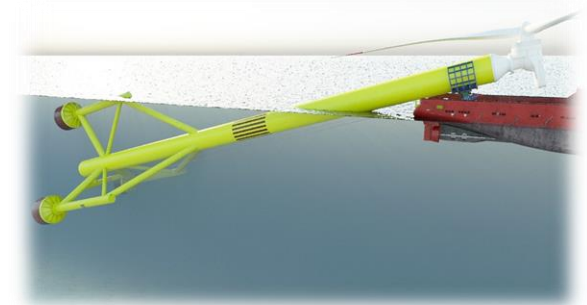
MC-7 Wind with 10 MW turbine



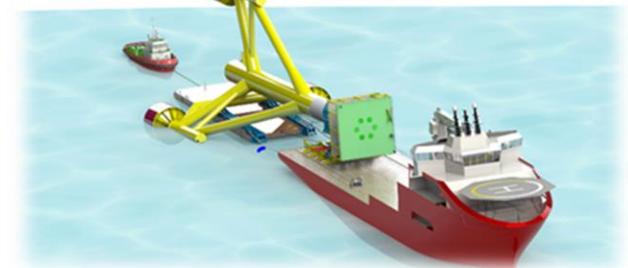
MC-7 Windfarm Substation solution



MINT Transport and Installation – MC-7 Wind



MC-7 Petro and MC-7 Wind structures



The novelty of the technology is that complete offshore units can be assembled and tested onshore, transported offshore and installed in one piece without using heavy lift cranes.

[Transport test](#)
[Installation test](#)

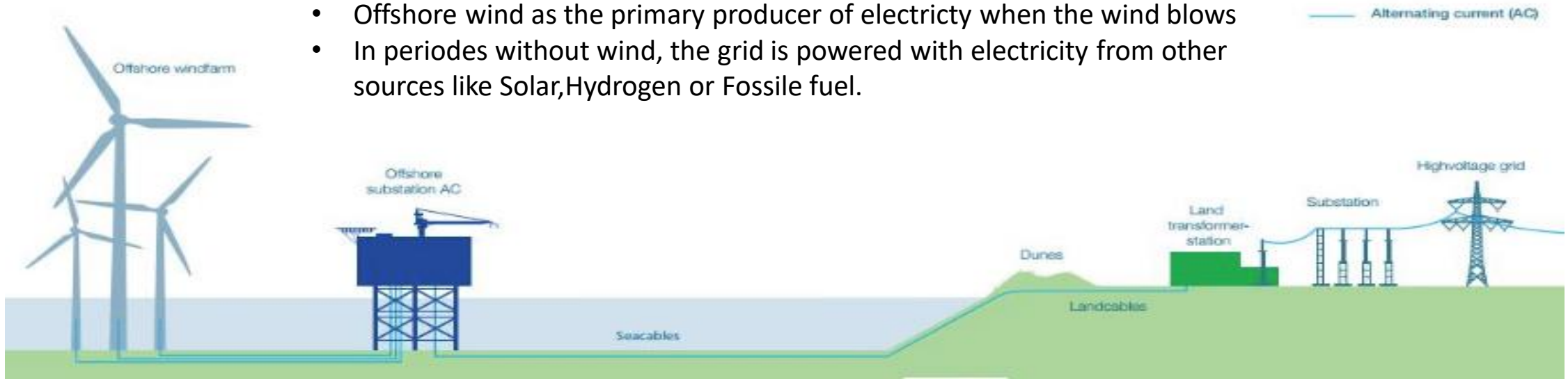


The offshore windfarm example

Green renewable electric power production-



- Offshore wind as the primary producer of electricity when the wind blows
- In periods without wind, the grid is powered with electricity from other sources like Solar, Hydrogen or Fossil fuel.



Typical windfarm lay-out



Våre marine tilpassede løsninger

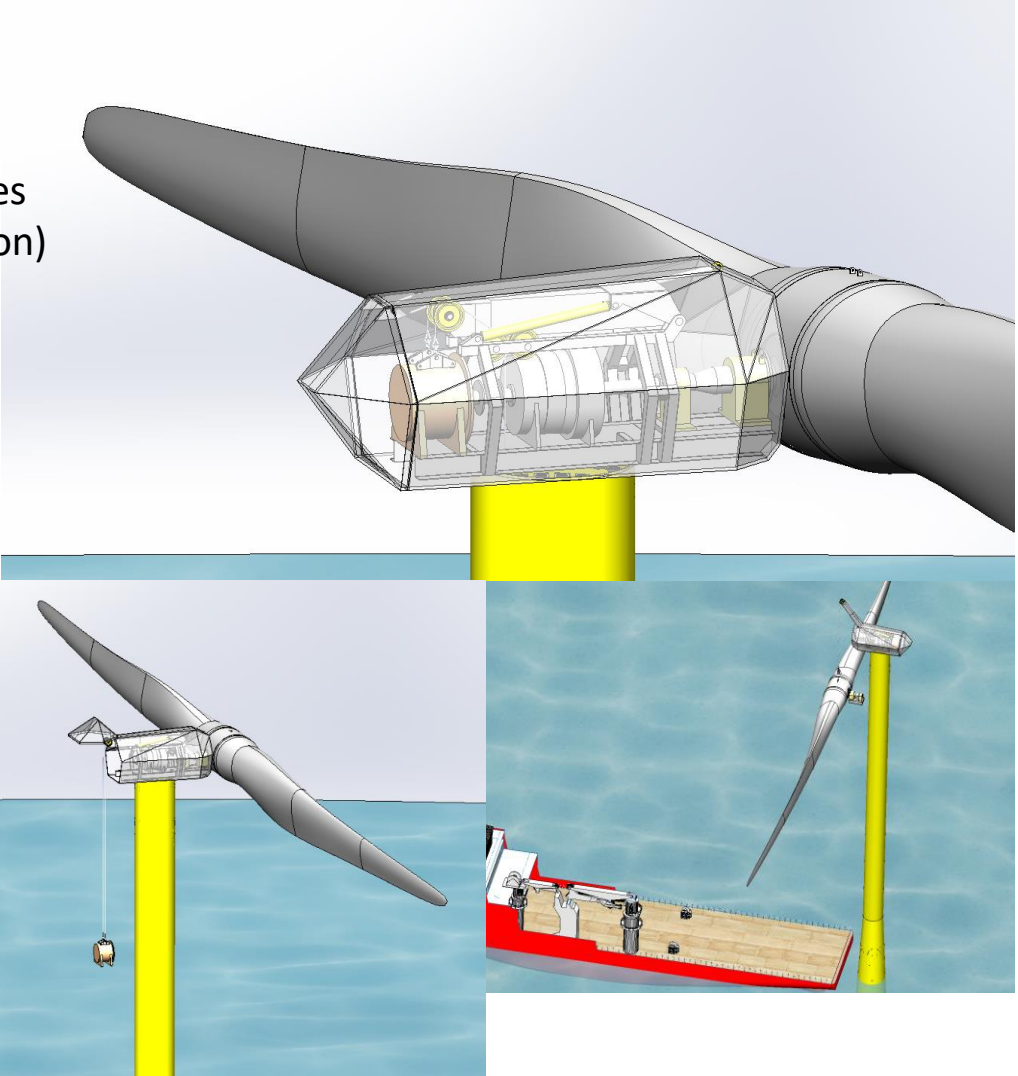
Prototype turbine spesifikasjon

- Turbine structure:
 - Steel monocolumn 3-pod structure
 - Tower hub height: 125 meter
 - Water depth: 70 meter (example)
 - Seabed fixation: Suction anchors or piles
 - Total weight: 2 300 tons (Nacelle 320 ton)

- Rotor :
 - 2 bladed rotor/Adjustable pitch
 - Blade dimentions: 100 meter / 50 tons
 - Fixed hub attachment.
 - Rotor speed: 10 rpm/min.

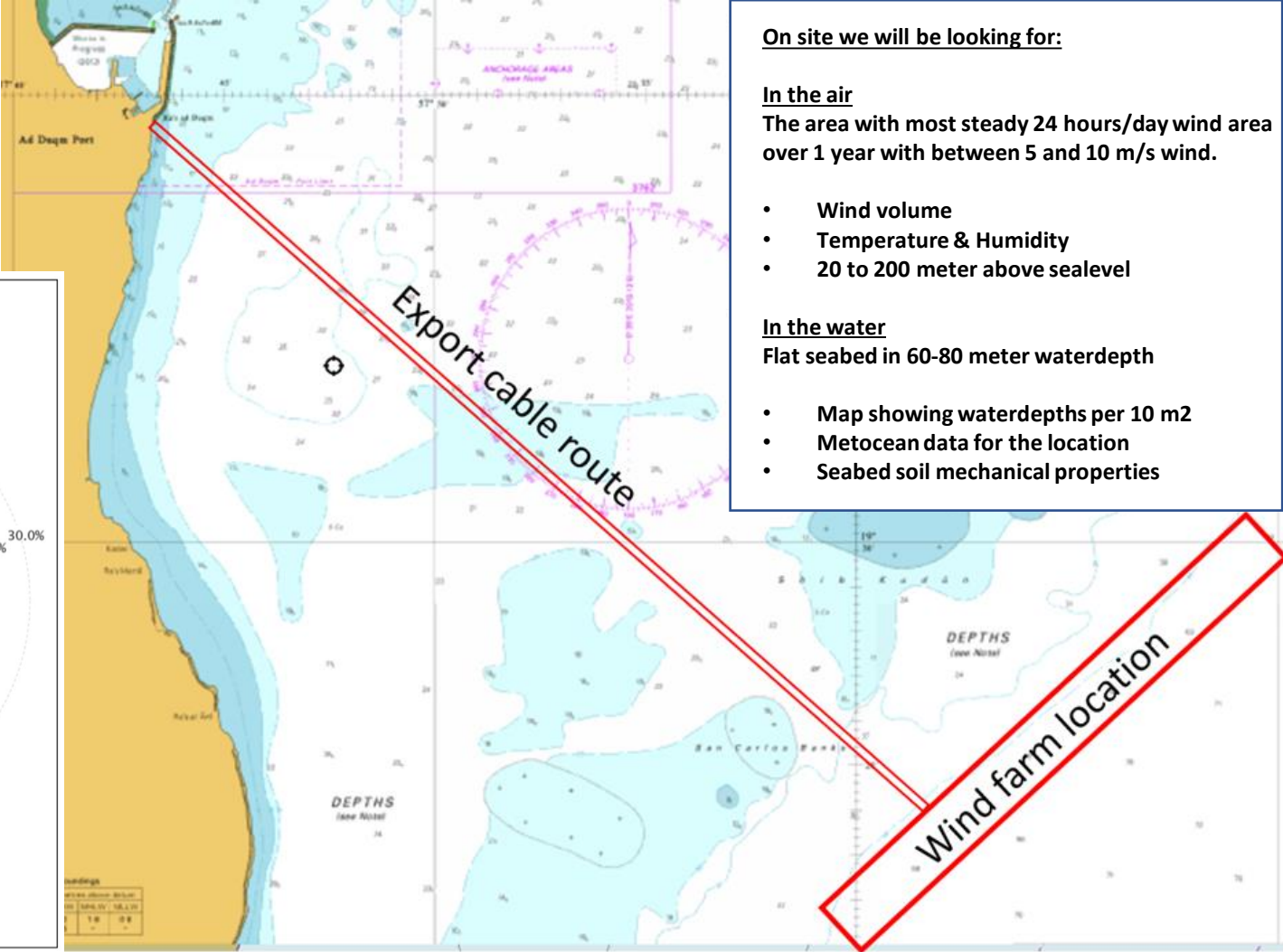
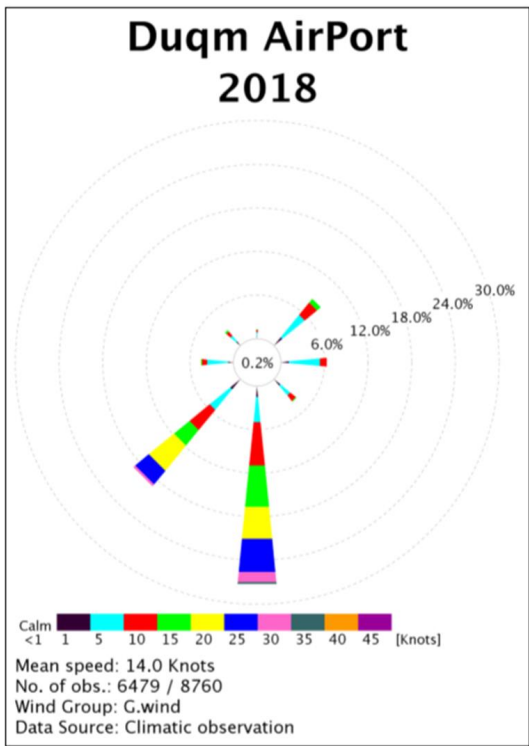
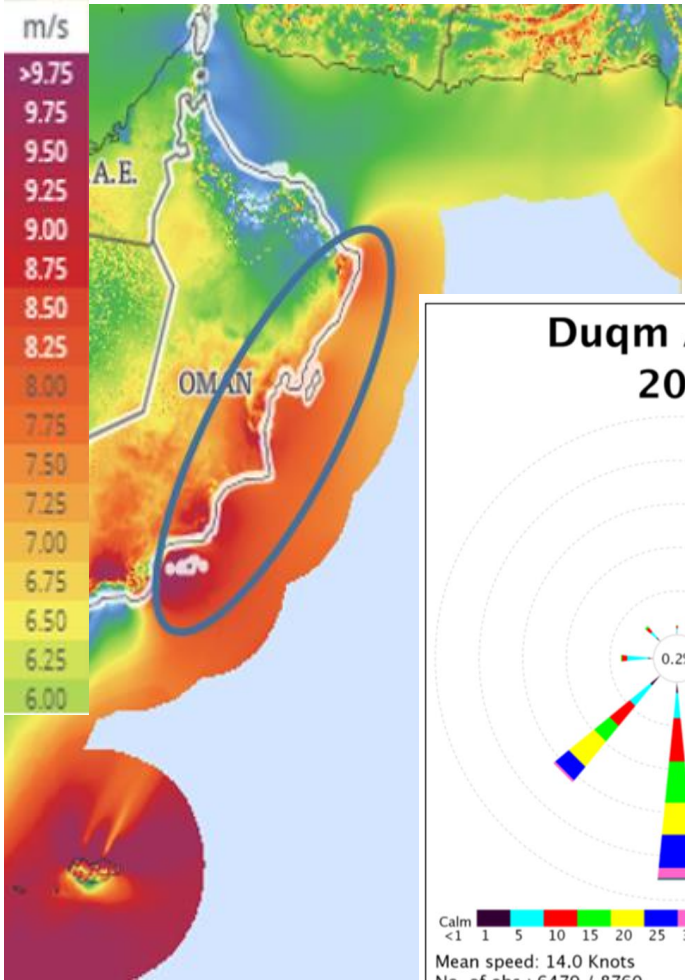
- Generator:
 - Medium speed
 - 10 MW – 15 kV output
 - RPM 750
 - Torque 128 kNm
 - Export voltage to substation: 15 kV

- Gear:
 - Gear ratio 1:79



The proposal

Oman company establishment

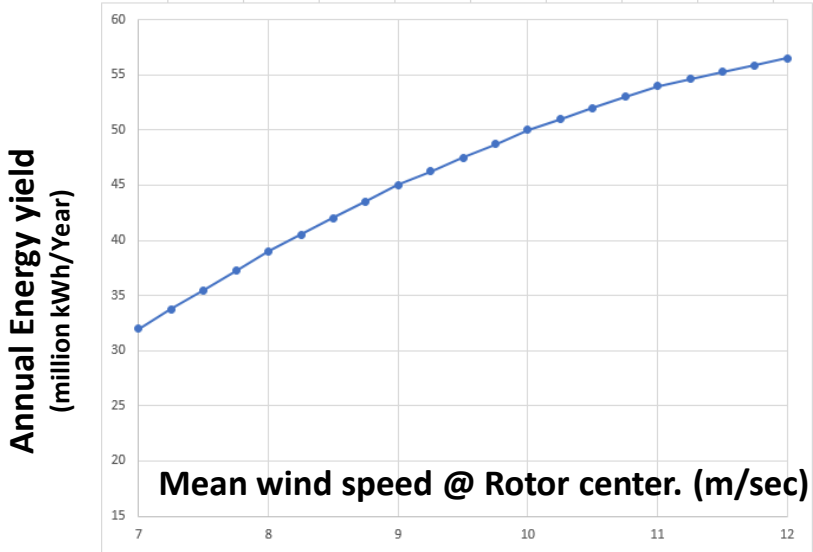


- On site we will be looking for:**
- In the air**
 The area with most steady 24 hours/day wind area over 1 year with between 5 and 10 m/s wind.
- Wind volume
 - Temperature & Humidity
 - 20 to 200 meter above sealevel
- In the water**
 Flat seabed in 60-80 meter waterdepth
- Map showing waterdepths per 10 m2
 - Metocean data for the location
 - Seabed soil mechanical properties



Offshore wind

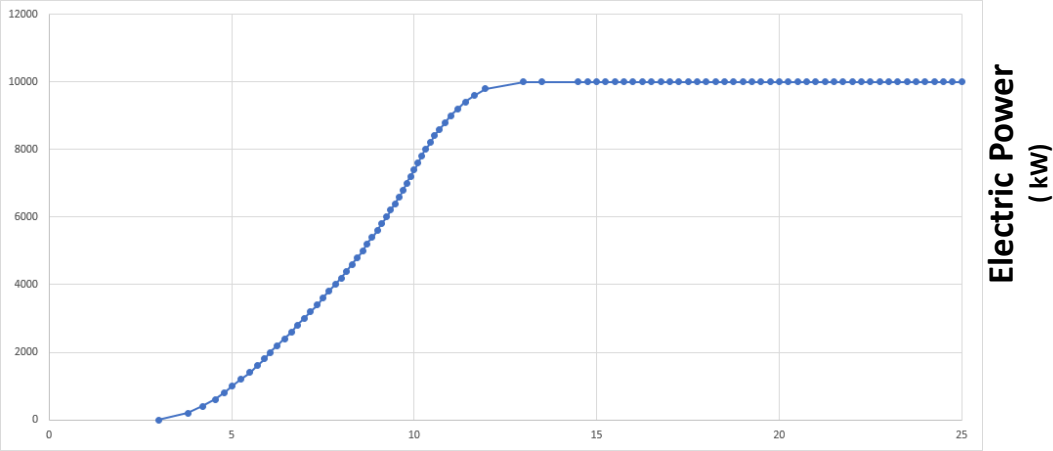
Turbine Power Production – Performance design graphs



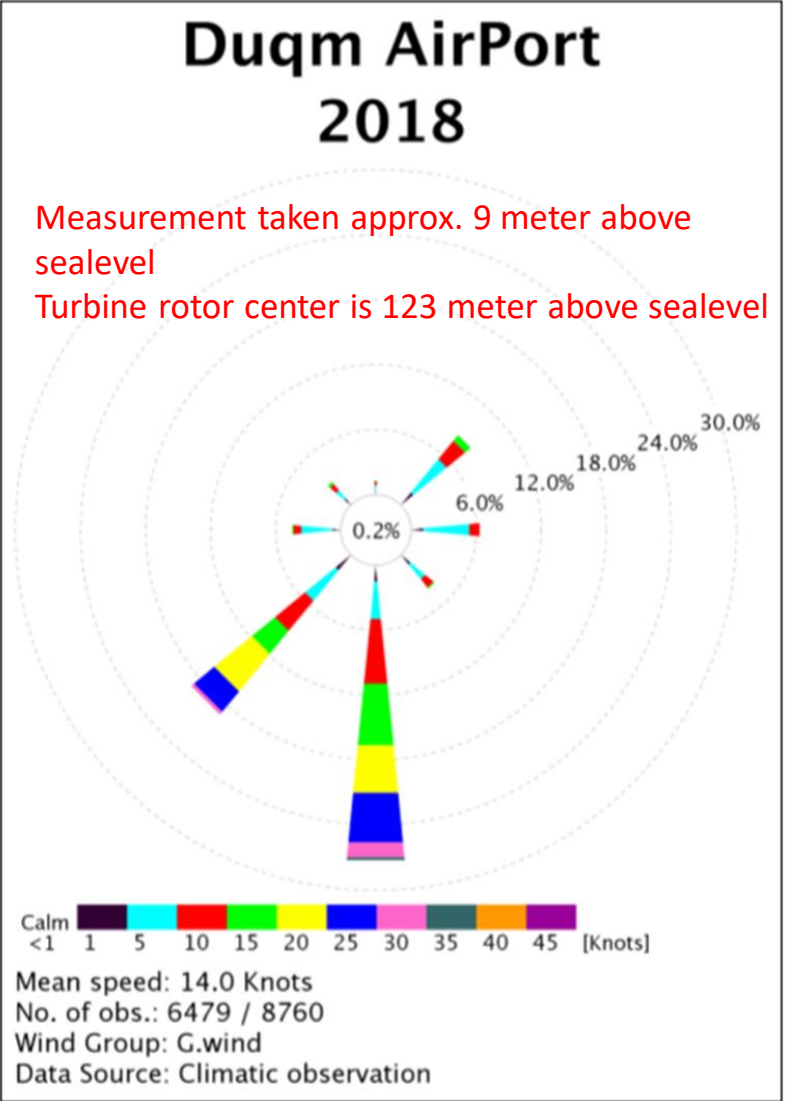
Mean windspeed: 14 kn = 7,2 m/sec

Max turbine production at 12 m/sec = 23,3 kn.

Expected annual full load production of approx 5400 hrs.



Wind speed @ Rotor center (m/sec)



Oman- Ad Doqm development activities

DG 0 to DG 1 (Feasibility and Early design activity status)

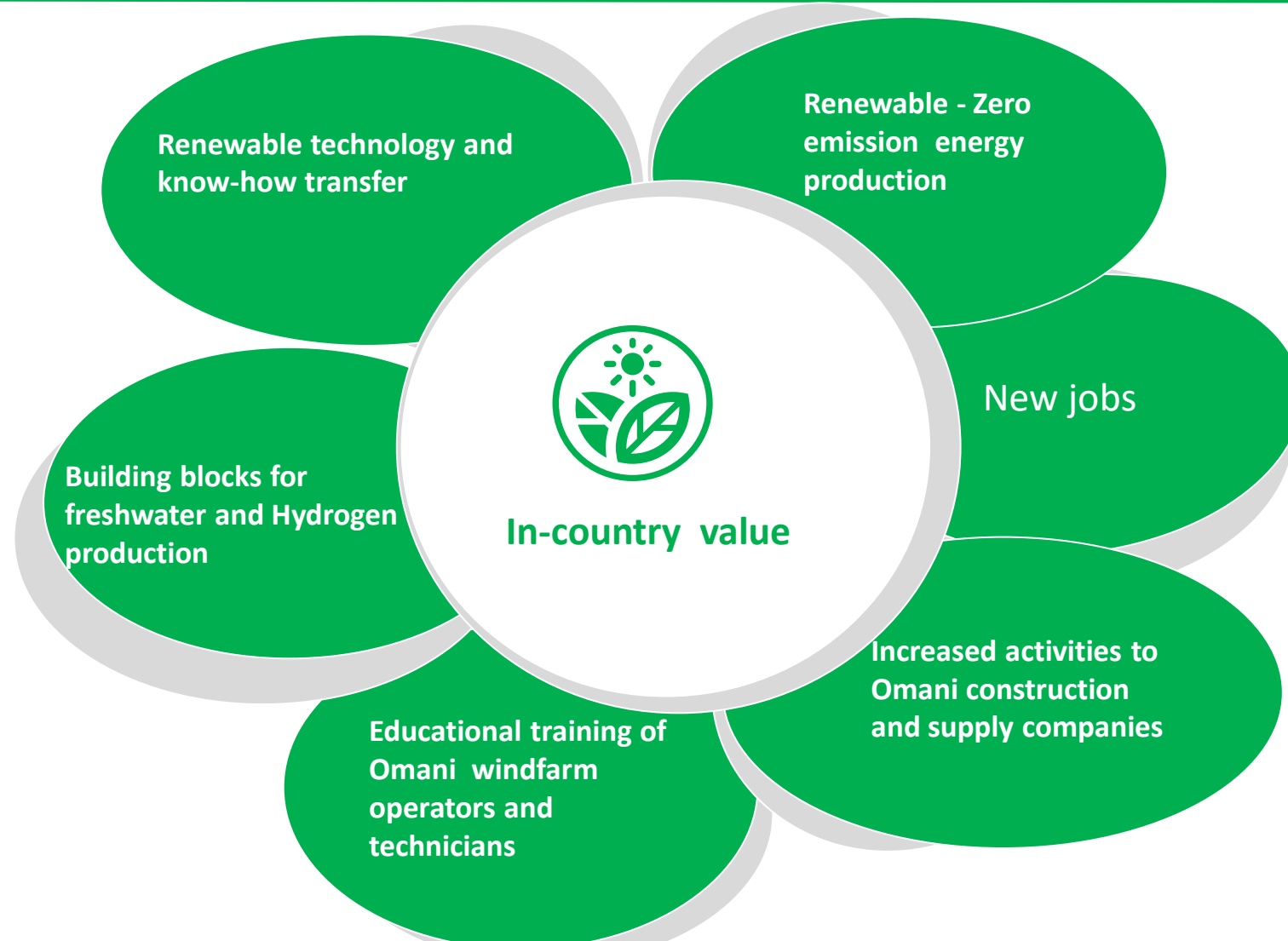


ACT.#	ACTIVITY	START	PLANNED FINISH	STATUS
1	Establish Majan Green Entrans ltd. in Ad Doqm.	Q1-2020	Q1-2021	Ongoing
2	Execute offshore wind - Feasibility study including: a) wind and metrological location assessment b) identify possible onshore landfall location c) offshore site surveys.	Q1-2020	Q1-2021	Ongoing
3	Liase with the Omani government departments for principal project approvals including an offshore production license grant.	Q1-2020	Q2-2021	Initiated
4	Establish an intentional Power sale agreement with the Grid owner.	Q3-2020	Q2-2021	Initiated
5	Establish Power Cable route and connection location and technical details in liaison with the Grid owner	Q4-2021	Q1-2022	Pending
6	Assess local supply chain capabilities: a) construction yard b) marine services c) Technical component vendors	Q4-2021	Q2-2022	Pending



In-country value (ICV)

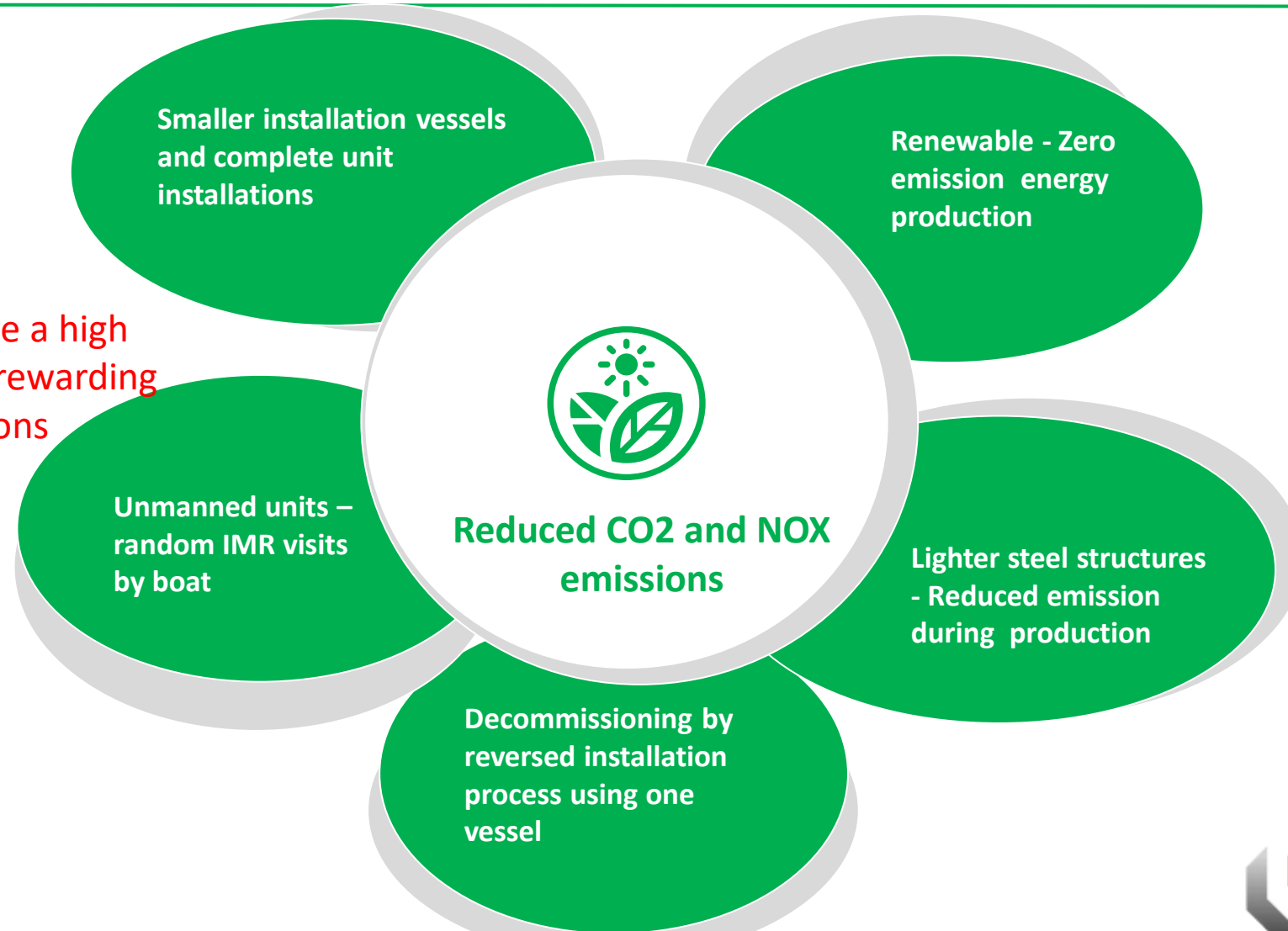
Greener renewable technology



The Green solution - Reduced emissions compared to present methods

Driving towards Oman's Energy Strategy 30% electricity from renewable by 2030

Our MC-7 solutions will have a high score in financial packages rewarding carbon emissions reductions



MGE – Offshore Development Proposal

Development project maturing phases – Oman windfarm



Phase	ACTIVITY	PHASE DECISION GATES	ACTIVITY START DATE
DG 0 to DG 1 (Feasibility and Early design phase)	Political, Legal, Commercial and Technical studies to provide background documentation to assess the business case	<u>DG 1</u> - Decision to commercialize the business prospect	Q2/2020
DG 1 to DG 2 (FEED)	Establish development conceptual solutions development costs. Establish a generic development schedule Identify commercial revenue potentials Identify cash flow need and financing availability	<u>DG 2</u> - Decision to proceed the development	Q1/2021
DG 2 to DG 3 (EPCI)	Define the development solution to a detailed level. Establish license grant from Authorities and Stakeholders approvals Execute FEED. Produce tender packages and establish development budget and plan based on contractors study estimates. Establish the cash flow requirement and availability of project financing.	<u>DG 3</u> - Decision to execute the development project	Q4/2021
DG 3 to DG 4 (Commissioning and Operational)	Execute the 100 MW development project. Liase/communicate progress with Authorities and Stakeholders Support end user/operator team training	<u>DG 4</u> - Formal transfer to the plant operator. Development project closing.	Q2/2024



Offshore Wind versus Onshore Wind



Efficiency and Capacity - Offshore wind farms has the potential to generate more electricity at a steadier rate than their onshore counterpart

Environment and Health – Common complaints on onshore winds include visual and noise pollution and the effects on human beings during the construction and also operational. Offshore wind will not affect people but may poses more air pollution during the end life and manufacturing.

Economics– offshore wind investments are more expensive than onshore although as the technology matures there are possibility of a cheaper offshore wind

Studies on the health related are still ongoing as number of offshore wind turbines increases affects of the environmental and assessments has also improved over time

Compared to Fossil fuel electricity generation the **benefits** from wind energy such as improved air quality and breathing cleaner air. Recent studies also shows other benefits offshore winds like creating artificial reefs and providing surfaces to which animal attach, some of which may also form a shelter



MGE Stakeholder Structure

Tanweer's invitation to become a Majan Green Entrans shareholder



Initial MGE proposed shareholder structure:

- Majan Modern Solutions : 15%
- Investors TBN. : 30%
- Green Entrans AS : 55%



Tanweer's contribution to MGE's offshore wind project

- Purchase the technology outright and MGE would support with the operation and maintenance for a fixed period
- Sign a power produced contract agreement for a time period with a competitive rate
- Become the MGE investor



Targeted Market for the Technology



Our MC-7 **patented** solutions will have a high score in financial packages, rewarding carbon emissions reductions,



Summary, questions and way ahead



Contact us on zahra@majan-solutions.com

Tel: +968 96333282

Don't hesitate to contact me for further clarifications

