

LOW CARBON MARITIME NAVIGATION & PORTS

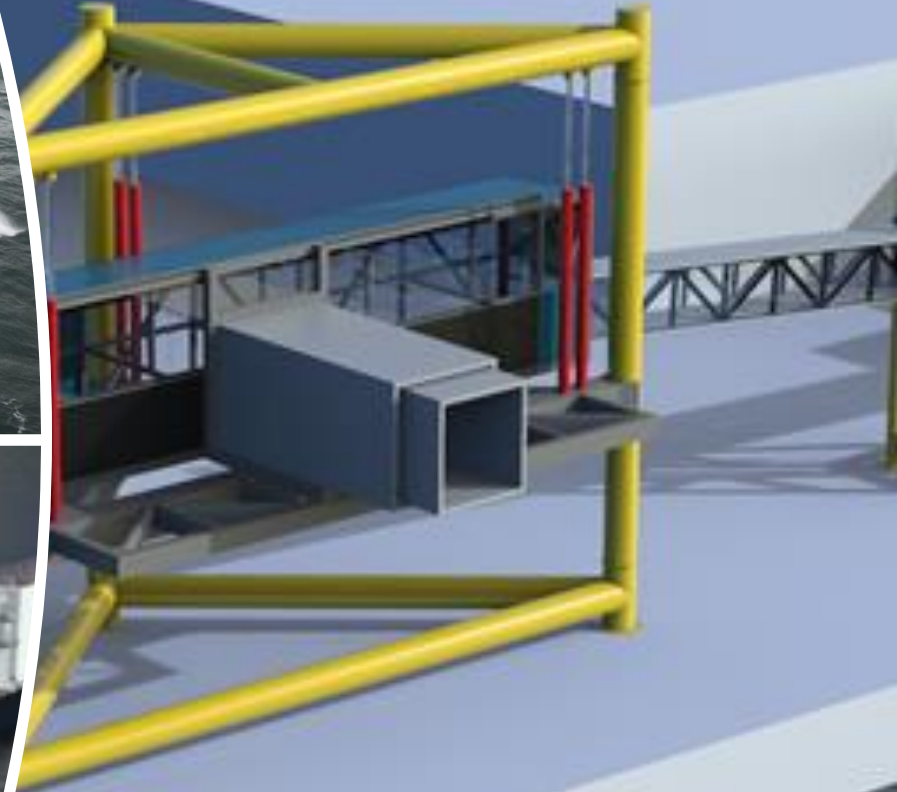


Andrew Hay 30/11/2021



BACKGROUND – MALIN GROUP

- Marine design and heavy lift consultancy of over 100 years
- Based in Glasgow, Scotland
- Operates CD01 heavy lift barge
- Extensive fabrication capacity, inc building and maintaining port infrastructure in UK market



BACKGROUND – ANDREW HAY

- Naval Architect by background
- Deep water offshore drilling (Maersk Drilling)
- Ship management and technical services (V.Group)
- Site operations, port infrastructure, vessel equipment (Malin Group)



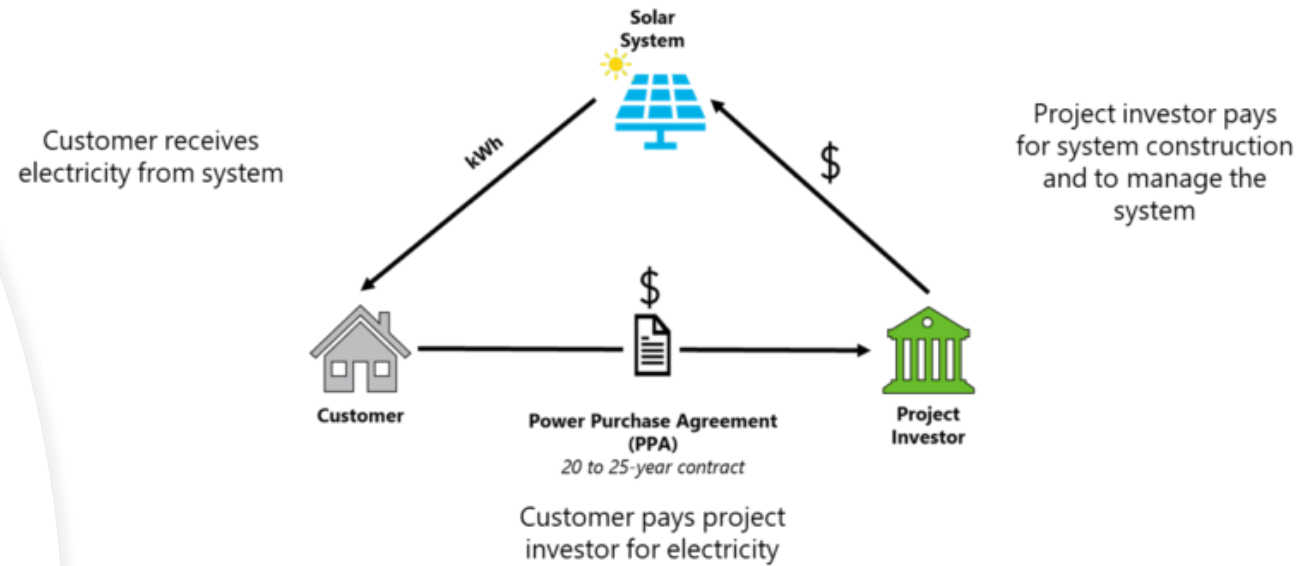
THE Paris... CLIMATE 10 years PLEDGE Early

DECARBONISATION AND THE LOGISTICS CHAIN

- Climate Pledge organisations carbon neutral by 2040
- Separate drives across logistics clients (eg UK NHS)
- Carbon (and holistic green footprint) becoming more impactful in contract awards and operation requirement

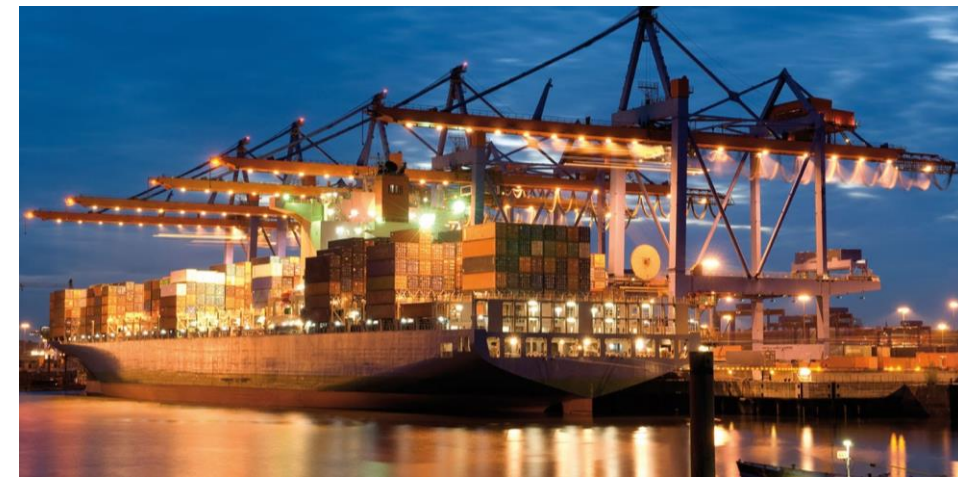
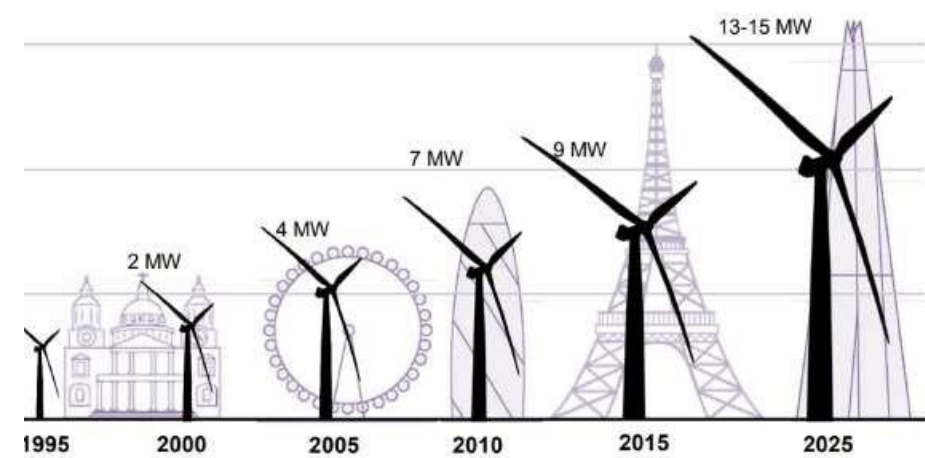
OFFSITE ELECTRICITY - PPAS

- Green Electrical Supply (Power Purchasing Agreement)
- Negotiate direct with asset investors (eg wind turbine operator) to buy some or all capacity from specific assets
- Offers price stability
- Green electrical supply is key in future port ops



ONSITE ELECTRIFICATION

- Local generation and battery storage
- Electric vehicle charging and site use
- Port evaluation by energy efficiency experts eg LED flood-lighting – 60% energy saving at International Port of Portsmouth
 - Consultancies such as Ramboll, Royal Haskoning...



ONSITE ELECTRIFICATION

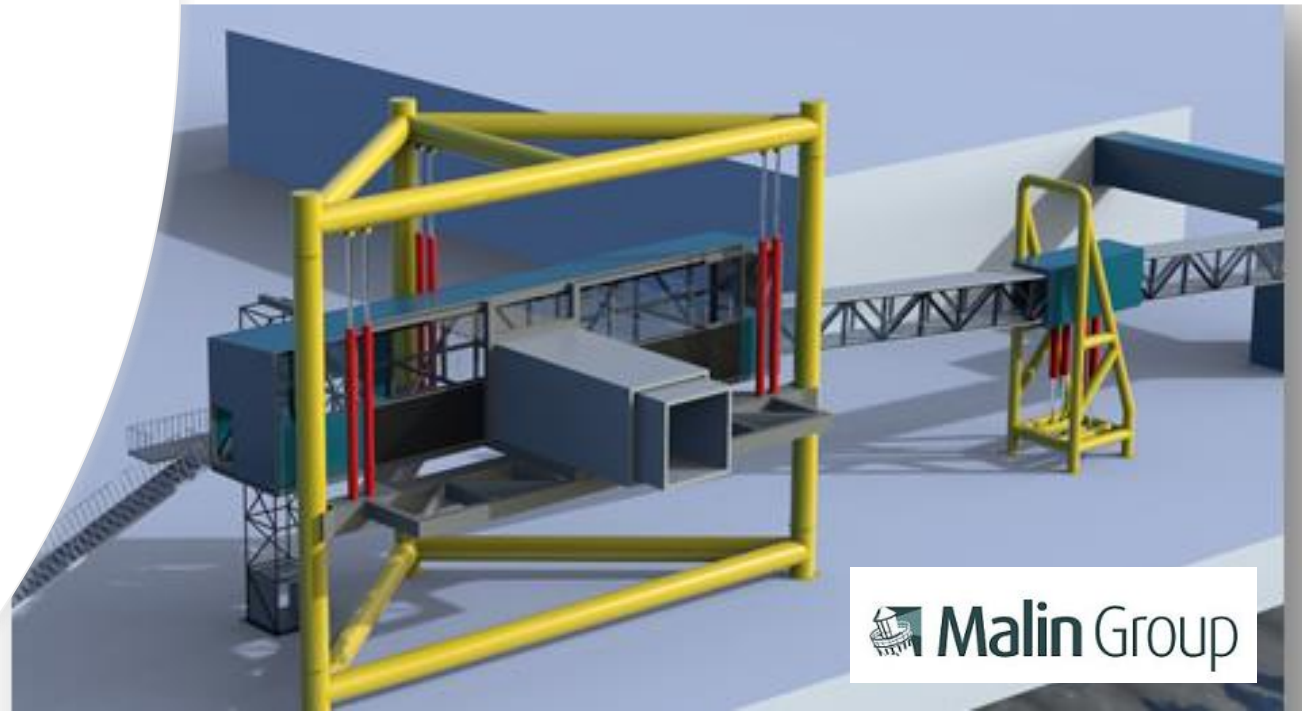
- Electrification of shorter-range vessels (Ferries, coasters, barges, local fishing fleets) – as Alphenaar, utilized by Heineken.
- Pilot Boats
- Local generation and battery storage (\$10,000 per annum saved at Port of Seattle through solar panels)
- Electric vehicle charging and site use



SITE INITIATIVES

- Holistic procurement approach to port equipment and facilities
- Eg Cargo / passenger handling equipment – have green credentials of suppliers been evaluated?
- Local suppliers for callout services – avoids air travel

Right – Malin's Passenger Access System for ports. A robust solution designed with marine ops in mind



DATA BASED SOLUTIONS

- 50% of container ships are more than 8 hours late, some with minimal notice period.
- Impacts efficiency of port operations (and carbon footprint); data solutions available such as eeSea.
- Air quality sensing, live monitoring and KPIs – can be used to unlock funding through “Green Bonds” (as done by Odjfell Shipping)
- Partnerships with universities / research organisations

eeSea



ARE YOU READY?

- New marine fuels
 - Alternative arrangements / propulsion systems
 - (Eg FastRig by Smart Green Shipping, right)
 - Ports must enable transition
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- Questions?



smart green shipping

FastRig - An autonomous, retractable wind-assist technology, seeking final funds for product development