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Introduction to Project Finance and its application to the commercial challenges being tackled in Marine Energy

Chris Milne, CFO, Orbital Marine Power Limited

Orbital Corporate Background

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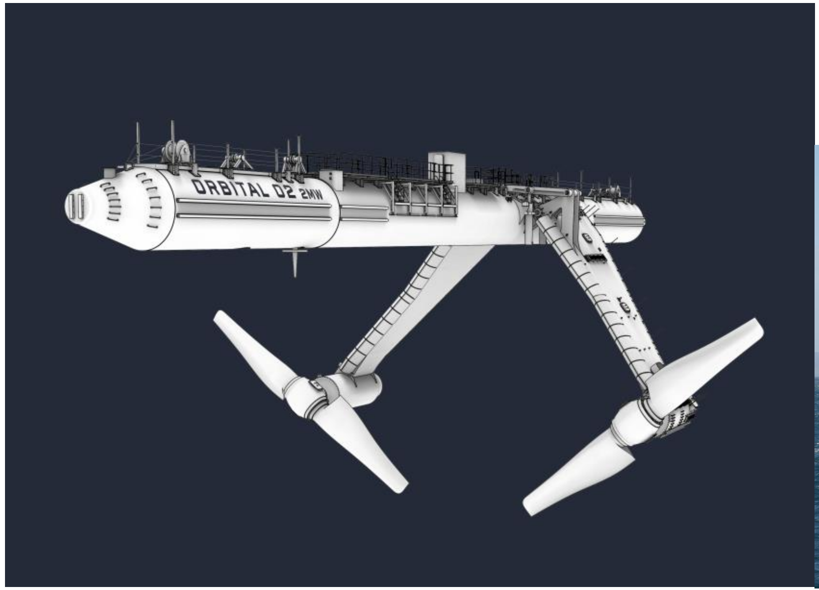

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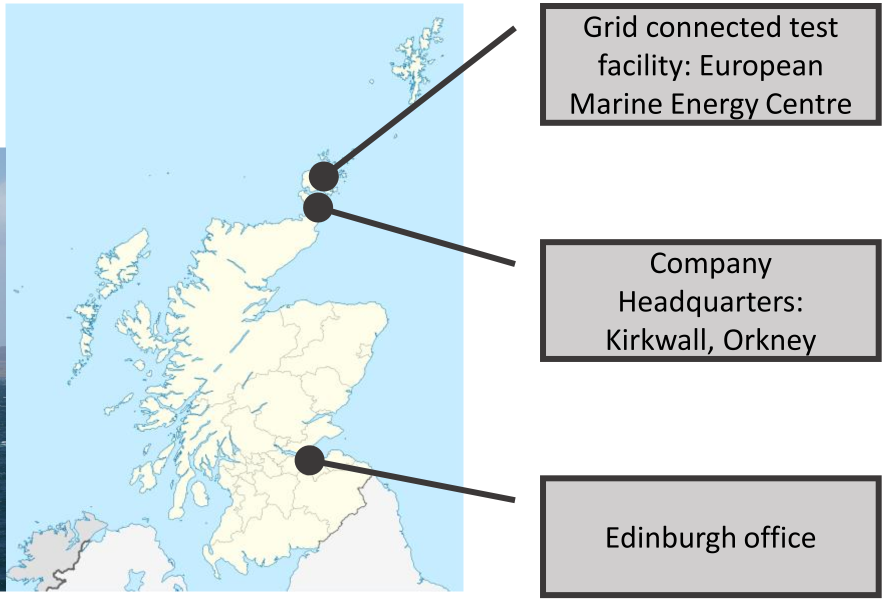

- Almost £60 million secured for investment over 18 years focused on engineering, testing and commercial delivery of the worlds most advanced utility scale floating tidal technology.
- 100 years+ accumulated engineering and operational experience.
- 34 staff covering technical, commercial and corporate functions.
- Targeted patents granted and filed on key controlling IP.
- Over 3.2GWh generated from 12 months continuous testing of first full scale 2 MW unit in 2018.
- Largest UK Public debenture raise of £7m on Abundance ethical investment platform closed 2019, representing first commercially funded UK tidal generation project through Orbital Marine Power (Orkney) plc.
- Build of next generation Orbital O2 2MW turbine progressing on track and on budget.

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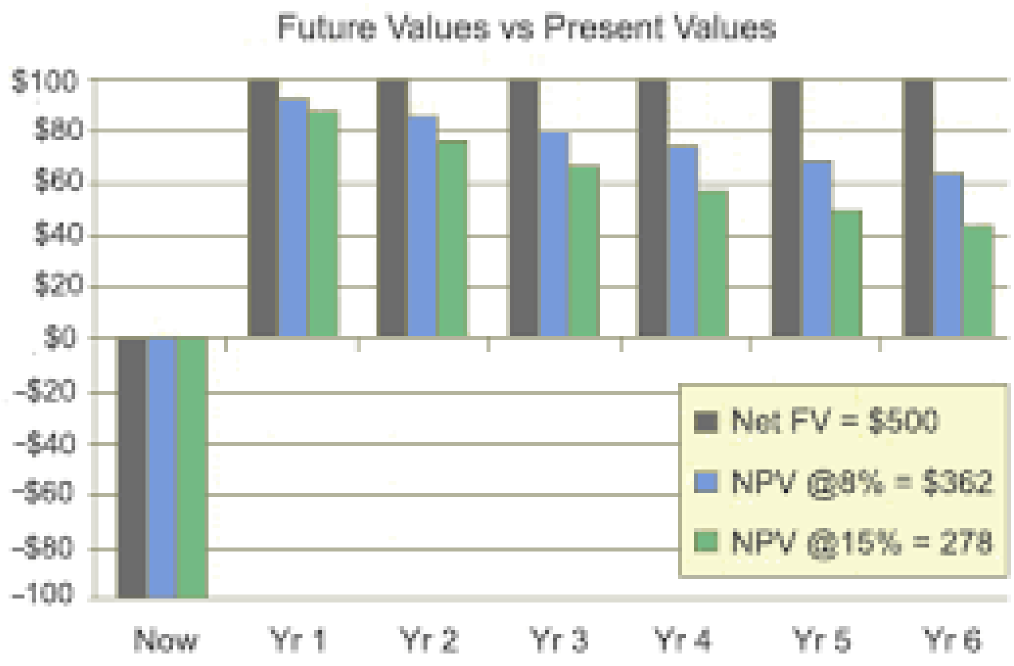
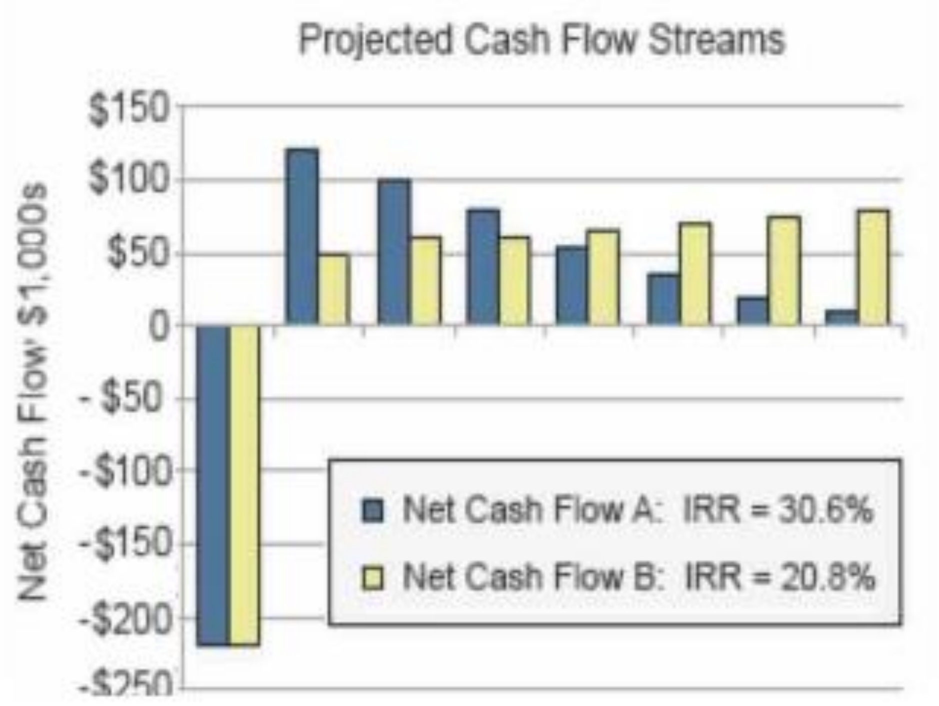
PROJECT FINANCE 101

Project Finance 101 Basics

1. Typical project cashflow profile and impact of time value of money (net present value, NPV)



2. Impact of cashflow phasing on overall project rate of return (internal rate of return, IRR)



Project Finance 101 Basics

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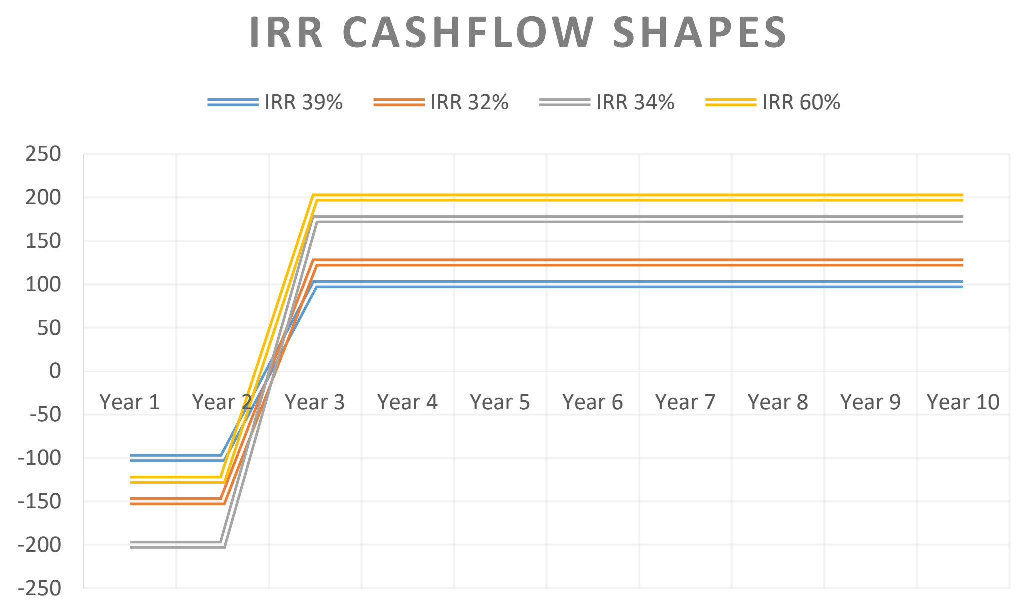
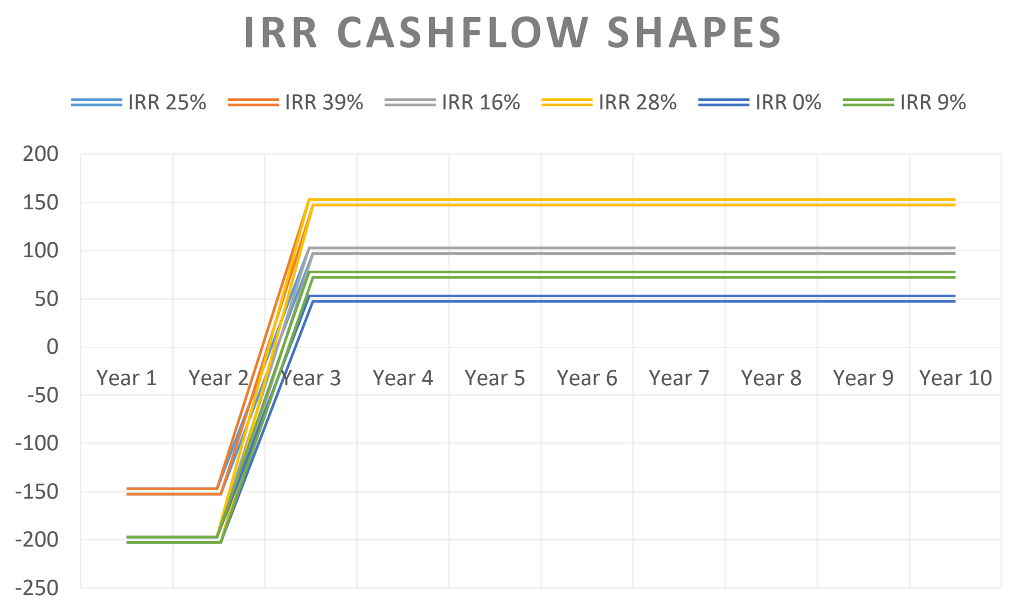
3. Relationship between internal rate of return (IRR), net present value (NPV) and Cost of Capital

If	Then	Capital Budgeting Decision
NPV < 0	IRR < Cost of Capital	Reject the investment from the cash flow perspective. Other factors could be important.
NPV = 0	IRR = Cost of Capital	Provides the minimum return. Probably reject from the cash flow perspective. Others factors could be important.
NPV > 0	IRR > Cost of Capital	Screen in for further analysis. Other investments may provide better returns and capital should be rationed, i.e., go to the most profitable projects. Others factors could be important.

- NPV and IRR are two discounted cash flow methods used for evaluating investments or capital projects.
- NPV is the monetary amount difference between the present value of discounted cash inflows less outflows over a specific period of time. If a project's NPV is above zero, then it's considered to be financially worthwhile.
- By contrast, the internal rate of return (IRR) is a calculation used to estimate the profitability of potential investments.
- Both of these measurements are primarily used in capital budgeting, the process by which companies determine whether a new investment or expansion opportunity is worthwhile.
- Each approach has its own distinct advantages and disadvantages.

Project Finance 101 Basics





Cost out < Income received, including target return : Positive IRR, NPV positive or zero

IF Investment ↑ Income received must ↑ for IRR to be maintained

IF Investment ↑ and income received stays constant, then IRR ↓

✓ Investment < Income received, including target return

✗ Investment > Income received

Project Finance 101 Basics

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So what if costs are greater than future income received, including target return?
Rebalance the equation

Investment = **Future cashflows received, inc return**

a)Reduce cash investment
- Reduce costs
- Capital grants
- OPM (Other people's money, banks)

b) Increase future cash flows
- Increase yield
- Supplemented / guarantee income
- Lower costs (grants, tax)

High level illustration on investor use of debt

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Debt is a commonly used tool to supplement an investors equity return.

In exchange for taking less risk (because the debt is normally repaid to debt holders before any cash can be returned to equity investors, ie it may even be secured by a fixed or floating charge) debt providers provide cash and are willing to accept a lower return from the provision of those funds than that of the higher risk equity investors.

Of course, with bigger risks come bigger possible returns. Let’s see how debt could benefit an equity owner in a simple illustration.

	Scenario 1	Scenario 2
Capital structure		
Equity	300.0	120.0
Debt		180.0
Total capital invested	**300.0**	**300.0**
Annual return calculation		
Revenue	100.0	100.0
Cost of sales	- 50.0	- 50.0
Gross profit	50.0	50.0
Profit before interest and tax	40.0	40.0
Interest @ 6%	-	- 10.8
Profits chargable to tax	40.0	29.2
Tax @ 20%	- 8.0	- 5.8
Profits remaining for shareholders	**32.0**	**23.4**
Implied annual return on equity	**10.7%**	**19.5%**

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LEVELISED COST OF ENERGY (LCOE)

COST REDUCTION PATHWAY AND COMMERCIAL ROLL-OUT

OREC / Orbital Marine Power hybrid - cost reduction pathway assumptions

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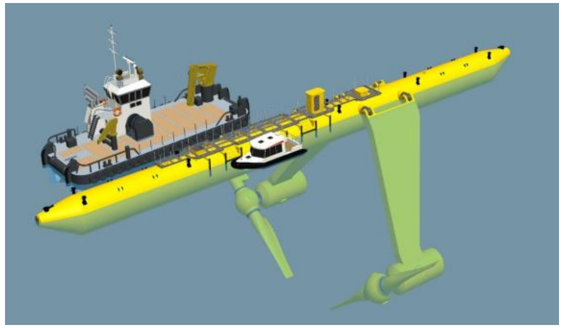
The illustrative analysis assumes:

1. Opening build and installation cost for future projects of £4m / MW (€4.56m / MW) installed

2. No grant funding is assumed, so any capital grant awards made available in the opening project build out phases would reduce the level of market support required for that phase (an analysis of the impact of capital grant funding on required market support levels is included at slides 15 and 16)

3. It is assumed that a project of around 60MW would be built out in stages to protect governments, developers and the OEM from unforeseen risks around delivery or cost

4. Debt levels are assumed on later projects as the financing and insurance community become more familiar with the sector



5. Appropriate OEM margins on build and installation plus service contracts in initial projects with market forces pulling margins down to “normal” OEM style levels over time

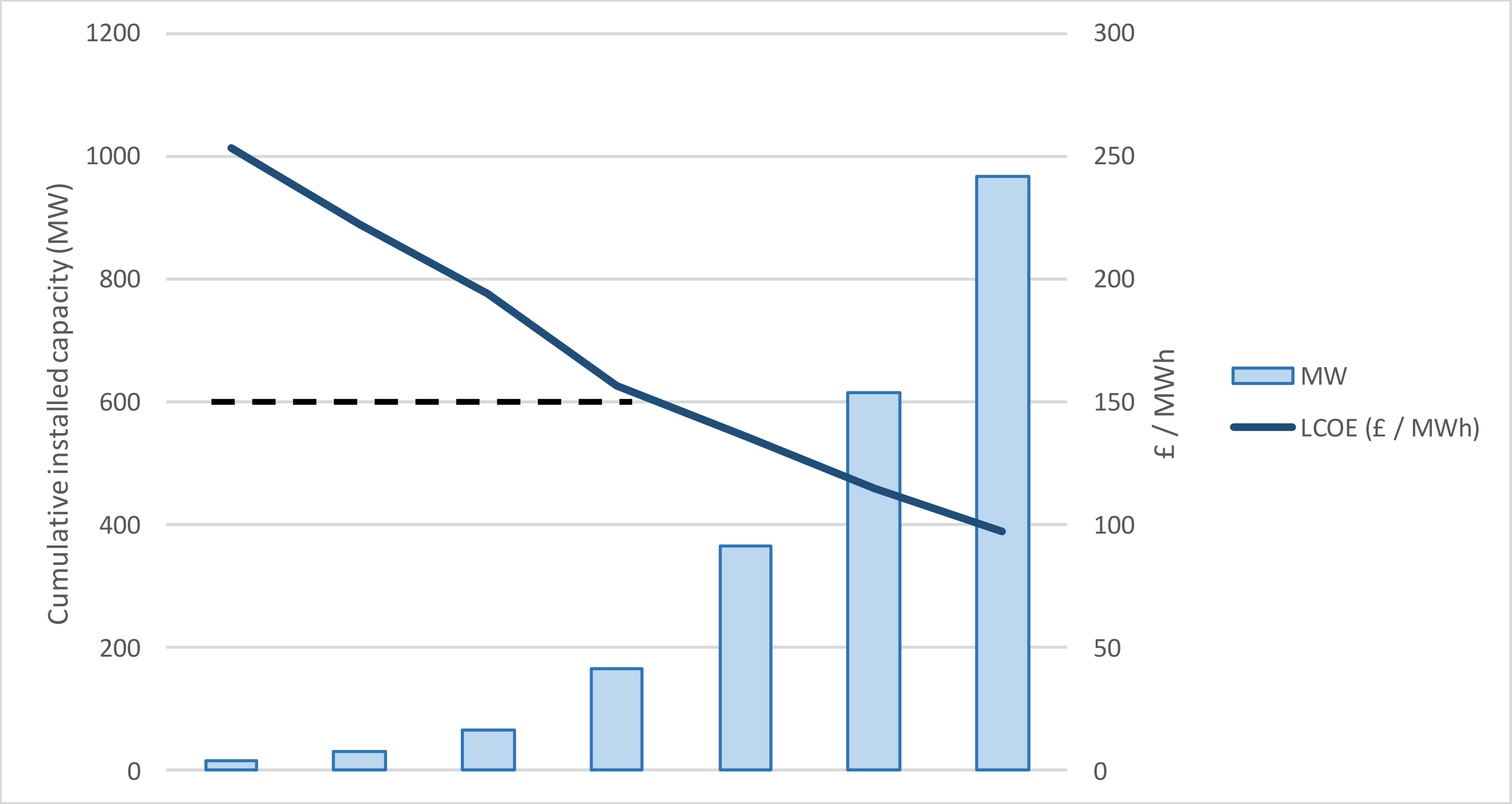
6. Project developers / owners are targeting 13% post tax returns for early projects, reducing to 11% post tax returns after over 600MW of capacity has been built out worldwide

7. Opening project O&M costs are based on cost levels in current commercial contracts

8. Prudent learning rates of 10.9% (capital cost) and 6.6% (O&M) are applied for every doubling of capacity (significantly below the industry standard as quoted in recent ORE Catapult survey).

ORE Catapult - Cost reduction pathway to under £100/MWh

- Cost reduction trajectory moves rapidly towards cost parity with other renewable generation sources.
- Under 200MW built capacity brings costs to a level comparable with currently operating offshore wind capacity awards of c.£150 / MWh (in 2012 prices).
- Capital grants can lower and flatten the left hand side of the cost reduction curve, as shown and explained on slides X and Y.
- 1GW build out that lands the Orbital Marine Power technology at £100 / MWh.
- The industry partners that deliver the initial projects will be best placed to capture long term benefits from rapidly expanding global markets.



Based on the prudent learning rates of 9% (capital) and 6.6% (opex).
See Future Innovations and Optimisations section to see how this will be delivered

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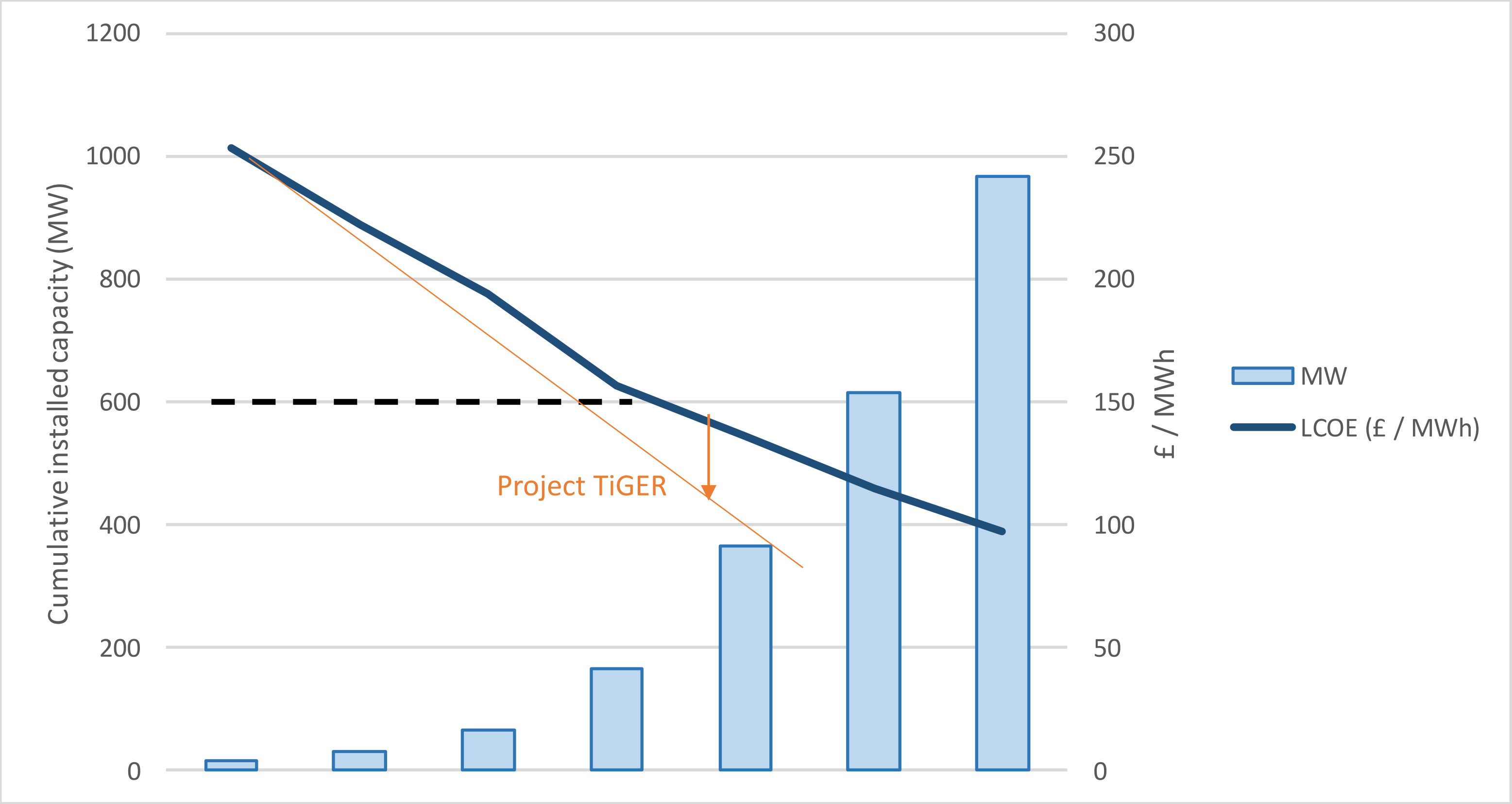

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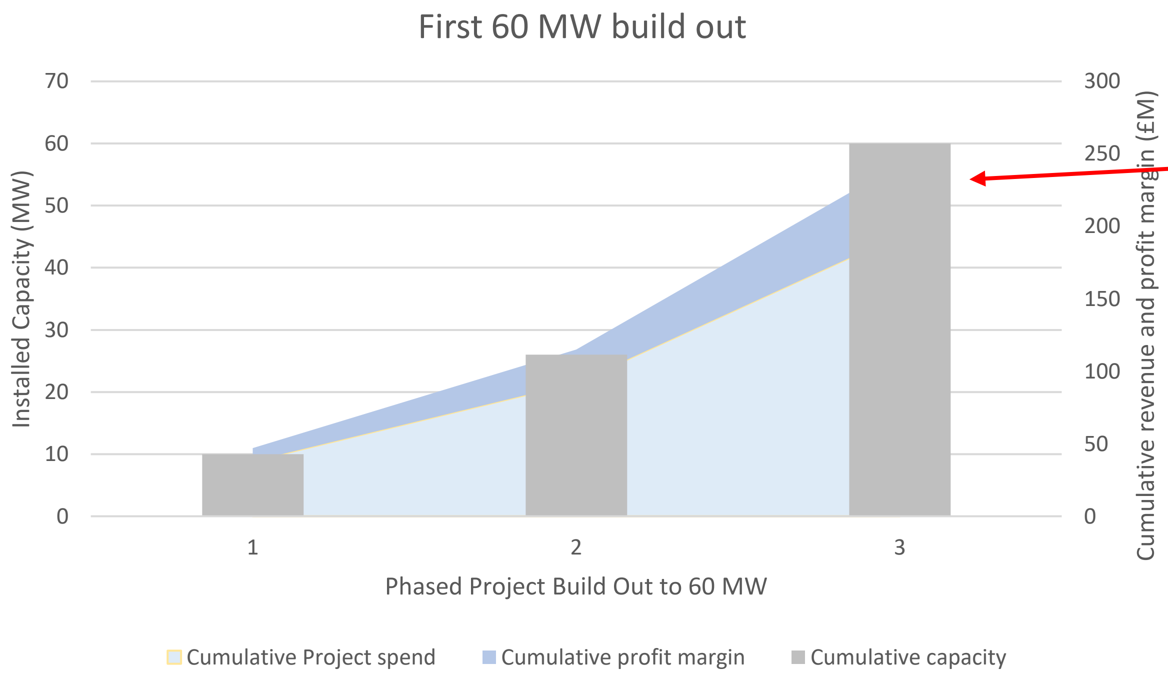
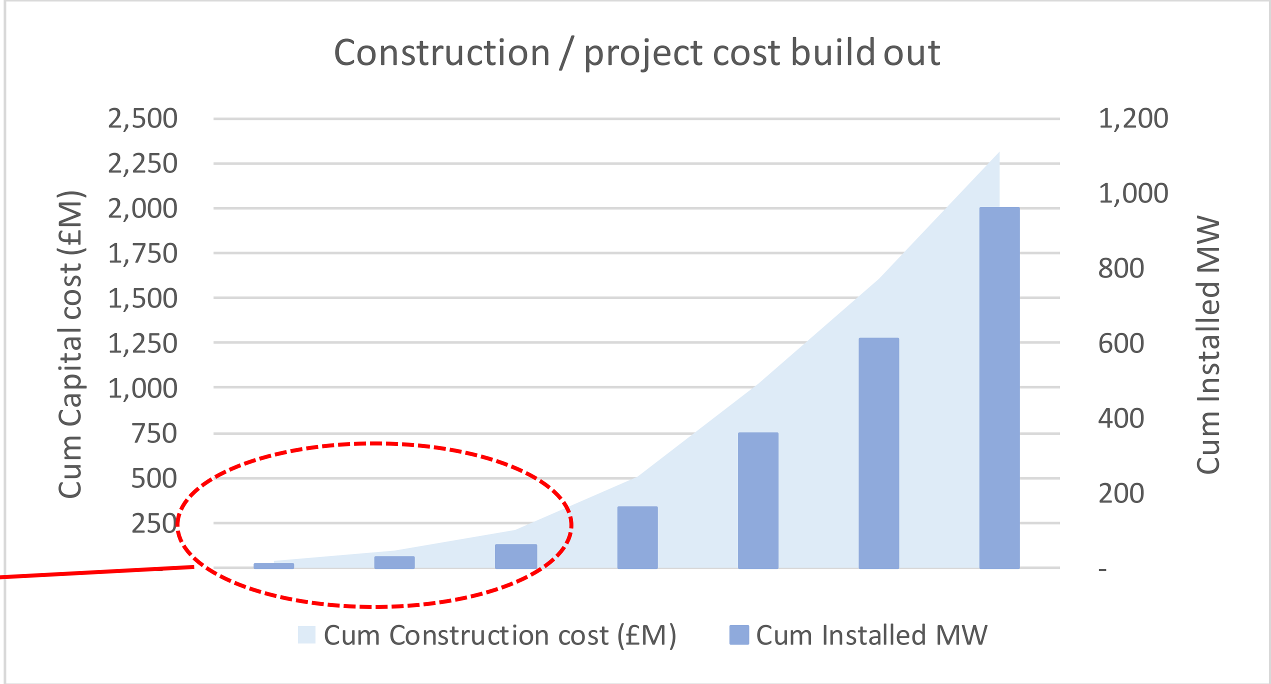
Phased commercial roll-out offers significant supply chain value

- The first 60 MW of projects built out will generate around £250M of revenue for the equipment supply and installation including margin.
- A 1GW build out will generate almost £2,500M of revenue including margin (whilst also allowing developers to hit target return levels)





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COST EFFECTIVE USE OF GRANTS TO REDUCE EARLY PROJECT REVENUE REQUIREMENTS

Impact of grants to de-risk and reduce support mechanisms for early stage commercial roll-out

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Capital grants are a common tool used to help de-risk early stage investments in industries that offer significant rewards for the early stage innovators.

The analysis below shows the impact capital grants, at 20%, 35% and 50% capital cost penetration levels would have on the required market support mechanism to deliver the target returns stated previously in this analysis of a commercial roll-out, with all other variables held constant.

This suggests that:

- a 20% capital grant can reduce the market support mechanism required by c.15%
- a 35% capital grant can reduce the market support mechanism required by c.25%
- a 50% capital grant can reduce the market support mechanism required by c.35%

Project		Market support No capital grant		Market support 20% capital grant		Market support 35% capital grant		Market support 50% capital grant	
		£/ MWh	€ / MWh	£/ MWh	€ / MWh	£/ MWh	€ / MWh	£/ MWh	€ / MWh
A	10MW	237	271	202	230	175	200	149	170
B	16MW	205	234	176	201	155	177	133	152
C	34MW	176	201	151	172	132	150	113	129

Phasing the capital grant available across the 60 MW project envisaged in this analysis, can create a strategy where a single market support price could be deployed across all three project tranches but with various, decreasing, levels of capital grant absorbing the early stage risk. In this instance a market support mechanism of c. £153 MWh (€174 MWh) could be awarded to deliver the full 60MW.

This may be a more attractive and manageable model for regulators etc to deliver, administer and monitor.

Impact of grants to de-risk and reduce support mechanisms for early stage commercial roll-out

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Looking specifically at the impact of the capital grants modelled on the previous slide, it is important to quantify the "value / cost" or "cost reductions" generated by the introductions of the proposed non-dilutive grants.

The capital grants can be used to de-risk the early stage projects and as such acts as a catalyst for project investment but must also make economic sense if the risks and rewards are to be appropriately balanced between stakeholders.

The table below looks at the proposed costs of the capital grants for each stage of Orbital Marine Power 60MW project build out. It compares the cost of the capital grant with the cost of providing a higher market support price across the life of the project.

The analysis suggests that a significant through life cost saving can be generated by introducing reducing levels of capital grants across the initial projects.

		Full capital cost	Grant available	Grant cost	Grant cost	NPV of market support saving over project life*		Cost saving generated by up-front capital grants	
		£M	%	£M	€M	£M	€M	£M	€M
A	10MW	38.0	50%	19.0	21.6	44.0	50.2	25.0	28.5
B	16MW	53.0	35%	18.6	21.2	44.3	50.5	25.7	29.3
C	34MW	100.4	20%	20.1	22.9	43.4	49.5	23.4	26.6
TOTAL	**60MW**	**191.3**	**105%**	**57.6**	**65.7**	**131.7**	**150.2**	**74.1**	**84.5**

* NPV of additional cost (@ 2.5% low government borrowing rate)

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O2 Project Update – April 2020

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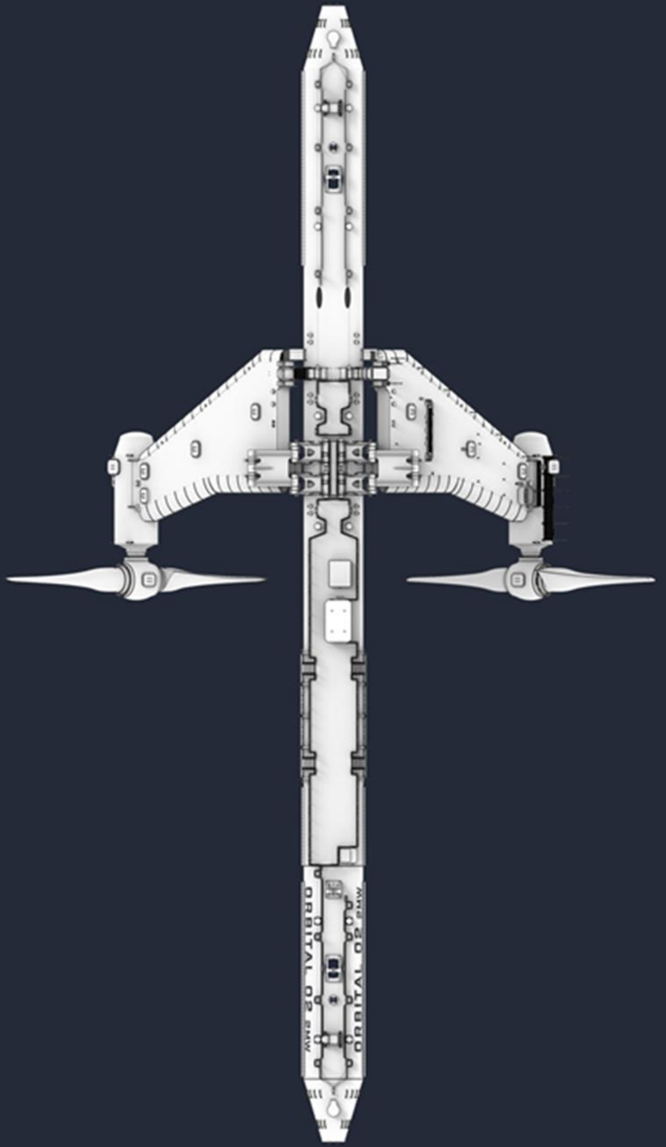

O2 Project Update – April 2020

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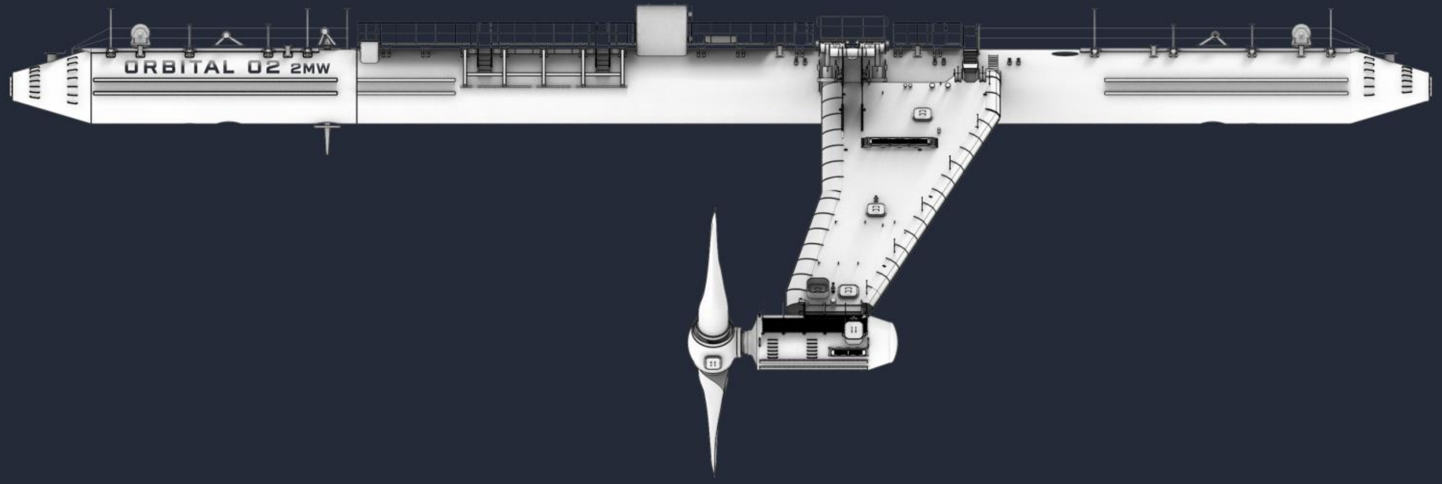

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