



Newsletter

Edition 2 | 2022



Balance of Plant (BoP)





The situation

Following the commissioning of an offshore wind farm, the seemingly daunting task of ensuring the operational integrity and reliability of the entire site begins through stringent operations and maintenance (O&M) regimes. The better maintained the entire wind farm, the better the energy generation and transmission availability – all of which can be made possible through Balance of Plant (BoP).

BoP is the term used to describe all the infrastructure and facilities of a wind turbine farm, excluding the wind turbine and nacelle. It is the most important link for delivering power produced by a wind farm to the market.

Statutory BoP O&M campaigns are required to satisfy various manufacturing guarantees as well as optimising the safe operation and output of wind farms.

By undertaking appropriate BoP inspections, wind farm operators can ensure the safe and profitable operation of their wind farm by ensuring any issues are identified and addressed before potential downtime of the asset.

What's the issue?

Wind farm downtime

Mandatory O&M campaigns are planned throughout the year, including inspections of all associated topside assets, subsea foundations, high voltage systems and onshore assets. Albeit planned in advance, having multiple contracts and contractors to carry out these maintenance regimes often results in additional asset downtime – costing time and money. The more contracts to manage, the more expensive it is for the customer.

Delayed and reactive maintenance

Slow response times to maintenance and repairs, due to reactive contracts, can mean downtime is longer than anticipated. For example, it is similar to sending your car to a particular garage for a specific check (e.g. the engine) and then to another garage for another inspection (e.g. the tyres) and repeating the process for multiple car components. In comparison to an MOT, where you can send your car to the one garage for all its checks to take place at the same time. The same principal applies to offshore wind maintenance.

Levelized cost of electricity (LCOE) pressures

Decreasing LCOE is a key focus across the industry. O&M costs have a significant impact on the calculation of LCOE. According to [ORE Catapult¹](#), LCOE reduction can come from reduced costs, increased energy production or changes in financing and lifetime of the project. Reduced cost can be from process or technology changes during the manufacturing, installation or operations phase. Increased energy production may be as a result of technology or by reducing lost energy via better operational processes. Reducing project risk is the main way to affect financing cost.

In order for offshore wind to compete against fossil fuels, there needs to be a continued drive to reduce the LCOE. O&M accounts for ca. 38% of the entire lifetime spend of a 1GW offshore wind farm². By improving BoP costs over the 20 – 25 year operational lifetime of a wind farm, this will have a direct impact on the LCOE.

Addressing the challenge

Historically it's no secret across the industry that the O&M phase of a wind farm's lifecycle is not straightforward; with multiple teams, reactive repair works and managing a folder full of contracts whilst physically completing maintenance at different times throughout the year.

How do we go about increasing operational efficiency whilst reducing downtime and maintaining cost-effectiveness?

Our solution combines all typical scheduled maintenance tasks, through a single turnkey asset management partner, saving time and money, improving safety, and mitigating risk.

Through one core BoP team based on your wind farm all year round, our pre-emptive O&M strategy eliminates waste, reduces variations, and combines preventative maintenance tasks minimising operational downtime.

By combining our subsea inspection, repair and maintenance (IRM), topside and high voltage capabilities, this not only optimizes logistics, but also reduces downtime on inspections; thus improving the rapid reaction speed to unscheduled events.

James Fisher Renewables (JF Renewables) also strives to develop proactive maintenance regimes i.e. condition monitoring, to reduce subsea and topside inspection activities, further reducing customer downtime.

Local content

We are committed to providing back to local communities through our local content engagement programme. In each country we look to utilise local logistics, train local technicians and collaborate with key strategic partners in-country.

Providing a robust supply chain structure in each region and drawing on local expertise is at the heart of our values and operational excellence. Our current regional offices include United Kingdom, France, Norway, Taiwan and USA.

Operational optimisation

Our operational optimisation ability includes weather assessments, using in-house software Mermaid™ as well as focusing on optimum utilisation of vessels for maximum efficiency.

This may see a singular vessel used in multiple configurations to avoid duplicate mobilisations and provide further value. Our offering also includes entire scope project contracting management, saving our customers both valuable time and money.

Multiple work packages

Through our dedicated service companies, we are able to manage multiple work packages, which are each led by our service specialists. We have extensive experience, [through our track record](#), of successfully delivering this. Whereas a single interface provides a clear and concise line of communications and accountability through the contract term.



The reliability of BoP operations during the lifetime of an offshore wind project is key to support and maximize the revenue stream for our customers. The BoP availability plays an important role in the overall evaluation of project attractiveness, and JF Renewables plays a vital role given our extensive track record in supporting and enabling value appropriation through reliable operations and maintenance, supporting high availability and a healthy revenue stream.

Having supported more than 14 GW offshore wind and having long term BoP O&M contracts enables JF Renewables to bring valuable lessons to the novel BoP O&M segment in APAC. We combine experience and local content solutions, contributing to local economies while maximizing value for our clients.

- Maida Zahirovic, Vice President Renewables – APAC at James Fisher Renewables



From our discussions with customers, more and more are telling us that they would like packaged solutions rather than dealing with several parties and the complexities that these interfaces can create.

JF Renewables can provide a unique offering of packaged services incorporating subsea, above water and asset management services, via a single-managed package. Our approach brings with it synergies and efficiencies which should help to reduce the cost to our customers whilst also reducing the number of interfaces between different parties and therefore lowering the overall risk too.

- Chris Bebbington, Engineering and Operations Director at James Fisher Renewables

BoP at a glance

O&M accounts for ca. 38% of the entire lifetime spend of a 1GW offshore wind farm².

According to 4C Offshore³ there are currently over 54,000 MW of operational offshore wind around the world in Europe, Asia Pacific and the Americas. With great numbers of wind farms come greater need for cost-effective O&M.

Operational risk planning and marine management (Mermaid and OWMS)

Vessel provision



ROV services



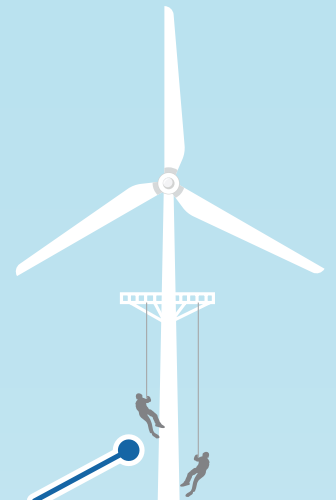
Autonomous survey services



Diving services



Rope access



Confined access services





- Asset management digital twin platform (R2S)
- U/W structural monitoring solutions

24/7 cable monitoring and HV services

High voltage services

- 2/7 cable monitoring and HV services
- Commissioning
- Asset management (OFTO)
- O&M

Inspection, repair and maintenance

Topside services

- Operations and maintenance
- Inspection, repair and maintenance
- Statutory inspection on all cranes and lifting equipment
- Project management
- High voltage services

Bathymetric, MBES and DoB survey services

About us

James Fisher
Renewables



James Fisher Renewables provides **comprehensive and trusted offshore renewable solutions**, including:

Subsea inspection, repair and maintenance

James Fisher
Subtech



Offshore personnel

James Fisher
Rumic



Monitoring - structural health, condition and mooring

James Fisher
Strainstall



Offshore cranes

 **SCANTECH**
A James Fisher Group Company

Bubble curtains

ScanTech
Offshore 

Blade repair and maintenance

**Rotos360**

Asset management

 **eds**
HV GROUP
High Voltage Engineering



Coming up...

In the next edition, we'll be exploring **digital asset management**.

From digital twin to marine operations planning software to unmanned autonomous vehicles, the future of asset management is getting **bigger** and **better**. We'll explore the importance of data and innovation in optimising asset management - **saving time, saving money, improving safety and mitigating**

[Send us your feedback!](#)



Want to know more?

[Operations and maintenance](#)

[Balance of Plant solution](#)

[ORE Catapult's interactive guide](#)

Get in touch

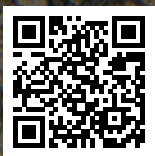
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References

1. [Guide to an offshore windfarm](#)
2. *BVGA (2015) Approaches to cost-reduction in offshore wind: A report for the Committee on Climate Change*
3. [Global Offshore Wind Farms Database | 4C Offshore](#)



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