



ECN

Your energy. Our passion.

O&M System Solution

Operational excellence for offshore wind farm operators

Offshore wind farm owners and operators share one common goal: To maximise the profitability of their asset over its operating lifetime. Operation and maintenance costs threaten this profitability and the potential wins (and losses) are enormous.

The O&M System allows operators to maintain their asset in an optimal manner, maximising profitability and readiness for 20+ years of operational excellence.

The system forms a smart and long term operational data plan. Fitting into the existing ICT systems, the data is smartly organised and flows seamlessly into dedicated analysis tools. Key information and input is produced that allows you to continuously identify where unnecessary costs in the O&M activities are occurring. Feeding the information back into ECN's industry standard OPEX calculator will then show you the quantitative benefits of revising your strategy.

The system begins with the very first question of what data should I collect? The system ends with the answer to: how can I safely cut O&M costs even further?

Why consider the ECN O&M system?

- **Smart O&M contracts**
Ensure you collect the data you need.
Preferably from day 1
- **Works with existing ICT**
You don't need to change your ICT systems
- **Logical data structuring**
Collect and analyse only the data you need to
- **Work efficiently**
Analyse the data quickly and efficiently with minimum man power
- **Taking O&M responsibility**
Be in a position to smoothly take over O&M activities of your asset after 5 years (if desired)
- **Work with a trusted partner**
You already use ECN's leading and respected OPEX cost models
- **In house expertise**
Develop and maintain all the knowledge you need in house

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Turnover for more detail on the O&M system and how it can be implemented.

Operational excellence

1 EVENT LIST

Data is structured into a standard and repeatable format. It is integrated into existing ICT systems. The EVENT list is formed from:

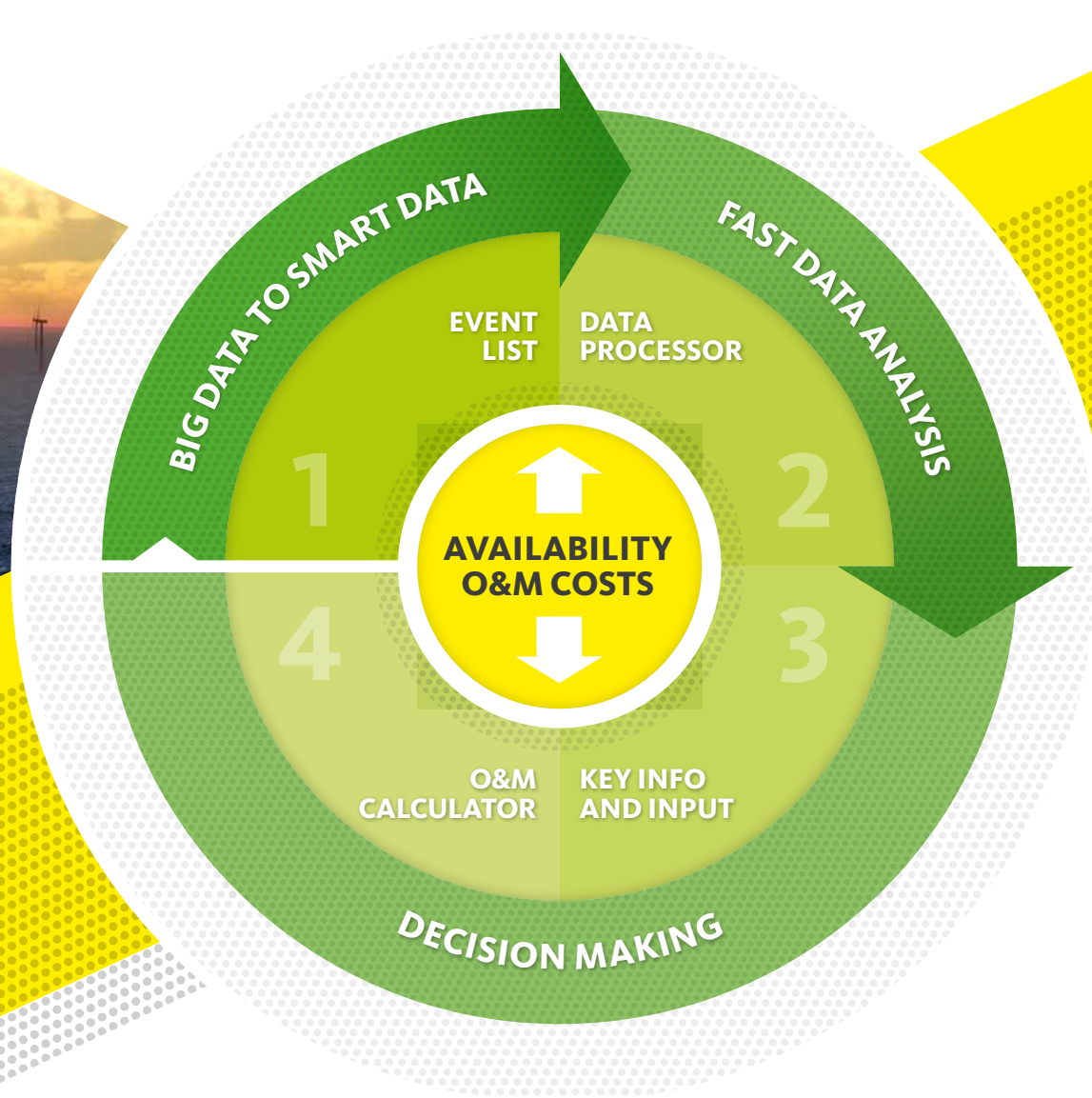
- SCADA data
- Alarms
- Metocean
- Downtime reports
- Technician reports
- Vessel reports, etc.

Event list matched to the data processor tools.

2 DATA PROCESSOR TOOLS

The structured data stored and collected in the EVENT LIST is quickly and easily processed by the data analysis tools:

- O&M
- Logistics
- Farm Load Monitoring
- CMS (3rd party systems)



4 O&M CALCULATOR

As a final step the O&M Calculator cost model can be run to quantify the increased availability and reduction in O&M costs. The O&M Calculator will additionally provide you with detailed insight into:

- Vessels
- Helicopters
- Technicians
- Stock control
- Access systems
- Weather windows
- Waiting times etc.

3 KEY INFORMATION AND INPUT

- What is failing, how often & why?
- What is the effect on wind farm production losses?
- How long did repairs actually take? What was the real waiting time?
- Which equipment & spare parts were used?

- What are the real equipment weather limits?
- What is my asset health? Is the speed of degradation acceptable? Can it be lowered?
- Where can we improve upon now and in the future?