Metocean and Site Investigation Surveys

27 February 2025

Sam Athey

Managing Director

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As Managing Director, Sam leads Venterra's Survey Service Line in offshore renewables. He has built an agile and resilient survey offering founded on oceanographic and wind resource measurement capabilities.

With extensive experience in surveys and measurement campaigns for offshore wind, Sam has specialized in **metocean monitoring, and floating LiDAR** delivering high-quality data that supports offshore wind investment and construction.

James McDonald

Operations & Commercial Director

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James brings **20 years of experience in seabed geotechnics**, overseeing Geotechnical operations and commercial strategy at Venterra.

James deeply understands **offshore site investigations**, project execution, and client solutions. His expertise ensures efficient and **high-quality geotechnical services** for offshore energy projects worldwide.

Survey Service Line

- Metocean services
- Wind Resource Measurements
- Geotechnical Services
- Geophysical Survey Equipment & Personnel

Over
45 Years
of combined experience

Supported
35 GW
of offshore wind globally

Inventory of
5,000
pieces of specialist survey equipment

Accredited with
3x ISO HSEQ
certifications

Access to more than
1,600
personnel worldwide

Example Projects - Metocean

Scotland

Supported 50% of ScotWind projects, deploying 11 FLiDAR systems alongside met stations, wave buoys, ADCPS and other supplementary sensors!

- **Wind Resource Measurements**: Delivering accurate wind resource data for energy yield assessment and turbine layout, allowing the client to predict and optimise energy yeild.
- **Metocean Measurements:** Comprehensive monitoring of wave and current profiles to support engineering design and EIA.
- **Seabed Studies:** Analysing seabed conditions to inform scour, long-term seabed level change informing the stability of offshore structures and cables.

Finland

Korsnás, located at 62.75 degrees North, our team has undertaken metocean and ice thicknesses measurements for one of the worlds most Northerly wind farms.

Example Project - Geotech



NeuConnect HVDC Interconnector

- **Geotechnical Surveys:** Rapid CPT & Vibrocore data acquisition along the HVDC cable route for burial assessments.
- **Offshore Operations:** 24/7 data collection from a **70-90m survey vessel**, covering **15-20km per-day**, with **1,500m of CPT and Vibrocore data acquired**.
- **Nearshore Operations:** Shallow-draft vessels used in tidal areas, securing **300m of critical data** at each end of the route.

Delivering high-resolution subsurface data to support efficient cable route planning and installation.

Challenges

Early-stage markets benefit from working closely with companies experienced in offshore wind, through efficient planning and execution of site surveys, delivering high-quality data that meets the needs of EIA, Engineering design, and yield assessments, ultimately reducing project risk and accelerating the development timeline.

1. **Site-specific data:**

   New lease areas often have limited site-specific data. Having some knowledge of site conditions helps to inform survey specifications and plan safe and efficient surveys.

2. **Port and Vessels:**

   Limited port infrastructure and specialized vessels for offshore surveys can increase costs and the need for additional time to vet vessel suitability.

3. **Licence/Permitting Delays**

   In new markets navigating evolving regulatory frameworks for offshore surveys can be time-consuming and require local knowledge.

4. **3rd Party interference:**

   In the early stages of development, the chance of vessels transiting or trawling metocean deployment locations can be high.

Lessons Learned

Drawing on our extensive experience as metocean and geotechnical contractors, we emphasise the importance of early engagement with subcontractors, licensing bodies, and fishing authorities to refine project scopes and mitigate risks for our clients.

1. **Invest in Early-Stage High-Quality Data Collection:**

   Collecting high-quality metocean data early in the project lifecycle reduces risk in engineering design, consenting, and ultimately final investment decisions.

   Invest time in scoping survey design meets requirements of all project stakeholders. Do it once, do it right!

2. **Leverage International Expertise:**

   Adopting best practices from established offshore wind markets (e.g., Europe) and adapting them to the local market/environment can accelerate project delivery.

3. **Engage Local Capacity:**

   Responding to global survey opportunities, we have identified local companies that can provide vessels, logistics, and licensing partners to streamline project execution.

4. **Engage Stakeholders Early:**

   Transparent communication about survey activities and their benefits can address concerns and foster support (for example allowing stakeholders to access wave data online)

Lessons Learned Cont..

5. **Contingency planning:**

   Allocate sufficient time buffers to account for programme risk in contracting or licencing delays. Also, have redundant locations to provide data continuity.

6. **Collaborative Approach:**

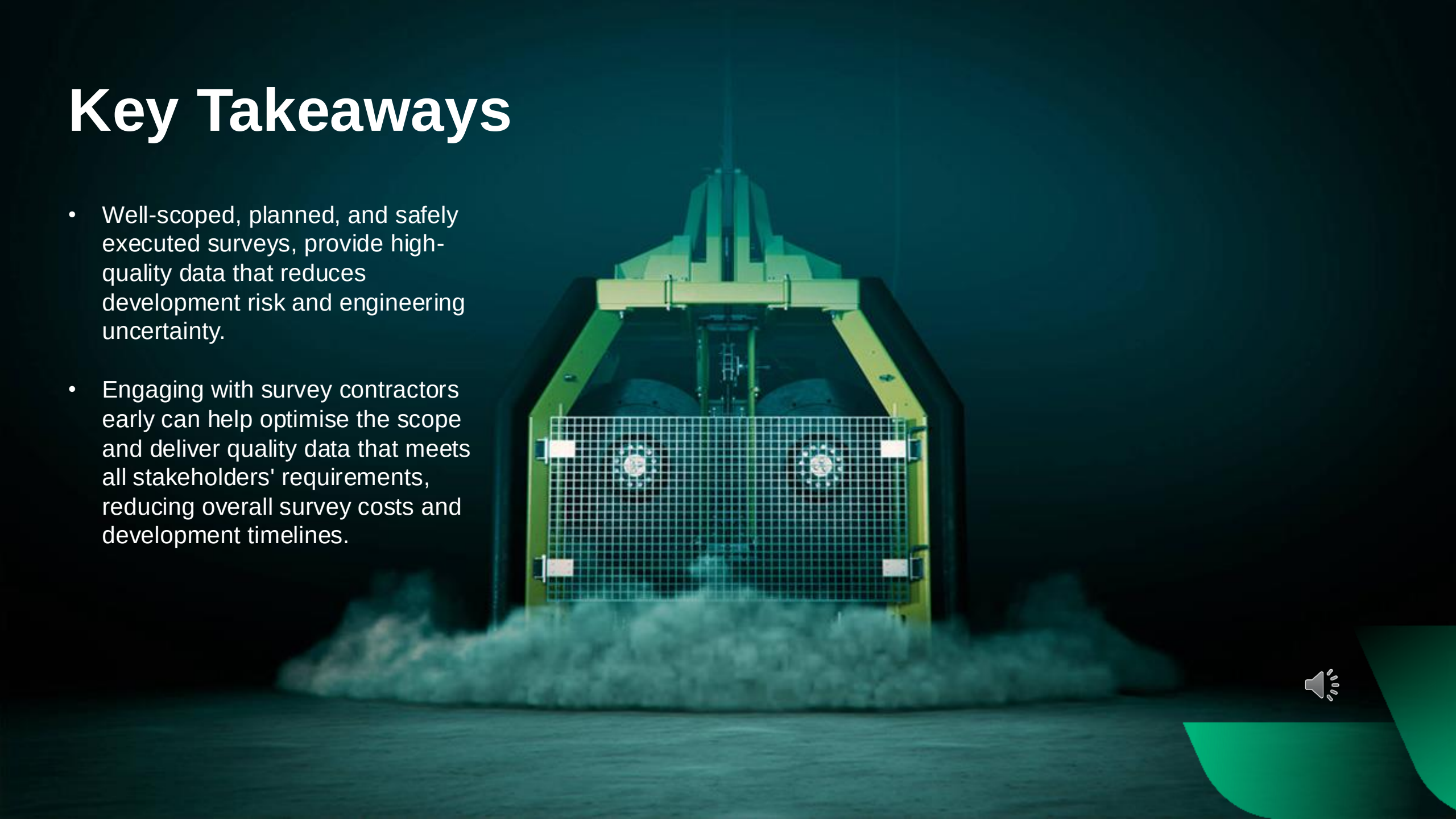
   We advocate early-stage collaboration between survey contractors and developers to optimize scope and data quality.

7. **Data Governance:**

   As site surveys progress Terabytes of data will be collected. Designing a framework for secure data sharing and governance provides efficiency, cost savings and the potential to unlock further value from multiple data sources.

Key Takeaways

- Well-scoped, planned, and safely executed surveys, provide high-quality data that reduces development risk and engineering uncertainty.
- Engaging with survey contractors early can help optimise the scope and deliver quality data that meets all stakeholders' requirements, reducing overall survey costs and development timelines.



Get In Touch

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