

## AHEAD OF THE CURVE: Proserv's technology roadmap on the advance

**OGV Energy's Operations Director Dan Hyland talks to Proserv Controls' Paul Cook and Stuart Harvey about their role in the company's evolution.**



A Proserv technician surveys an offshore wind farm

Last month global controls technology leader Proserv was in the news as it announced another significant win for its team. Followers of the company's activities might have assumed it was a further success for its subsea business, with its independent and highly reliable control systems, or perhaps for its expanding Middle East topside service operation, regular partners with the region's NOCs.

But no. Proserv had hit the headlines with its first major win for its disruptive holistic cable monitoring system (CMS) for offshore wind – ECG™. The solution has been selected by DEME Offshore to monitor the entire inter-array cabling on phases A and B of the Dogger Bank Wind Farm, set to become the world's biggest offshore wind farm on completion.

The award marks a real statement of intent for Proserv's pivot into renewables and its broader technology roadmap, laid down in 2019.

Paul Cook, Director of Business Development – Renewables, and Stuart Harvey, Director of Digital Innovation, are at the heart of Proserv's push towards a path where digital technology enhances, and extends, its current offering across the energy sector and sustainable energy represents an increasingly central area of activity.

Harvey leads Proserv's digital-centric strategy for expanding its existing solutions in its current, and potentially new markets, as well as the creation of further revenue-generating offerings. Building innovative technology tie-ups has been a key focus, with Harvey forging a strategic alliance with Intelligent Plant, a software engineering firm, in late 2020 with open data access and analytics at the heart of their business model.

### All about the data

There is an established logical sequence around effective real-time monitoring of an asset's condition and integrity, providing insights on the information received and then the ability to take proactive decisions and action, ahead of time, to optimise and maintain performance – but for Harvey the glue that binds all this together is real-time quality data, and lots of it:

*"Our philosophy is to continually analyse data with the objective of detecting events before they reach the control room. Our intention is to support operators with early route cause analysis and interception strategies. Ultimately, it is*

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about empowering the engineering teams so they can optimise their campaigns and enhance the performance of assets to give them a competitive edge over other operators."

Harvey is keen to highlight a new digital offering that he is developing and exemplifies work he is doing on this with a leading independent operator in the Gulf of Mexico. Proserv's new service will access the operator's data historian, which stores all information from across the entire asset, and put it to work.

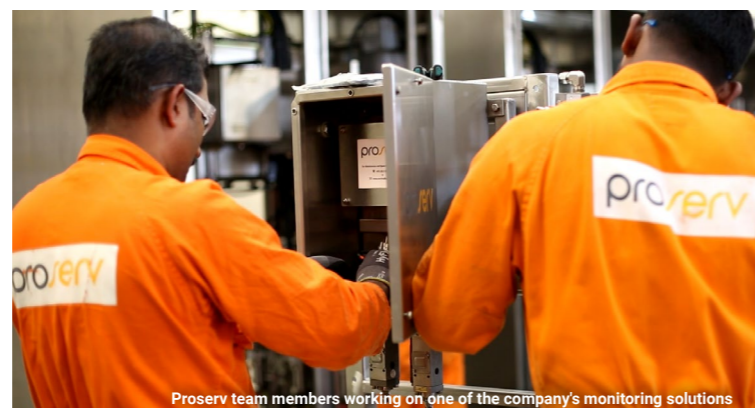
*"Putting data to work means connecting specific applications and configuring them so that analytics are running continually in an automated and disciplined way. It is these analytics which provide the early indicator of something beginning to fail or a piece of equipment performing poorly, or even human error in a process.*

*"The work doesn't stop there. We are leveraging innovative human factors design philosophies for HMI (human machine interface) visualisation."*

Harvey emphasises that Proserv recognises the need to reimagine HMIs and visualisation if it is to keep pace with the amount of data modern equipment and systems are now capable of producing.

*"We understand there is only so much information a human can absorb effectively and we're responsible for maximising that performance. It is for that reason we've been exploring and adopting new innovative HMI design philosophies such as those used by NASA and SpaceX.*

*"Improvements in human performance delivered by new HMI designs are key if, as an industry, we're to maximise value from digitalisation. We are already visualising 40% more data points on an HMI compared to legacy designs while at the same time seeing users' response times, engagement and technical understanding significantly improve."*



Proserv team members working on one of the company's monitoring solutions



Stuart Harvey, Director of Digital Innovation, Proserv Controls

Proserv is known for its independence and flexibility and Harvey's new digital offering reflects the company's ethos:

*"This approach and service is entirely OEM agnostic and can be applied across any legacy system. It is flexible too: we can simply provide notifications of anomalies picked up through the data, or we can couple that with domain knowledge and personnel, around control logic enhancement, for instance. We have tuned the control logic on compressor systems to enhance performance and reduce CO2 emissions."*

Harvey stresses the digital service applies as much to greenfield sites as mature ones, and offers an opportunity for offshore wind:

*"Could you imagine if we had deployed modern analytics technologies on O&G assets when they were installed 40 years ago? The millions of dollars that could have been saved on life extension studies and inspections. Perhaps that's something for the renewables industry to consider? As I fully expect wind turbines being built today with a 25-year design life to have that extended to 30 years plus, and to do this safely and cost effectively we need to be analysing the data now."*

### An ECG™ for cable assets

The crossover between Paul Cook and Harvey's priorities is strong, with real-time data capture underpinning meticulous monitoring and potential intelligence outputs. Collaboration has also been integral to Cook's development of the ECG™ CMS. Cook suggests a technology consortium alongside Synaptec and BPP Cable Solutions, driven by Proserv, has represented the very best of innovation:

*"There is virtually no crossover between the three companies; we are very much experts in our respective domain fields but what brings us together is one common area: cables.*

*"Proserv is not historically a cables company but what we do have is expert knowledge in system integration, sensors, software and data. Likewise, for Synaptec, power system networks, instrumentation applied to high voltage cables, and then BPP Cable Solutions, with real, expert domain knowledge in cable data interpretation and condition."*

The partners have combined their skills to supply a technology far superseding current traditional systems

which operate in silos and process data in isolation, lacking real-time monitoring and effective, intuitive data interpretation. These leave operators with only a limited view of cable condition and integrity, thus impacting their decision-making abilities around maintenance and operational expenditure.

By contrast, ECG™ harnesses synchronous, real-time monitoring across multiple assets, and continuous automated data analysis. Uniquely, the solution offers electrical distributed sensing due to Synaptec's passive electrical and mechanical sensor systems. As ECG™ continues to evolve, machine learning will be applied to detect small deviations in cable performance, even within normal operating parameters, indicating potential future issues requiring action.

Proserv's holistic system answers a "critical need" in the market according to Cook and ScottishPower Renewables has thrown its weight behind the technology in the form of industrial sponsorship.

*"I see ECG™ as becoming the go-to technology for monitoring subsea cables within offshore wind and being the default standard for the whole methodology. There is no defined standard right now, and traditional approaches are simply not adequate. This is why up to 80% of insurance claims in the industry are attributed to cable faults. So, we need to bring in a solution that will act as a differentiator."*

Cook says the contract win on such a landmark project as Dogger Bank should act as a "catalyst" for ECG™ across the wider sector:

*"We have a world-class EPCI company as our direct customer, in DEME Offshore, and we have two major offshore wind developers and operators in SSE and Equinor adopting this technology as a world first.*

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*"These guys are leading the field in adopting new innovations to get offshore wind where it needs to be regarding lowering costs, helping to reduce CO2 emissions and increasing safety. Dogger Bank stands as a blueprint for the application of new, bold technologies that will essentially drive this segment forwards."*

For both Proserv colleagues challenging established thinking and offering disruptive new methods can face some initial hesitancy but Stuart Harvey observes that "attitudes are changing and a more open, agnostic approach is building around data access and technology."

Paul Cook believes such philosophies are vital, "It's easy to say, 'we've done it like this before, so we'll do it like that again because we know what to expect' but that stifles innovation and stifles progress."



Paul Cook, Business Development Director - Renewables, Proserv Controls

