

# INTRODUCING THE CABLE GUYS

Proserv's Callum Maxwell and Jeff Williamson talk offshore wind technologies and cable management strategies.

Offshore wind hit some choppy waters in 2023 with inflation and supply chain constraints cooling the engines of an industry that nevertheless needs to make some serious strides in the coming five or six years so that emissions reduction targets and a net zero future become increasingly attainable.

Big ticket leasing rounds are still fresh in the memory and industry analysts have forecast that global capital expenditure on offshore wind should more than double by 2030 as the UK and Europe seek to bring significant capacity on-stream.

Proserv positioned itself within this expected acceleration several years ago when its much-acclaimed holistic subsea cable monitoring system, ECG™, developed alongside technology partners Synaptec and BPP Cable Solutions, was rolled out. Its immediate successful contract win on the vast Dogger Bank Wind Farm has filled these pages before, alongside its deployment on Equinor's Hywind Scotland floating wind farm.

Considering Proserv's decades-long reputation in the subsea segment, broadening its end use application into offshore wind was a natural evolution. Callum Maxwell and Jeff Williamson are at the sharp end of its mission to push the methodology, value proposition and pick-up of



ECG™, with Maxwell based in central Scotland and Williamson in North Carolina, primed for US east and west coast openings.

Until the wider reality check of last year, Proserv was among a few lone voices warning that offshore wind faced hurdles before its growth could genuinely snowball. Port expansion, new designs for installation vessels, power grid upgrades – and of course cable failures.

## Reliability is paramount

Up to 80% of all insurance claims in offshore wind relate to cable failures – their repair costs millions to fix, with multiple weeks or months out of action. Last autumn, Neil Gordon, the CEO of trade body Global Underwater Hub, went public with a warning that subsea cable reliability was “paramount” to offshore wind's future success.

But just how severe an issue can cables pose?

Maxwell immediately points to the bigger picture: “Cable and termination faults and failures are a recurring problem for wind farms. We talk to numerous operators who have suffered them. And the stats are out there as to what the average costs can be – for instance,

an export cable failure will cost eight figures to fix and will take months to sort out.

“But beyond that, as new assets roll out and if these pain points continue, wider trust in offshore wind as a secure and reliable source of power will be undermined. That could impact investment, slow the transition and jeopardise net zero targets.”

It seems almost counter-intuitive that such an evolving industry as offshore wind, with a palette of monitoring technologies at its disposal, isn't picking up these impending problems early. Williamson paints a realistic picture.

“Control rooms may be increasingly futuristic places, with lots of screens monitoring many different metrics, but if an asset's cables aren't adequately integrated within that, then there's obviously a blind spot. At Proserv, we are believers in capturing live data and scrutinising it. Sensors contextualise what is going on – they might tell you nothing is wrong, and all is fine, but that in itself is just as insightful.”

Maxwell and Williamson explain that the holistic monitoring offered by ECG™ delivers “peace of mind” so that if a fault occurs then there are multiple reference points that can be explored to enable a proactive and informed response. Maxwell adds:



Callum Maxwell (left) and Jeff Williamson (right) with colleague Tom Simpson at an industry event in the US

But despite the clear power of the argument, people can be creatures of habit and pushing into new methodologies requires creative thinking. Jeff Williamson describes the challenge.

“How do you quantify the true value of having a system like ECG™ where we talk about improving productivity and availability? It's difficult to put a dollar figure on how much you can improve something. Some customers, who by sheer luck, haven't encountered a cable failure as yet are more casual about the need for a more dynamic monitoring system – but those who have endured issues are very keen to learn about technologies they can integrate to stop them happening again. That is a real lever.”

“Knowledge is power. That is what ECG™ delivers in a nutshell.”

“But what if there's no indication of a change in temperature yet something's happened? Then what? The operator may need to hunt through the data in the SCADA system, some of which might only be recorded every 60 seconds and unpick that. This is far from ideal, and all the while time equals money.”

ECG™ not only delivers DTS sensing but distributed acoustic sensing (DAS) and, uniquely, Synaptec's distributed electromechanical sensing (DES), via its passive electrical and mechanical sensor systems. The hardware is complemented by the intuitive human-machine interface, utilising Proserv's TIACS software suite. Critically, Proserv's ECG™ can also monitor the condition and performance of cable terminations, a notorious place for faults to occur.

## Knowledge is power

Maxwell puts forward the elevator pitch on why ECG™ is so essential for wind farm owners.

“Knowledge is power. That is what ECG™ delivers in a nutshell. For instance, it can flag up that a problem has emerged in a termination and right away an operator's analysis has been accelerated. It knows where the issue exists, and it can then decide if and how it needs to act.

“A genuine risk for asset owners who are flailing in the dark without the full data is that as every week passes, and revenue is lost, the pressure mounts to re-energise and get the turbine back on-stream. Thinking a fault has been rectified, only for it to reappear, would be a nightmare and then the costs begin to haemorrhage.”

Williamson stresses how impactful the joined-up insights from ECG™ can be:

“Asset owners are dictated to in their decision-making, and operational strategy, by what options they have available at the end of their fingertips. With ECG™ they can choose to manage a problem due to the live visibility on cable condition and integrity. It might be that it doesn't need to be sorted for months or could be dealt with at the next scheduled maintenance trip. ECG™ gives you the what and the when.”



Jeff Williamson

“If operators don't have systems like ECG™ analysing various metrics, then they are just waiting on triggers, like an alert saying that a turbine isn't performing within its regular parameters. Then what do they do? They don't have enough information to hand and they are partly in the dark. Their only recourse might be to take that turbine offline while they carry out manual root cause analysis.”

He reveals that taking an average 10MW turbine out of operation can cost well over £30,000 a week in lost revenue, even if operating at 50% of capacity. This soon adds up to a significant sum as the operator scrambles to find out what has occurred and tries to remedy it.

Williamson suggests that some operators resort to binary decisions around monitoring their subsea cables via one single data point.

“In times of inflated costs, it can be tempting for operators to try and save OPEX by resorting to a basic distributed temperature sensing (DTS) solution. If an issue arises, and it will sooner or later, then they are pretty much faced with the diagnostic assessment of ‘is it hot or not?’

