Next-generation CTVs: enhanced designs for enhanced operations

2 November 2020 • 09:00-09:45 GMT

Part of
Offshore Wind
Webinar Week

2-6 November 2020

Offshore Wind Journal

riviera

Webinar Q&A summary:

KF | Kerrie Forster, The Workboat Association

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Would wind sail propulsion be considered for new-generation CTVs in connection to electric ones?

KF | This would depend on the weight and size of the equipment, this equipment is generally not too advantageous to hig- speed vessels.

Do they utilise DP to remain on station at the turbines, and if so, how does this work with the jets?

KF | No. CTVs remain on station at WTGs by thrust alone and not by DP. Though there is no reason a DP system could not be configured to run with jet propulsion (it is not the norm).

We all know the increased weight of batteries and motors will reduce efficiency, how much do think the hull length will have to increase to compensate?

KF | This would be depend on the tonnes per centimetre of the hull form.

What about the impact on biodiversity? (mainly regarding underwater radiated noise)

KF | I haven't yet seen research on this for CTVs or small high-speed vessels, it isnt a factor (yet) during vessel procurement.

What is the purpose of 45 knots? A CTV spends almost 70% of it time at less than 5 knots

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KF | This was a specific client requirement.

I'm missing some kind of new concepts on the actual crew transfers. I always like to keep things simple. Based on Kerrie input on locations of windfarms, I just thought on a larger mothership as a transfer station (Hub) from which in short runs crew and c

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KF | Yes this is very common, for example the Gemini construction project in 2016 had CTVs staying offshore for 28 days without the need to return to port.

Savings of approx 30% can be achieved using super capacitors on starting circuits for cranes' hydraulic power units. Would super capacitors be an option?

KF | It depends on the necessary discharge rate and power, plus the marinisation of the capacitor itself. Electrical components at sea are often under extreme risk from moisture etc. Most super capacitors currently available are not designed to cope with this, in fact they are generally externally based to increase natural thermal control.

Have you considered other propulsion technologies (waterjets seems to be the only one from your presentations)?

KF | That was purely coincidence.

An observation rather than a question - There seems to be a lot of interest in hybrid technology by the CTV owners/operators until the point that the extra capex becomes obvious. Owners want a more complex efficient vessel at the same capex to the simple

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KF | This is correct, the supply from end-user to equipment manufacturers needs to align with its operational and financial expectations in order to progress.

Correct you have SOVs. But these are typically operating for one windfarm owner. I'm considering one independent transfer station, enabling support in a certain area to multiple windfarms. Creating a 'shared' industry and transferring crew and cargo from

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KF | This is a valid concept, though there have been large issues regarding this in the past caused by who has priority of the services supplied. It may be a valid business case though.

With battery technology developing rapidly, do the panel see this as a barrier to investment? Nobody wants to spend millions on a product that will be outdated very quickly.

KF | True and without current battery technologies getting invested in, they also won't develop very rapidly in the correct direction, investment links directly to evolution.

Within Asia cost is still a major driving factor. Considering this, with all the options being shown, with immature/weaker supply chain potentially not being able to keep these more sophisticated vessels operable, what timescale do you see for these vesse

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KF | Many of the vessels coming to the North Sea have at some point of their build had a large influence (if not completely built) in Asia, there should be no time delay compared to the European market.

25 m-30 m 24 pasenger seems to be the standard format for CTVs today. Do you see the market needing completely different format CTVs in the near future? Or will SATV or other larger CTVs stay an exception ?

KF | It depends on the regulatory evolution, industry also plays a large part in the update and creation of regulations. If the industry believes this is a point worth investigating, the regulatory changes necessary to allow for such vessels in the North Sea (for example) could also be researched.

It seems we are looking at a Toyota Prius solution rather than disruptive such as Rivian, Workhorse Group or even Tesla?

KF | Agree.

What limit do you see for CTV operations in term of significant wave height or distance from shore? A what point should an operator shift to a different transport and transfer solution and what are the drivers to this choice ?

KF | This is a two-sided consideration. a) The regulatory allowances b) The project expectations. If a project needs boats further offshore and in larger wave heights, the industry will react to find a way within the regulations to make it happen. Is this efficient or safe? That is a case-by-case 'ALARP' calculation (including cost!).

The elephant in the room has yet to be fully addressed.. and that is seakeeping....what speed, what acg and what Hs?

KF | As above.

CTV operators would maybe benefit from a CFD before building a new vessel?

KF | Yes agreed, they would also benefit from seeing the CTVs before they charter them, sadly this is not always the case. The vessel is chartered and then the inspection is performed and it is left to both the charterer and owner to agree how to move forward before the operation starts. The contracting of small vessels is by complacency extremely backward and could do with a large refresh.

Do you see a shift in the market from short-term CTV chartering towards longer charter contracts dedicating one or several CTVs to one windfarm ?

KF | Not really, many contracts for CTVs are running on 'evergreen' philosophies where the original agreement continues rolling with a contracted termination period agreed.

If developers insist on LEV CTVs etc do you see an industry compensation scheme for operators who have invested heavily on the diesel CTVs and such like ?

KF | Not all ports/projects will be able to support LEV, this will be the by-product saviour for those who fall into this category.

Some windfarms let vessels use turbines to tie off. This lets vessels shutdown all propulsion for up to 8 hours a day.

KF | Buoys are also used, but windfarm operators don't like both of these options because it costs money to rent a buoy and lay it, or to repair the paint the rope has worn off of the turbine etc. Sometimes the balance of cost versus emissions is not correctly perceived. (The vessel operator gets more costs to repair and maintain their engines but why is that the windfarm owners concern?).

If UBER can use EV charging in lamposts, could CTV's be charged from EV charging points in each turbine tower?

KF | Yes, this is being looked into with options such as charging buoys and offshore recharging stations.