The path to decarbonisation

HONG KONG BRANCH

Members of the Hong Kong branch were treated to an excellent presentation on 'Decarbonisation: Available Options and Carbon Capture' at the March meeting. Our presenter was Hare Ram Sah, General Manager of Venture Marine Services Ltd., a Wah Kwong Group Company.

Hare Ram began by showing some short videos which explained the latest thinking about global warming and why it matters. He stated that decarbonisation is unavoidable; we will all have to comply with greenhouse gas (GHG) emission reduction regulations in order to save the planet and protect future generations. The IMO is calling for at least 20% reduction in GHG emissions by 2030 (striving for 30%) and net zero emissions by 2050, but how do we achieve this?

Scrapping older vessels would be an obvious starting point, but is simply not practical, so owners need to consider interim measures to reduce emissions, including short term upgrades. Modern low friction hull coatings, voyage and port call optimisation, improved propulsion efficiency, Energy Saving Devices (ESD), shaft generators, rotor sails and air lubrication were all discussed, along with their manufacturers' claims of their effect on emissions. In Wah Kwong's experience, manufacturers tend to declare the ideal case scenario, which is normally higher than actual results in service.

It is not advisable to fit all the options to a single vessel, so owners will have to choose perhaps four or five of the most effective and suitable options for each vessel. In Hare Ram's experience, this is likely to reduce emissions by 20 to 30% (taking voyage optimisation in consideration). It will be commercially viable, since the cost of fitting could be cheaper than paying carbon taxes.

Alternative fuels are receiving a lot of attention, but the only permanent solution will be zero-emission fuels. At the moment, 99% of vessels are still burning conventional fuel, because alternatives are expensive, not yet widely available, and most of them require more storage space than traditional fuels. As to which of the new fuels is preferable, Hare Ram predicts a multi-fuel approach for the foreseeable future.

The final potential interim measure is carbon capture, which can be undertaken either pre-combustion or post-combustion. Post-combustion capture requires a scrubber (which many ships already have), plus CO_2 absorption tower, a liquefaction unit and CO_2 storage tanks. The technology to do this already exists, but it will not be possible to capture all carbon emissions because CO_2 takes up much more space than the fuel from which it is derived. It might be a realistic target for most ships to capture about 20%-30%, which might be enough to keep older ships in service until sufficient green fuel is available. It must also be recognised that, at the moment, there are not enough reception facilities for captured carbon.

It seems most owners will keep their existing ships going as best they can until the way ahead is clearer, but this probably means there will be a shipbuilding boom at some point in the future. It remains to be seen whether shipyard capacity will be sufficient. In the meantime, carbon capture is a viable option.

The talk was followed by a lengthy Q&A session, including a discussion about whether the Pearl River Delta area should offer captured carbon reception facilities, including eventual disposal in disused oil wells in northern China. Our speaker reminded us that CO_2 can be used to produce methanol, calcium carbonate, bricks and some other useful items, so it may be that not all of it needs to be injected into disused oil wells.

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