



A creditable approach

The IMO's 2050 GHG reduction targets have set shipping on a path towards decarbonisation. **Mike Newman** of Parhelion Underwriting Inc. looks at the current emissions reduction options in play, and explains how insurance can be used to mitigate the risks associated with environmental cap and trade strategies

2018 saw the shipping industry take its first steps towards addressing the challenge of climate change when, at its 72nd session in April, the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC) adopted an initial strategy to reduce greenhouse gas (GHG) emissions from shipping by at least 50% by 2050. The United Nations body charged with regulating shipping on the high seas adopted its first-ever strategy to blunt the sector's large contribution to climate change — bringing another major constituency on board in the international quest to cap the planet's warming well below an increase of 2° Celsius (3.6° Fahrenheit).

The international shipping industry emitted an estimated 812 million tonnes of carbon dioxide (CO₂) in 2015 — nearly 2.3% of the global total — and the industry's emissions

are projected to double by the middle of this century. Yet, along with the aviation sector, GHG emissions of the shipping sector are not covered under the Paris climate agreement and thus not addressed in the nationally-determined contributions of countries.

Ironically, the matter is made more urgent by the decision of the IMO to reduce the amount of sulphur allowed in bunker fuel from 3.50% to 0.50% by 2020. Sulphur is nasty stuff. When burned, it forms sulphates, which cause acid rain and pollute the air. The trouble is that sulphates also scatter sunlight and help to form and thicken clouds, which reflect solar radiation away from Earth. As a result, shipping is thought to reduce rather than increase man-made global warming. But unlike desulphurisation, which is both imminent and legally binding, the CO₂ target looks fuzzy: the IMO's April 2018 resolution set

targets for emissions reductions and lay the groundwork for future regulations but won't finalise the regulatory framework until 2023.

It is still early days in the process and progress will not come without its challenges but, as is of-ten the case, the challenges come with opportunities.

Let's start with the fuel that powers the maritime industry — bunker fuel (heavy oil that is so dirty that on land it's classified as hazardous waste) releases a lot of CO₂. It is also expensive and a big concern to shipowners in a sector with tight margins. Fuel costs have risen from a third of their spending a decade ago to half or more now — and are expected to rise further. Low sulphur bunker fuel, of the sort needed to meet the new IMO regulation, is expected to cost upwards of \$600 a tonne when its use becomes compulsory.

Fortunately, there are plenty of ways for

the industry to increase fuel efficiency, from simple changes like optimising routes and reducing speed, to technological ones such as wind-assist systems and performance management software that monitors data from sensors and from records of a ship's past voyages and adds in weather reports.

Another way to cut fuel consumption is to reduce drag by redesigning hulls and propellers and by smoothing hulls by stopping barnacles and other creatures growing on them. A drag-reducing technique on offer is air lubrication. Carbon efficiency can also be improved by looking at the total transport chain. Waiting time at anchorage outside ports is one element which increases the total CO₂ emission from ships and the industry is working on finding ways to eliminate this waiting time.

For shipping to decarbonise, current fuel oils would have to be replaced by alternatives and here again there are several options, such as biofuels or powering ocean-going vessels using fuel-cells that generate electricity by reacting hydrogen and oxygen together. A hybrid solution could be to switch to low carbon fuel systems such as diesel-electric propulsion.

Liquefied natural gas (LNG) is another option. Burning LNG releases about a quarter less CO₂ than burning oil-based bunker fuel. Nuclear propulsion also has its supporters. This releases no CO₂, and shipboard reactors are an established technology. Some 140 icebreakers, warships and submarines are so propelled. A nuclear-powered fleet, capable of terrific speed, could move more goods with fewer vessels.

Enthusiasm for the emission reduction goals, though, is uneven. The European Union and small island states are pushing for more aggressive action on GHG reduction but many developing countries fear that stricter rules will drive up the cost of shipping, harming their economies, and an attempt to begin reconciling the differing views at a meeting of IMO member states in London in October 2018, foundered. On the positive side, at the United Nations climate summit in Poland last December, as world leaders called on each other to pledge more ambitious climate action, the Danish shipping giant A.P. Moller-Maersk took the opportunity to announce its own climate target: net-zero emissions by 2050.

The IMO's current plan is referred to as an 'Initial Strategy'. From here, the organisation is expected to move ahead with regulations for global shipping that will gradually require these carbon-saving changes to the industry. Those could include mandatory energy efficiency requirements, speed limits or other measures. The IMO is expected to start

developing legally binding measures, which could include increases to ships' technical and operational efficiency, a low and zero-carbon fuels implementation programme, national action plans and market-based measures. These would be in addition to existing measures on energy efficiency (EEDI and SEEMP). When the time comes, the IMO could accelerate that transition further with phase-out rules like the ones that required tanker ships to switch from single hulls to double hulls, which went into effect in 2001 to help prevent catastrophic oil and chemical spills.

The strategy lists market-based measures as one of the measures in the long term - an emissions trading scheme in which shipping companies could purchase emission allowances from other companies across flags or even from other industries - in the same way that carbon credits are currently traded in several successful markets.

'The best climate policy – environmentally and economically – limits emissions and puts a price on them. Cap and trade is one way to do both'

The best climate policy – environmentally and economically – limits emissions and puts a price on them. Cap and trade is one way to do both. It's a system designed to reduce pollution in our atmosphere. The cap on greenhouse gas emissions that drive global warming is a firm limit on pollution. The cap gets stricter over time. The trade part is a market for companies to buy and sell allowances that let them emit only a certain amount, as supply and demand set the price. Trading gives companies a strong incentive to save money by cutting emissions in the most cost-effective ways. Companies that cut their pollution faster can sell allowances to companies that pollute more, or 'bank' them for future use. This market – the 'trade' part of cap and trade – gives companies flexibility. It increases the pool of available capital to make reductions, encourages companies to cut pollution faster and rewards innovation

In the European Union's Emissions Trading System, capped emissions from stationary structures were 26% lower in 2016 than when the program started in 2005. In the United States, California's climate policies have led to a steady decline of the state's CO₂ pollution. The centrepiece is the cap-and-trade program and California's emissions from sources subject to the cap declined 8.8% between the program's launch in 2013 and 2016. Meanwhile, the state's economy is thriving. Cap and trade makes even deeper cuts possible when countries cooperate, such as the United States and Canada. California and Quebec connected their systems in 2014, building a strong market that shows great potential.

Trading in the climate finance market – the systems designed to reduce greenhouse gas emissions – sometimes create areas of uncertainty. The risk of invalidation of credits worries market participants – but insurance risk capital can be used to mitigate these concerns and in fact already works successfully in several markets. One example of this is in the California Cap-and-Trade program where 'buyer liability' has created a price differential between carbon offsets depending on the level of risk associated with them. By removing this risk from both offset buyers (typically refineries and utilities) and sellers (project developers), insurance adds certainty and therefore liquidity to the market because it's a guarantee with investment-grade A+ security.

Risks often act as barriers to investment in innovative changes in commerce. Shipping and insurance have a long history of partnership and it takes the huge pool of global insurance and reinsurance capital that has traditionally taken the risks that other forms of capital (debt and equity) can't or won't take, to ensure liquidity in new markets and to finance the risks in the future of the maritime industry.

 Mike Newman is a Director of Parhelion Underwriting Inc, a risk finance company specialising in risks impacting investment in climate finance markets and clean energy.

 United States
Email: Mike.Newman@parhelionunderwriting.com
Tel: +1 323 459 5346

United Kingdom
Email: Julian.Richardson@parhelionunderwriting.com
Tel: +44 780 393 3074