

# Set the record straight

As the cruise industry steps up its efforts to improve its environmental record and reduce CO<sub>2</sub> emissions, Andrea Ashfield talks to **Don Gregory**, director, environment and sustainability at BP Marine, about the challenges of tackling pollution and the need for unified action.

**T**he aviation and car manufacturing industries have come under fire in recent years for their heavy carbon footprint, a fate the cruise and shipping sector has largely escaped.

Yet evidence suggests the cruise industry's environmental record is far from squeaky clean.

In January 2008, reports stated that a cruise ship emits around 400g of CO<sub>2</sub> for each passenger for a fully-loaded ship: three times more, per passenger volume, than for aircraft and passenger ferries.

Around the same time, a UN report claimed that the true scale of climate change emissions from shipping – at 1.12 billion tonnes of CO<sub>2</sub>, or nearly 4.5% of global emissions of the main greenhouse gases – is three times higher than believed.

The data originated from the contents of a draft report produced by a group of international scientists who used statistics collected from the oil and shipping industries for the International Maritime Organisation (IMO), the UN's specialised agency responsible for improving maritime safety and preventing pollution from ships.

In response, Mark Brown, director-general of the Chamber of Shipping, stressed that modern ships can emit as little as 5g of CO<sub>2</sub> per tonne-kilometre, compared to about 50g for a heavy truck or 540g for modern aircraft.

He also argued that ships are getting bigger and becoming more efficient; a modern container ship typically emits a quarter less CO<sub>2</sub> than a similar vessel in the 1970s.

The IMO also points out the industry's role in increasing fuel efficiency and reducing harmful emissions. New propulsion systems, improved hull designs and more efficient engines have all played their part.

## Engaging with emissions

BP Marine is one company working to tackle green house gas emissions. The company, which operates in 300 ports globally, supplies customers with fuels, lubricants and other services.

Don Gregory, director of environment and sustainability, says BP Marine has been at the forefront of the green agenda since 2000, when the company first discussed selling diesel fuel to ships.



'My recommendation was that we could produce residual fuel, a thick, tar-like substance at the bottom of crude oil which has good energy content,' Gregory explains.

Gregory was a driving force behind the launch of Shipping Emissions Abatement and Trading (SEaAT) in 2002, a self-funded, cross-industry group with the mission of encouraging and facilitating the reduction of harmful emissions from shipping. In addition to BP, members include Stena Line, P&O and the Norwegian Shipowners' Association.

One of SEaAT's major areas of focus has been the establishment of an international emissions trading system for the shipping industry; a market-based scheme for environmental improvement allowing parties to buy and sell permits for emissions or credits for reductions.

In theory, emissions trading on either a regional or international basis would allow goals to be met in a cost-effective way, while letting the market determine the cost

of pollution control opportunities.

Several emissions trading schemes have been operating since the establishment of the Acid Rain Programme in 1995, such as the US NOx Trading Programme, the UK ETS and the EU Emissions Trading Scheme (EU ETS) in 2005.

However, the system has been plagued with problems. The first phase of a European-wide Emissions Trading Scheme (which excluded shipping) from 2005-2007 did not meet with success: an over-supply of permits led to the price crashing to €0.1 in September 2007. The second phase began in 2008, though early signs suggest that a similar situation may again be encountered.

Meanwhile, the shipping industry is still being met with accusations of heel-dragging. In 2007, João Vieira, policy officer at Brussels-based sustainable transport group Transport and Environment, criticised the IMO for 'failing to act with the urgency needed to tackle the massive and fast-growing

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environmental impact of shipping.'

Gregory admits that the regulators, and the IMO have been 'suspicious' of emissions trading, though he cites the lack of traceable data as a barrier to collecting accurate pollution figures. 'The shipping industry is not taxed and by and large does not carry with it much record keeping,' he says. 'So to establish how much fuel is being traded in Rotterdam or Singapore is difficult.'

Another problem, according to Gregory, is the index approach used by the industry to evaluate ship efficiency. Instead, he is in favour of a dedicated CO2 emissions trading scheme.

'The efficiency indexes have limited value for the shipping industry. They help people make decisions on which ships to buy but the industry needs its own trading scheme. This would mean, given the absence of technology to replace diesel engines, that the industry will have to achieve its targets by investing in technology such as liquid fuels on shore,' he says.

By 2010, the sulphur emission control areas of the Baltic and North Sea will be subject to a cap of 1.00% sulphur, a figure likely to decrease incrementally until 2020. Gregory says the industry's challenge is to come up with ways of meeting this target. One likely option is the widespread implementation of scrubbing technology.

### Scrub up

In May 2007, P&O's *Pride of Kent*, the world's first cruise ship to feature a seawater exhaust scrubber, set sail from Vancouver for Alaska.

The scrubber unit was developed by environmental control solutions company Krystallon, a joint venture between BP Marine and Kittiwake (see box, left) established to develop pollution abatement methodologies.

Krystallon underpins the environmental agenda of BP Marine, with the aim of providing cleaner fuels and environmental solutions for energy management within

the industry. Initial design work has developed exhaust gas cleaning systems for larger marine engines.

According to BP, the Krystallon system will virtually eliminate sulphur dioxide, cut particulate matter by 80% and partially reduce nitrogen oxides. The system also meets EU requirements for 0.1% sulphur fuel for all vessels at berth in the EU from January 2010.

Scrubbing is also being promoted as a far cheaper option, should the IMO put forward a distillate-based solution: scrubbing technology enables the use of high-sulphur residual fuel and gives a cleaner emissions signature.

It is widely expected that, from 2010, future legislation will cover both particulate matter and NOx emissions. Krystallon is keen to stress that while compliance may be attainable by using lower-sulphur fuel, including distillates, this may not be the case.

Gregory explains Krystallon has been working hard to prompt a change in traditional behaviour.

'Through Krystallon, we have been trying to get people to think in other ways by providing information and investment into new technology,' he says. 'We have also been investigating which other fuels may help mitigate our CO2 footprint, such as raw bio-oils.

'We are also looking at waste. Municipal waste can sometimes be converted into a marine fuel. In both cases it's about supplementing existing fuel with sustainable fuel, thereby reducing CO2.'

Gregory points out, however, that biofuels are expensive due to its limited supply. 'Until there is carbon trading in the shipping industry, with a value set on carbon, biofuels are not as yet commercial viable,' he says.

Individual ship and engine owners are doing their bit to research new technology and invest in a more sustainable future, he adds.

It is fair to say, however, that in such a large, disparate industry, progress is not moving at a rate of knots. **wc**

### Cleaner and greener

Krystallon is a joint venture between BP Marine and founding partner Kittiwake. Its focus is to provide environmental control solutions to the marine industry, marketed through BP Marine. Initial design work has developed exhaust gas cleaning systems for large marine engines. This activity underpins the environmental agenda of BP Marine in providing both cleaner fuels and environmental solutions for energy management within the shipping industry.

According to BP, the Krystallon system will virtually eliminate sulphur dioxide, cut particulate matter by 80% and partially reduce nitrogen oxides. The system also meets EU requirements for 0.1% sulphur fuel for all vessels at berth in the EU from January 2010.

Estimates on the shipping industry's CO2 emissions vary. Recent press reports, based on UN findings, said annual emissions from the world's merchant fleet have reached 1.12 billion tonnes of CO2, or nearly 4.5% of all global emissions of the main greenhouse gases. But the 2006 Stern Report said the industry contributes only 1.4% of CO2 emissions.

Earlier this year, a UN report claimed that the true scale of climate change emissions from shipping – at 1.12 billion tonnes of CO2, or nearly 4.5% of global emissions of the main greenhouse gases – is three times higher than believed. But the Chamber of Shipping says modern ships can emit as little as 5g of CO2 per tonne-kilometre, compared to 540g for a modern aircraft. It is also true that ships are getting bigger and more efficient; and new technologies such as scrubbing are improving the industry's sustainability record.