

# A dirty-bird approach to fuel is doomed



By Andrew Lansdale  
Markets Editor

What's for the birds is the blinkered attitude of trying to clean up pollution from existing nasty fuels only, which will not fly in the long run. But what will?

**T**here are two apparent solutions for buttressing Annex VI of MARPOL. The aim is, of course, to reduce air pollution. MARPOL already covers oxides of nitrogen (NOx), the discharge of which affects ozone, and tries to reduce sulphur oxides (SOx), which are among the causes of acid rain.

One of the other targets is hydrocarbon rubbish such as gas, particulate matter (which affects breathable air quality) and soot. Volatile organic compounds (VOCs) are also covered and contain carcinogens.

Specifications of refrigerant gases are carefully dealt with; the wrong type of gas, such as CFCs and HCFCs, knock huge holes in the ozone layer.

Study groups have been looking at new ways to reduce the impact of ship exhausts on the environment. The target is to further reduce NOx and SOx emissions. It is suggested that this can be achieved by introducing more sulphur emission control areas (SECAs) and further reduce the sulphur limits within these areas to 1% or even 0.5% sulphur.

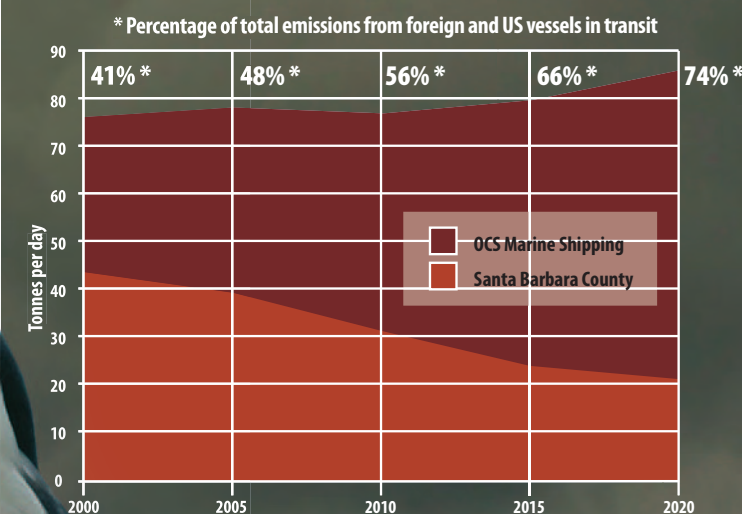
It is also suggested that NOx emis-

sions be limited on existing engines and that NOx-controlled areas (NECAs) be established. It is proposed that there be further restrictions on the exhausting of particulate matter to atmosphere and a further control on VOC emissions from cargo tanks.

Organisations such as Intertanko realise that exhaust gases depend on engine type, the settings of that engine and the type of fuel burned. It especially feels that the type and quality of the fuel is the key to control all atmospheric emissions from ship funnels.

Other so-called experts have recom-

## Santa Barbara County NOx emissions



**Why this industry is under pressure Santa Barbara County expects ships to cause most of its pollution**

mended that ways and means are found to deal with existing fuels. Every year, 250M tonnes of heavy residual fuels are burnt in ship machinery.

But instead of taking in the big picture, authorities are looking only at trying to deal with cleaning up pollution involving these existing nasty fuels (see Newswatch, p10).

They confuse the issue by talking about a holistic approach but are only really interested in considering cleaner ways of maintaining the *status quo*.

Intertanko's proposal is to remove the cause of most of the pollution as a start-



# BUNKERING



Photo: Dietmar Hasenpusch

## Blowing smoke in Hamburg

ing point. In other words, abandon residual fuels and instead use distillate fuels (such as diesel).

Many say that oil refiners will not be able to cope with the demand, but they are not talking about an introduction tomorrow or next month. They are proposing an introduction of 1% sulphur fuel in 2010, reducing to 0.5% in 2015.

This reduction in sulphur levels means that the sulphur extraction takes place at the refinery, rather than having



Photo: Dietmar Hasenpusch

## Hong Kong's harbour: remove most of the pollution as a starting point?

a system that removes it after combustion by means of some sort of scrubber.

The use of distillate fuels has other advantages. Apart from SOx reductions, there is a reduction in particulate matter of more than 90%. NOx emissions will be reduced by 15% on all vessels.

It will be less complicated to comply with Tier II NOx reduction through the engine management system.

Bunker consumption will be reduced by close to 5% by weight, thus reducing CO<sub>2</sub> output.

In addition, oil treatment plants on board ships will become redundant. The temptation of magic pipes leading overboard to rid a ship of waste unwanted ashore will become moot; ship-generated waste will be cut by nearly 80%.

Then there is the question of Inert Gas Systems (IGS). The scrubbers used to clean up the exhaust gas before use in the cargo tanks and ballast spaces will not be required.

Cable & Wireless, the subsea telecommunication cable installing, maintaining and repair group, never burnt residual fuels. It always stuck to marine diesel.

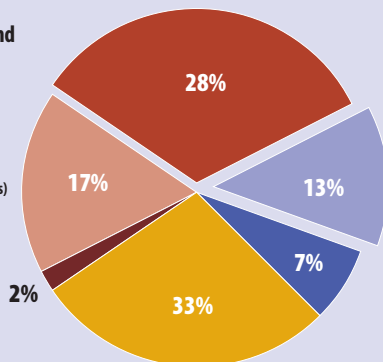
One of the reasons was that the group wanted its vessels to have the flexibility to be able to operate at slow speeds for

## Total ozone precursor emissions comparison

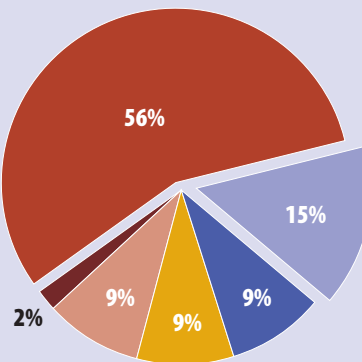
Data from the 2004 Clean Air Plan - NOx + ROC - Onshore and Outer continental Shelf (OCS)

- OCS Marine Shipping
- OCS Other Sources (Excluding Ships)
- Stationary Sources
- Area-Wide Sources
- On-Road Motor Vehicles
- Other Mobile Sources

Year 2000 – 122 tonnes per day



Year 2020 – 120 tonnes per day



Sources: www.shipapi.org



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**Shanghai and the Yangtze River Delta in East China: the largest cargo port in the world, as of 2005, makes it abundantly clear – or not – why the pollution issue is remaining on the front burner for the international maritime sector**

long periods. A hidden advantage to that was a huge reduction in maintenance costs for main engines and auxiliaries.

The successors to Cable & Wireless aim for a similar policy. For existing oil burners, there is no physical change to be made by burning MDO. It is really a case of cleaning up the existing bunker tanks, pipes and pumps.

But what is the alternative? Scrubbers are coming into focus. It is reported Vardinyannis is considering building a new series of ships, all fitted with exhaust scrubbers as original equipment. This represents a saving of 30% over retrofitting costs of about \$2.5M for a 15MW main engine, the price quoted by Krystallon.



Photo: Oleg Kolobov

The cost of fitting scrubbers to auxiliaries is \$1.2M, with a lead time of 4-6 months. Krystallon claims that all nasties are removed from the exhaust gas and watered down so its discharge into the sea causes no environmental damage.

Other more harmful particles are separated off into the oily waste sludge tank. The company particularly points to particulate material, metals, oil and soot.

Two questions raised by this system

become apparent. The first one is conceptual in nature: why transfer the separation of waste from a shore establishment to a waterborne one and dump some of the results into the sea?

The second issue involves the quality of oily waste. Krystallon describes this as non-hazardous waste, but this depends on the quality of the bunkers used. Perhaps in the samples of bunker fuel used in its tests, the waste was


non-hazardous.

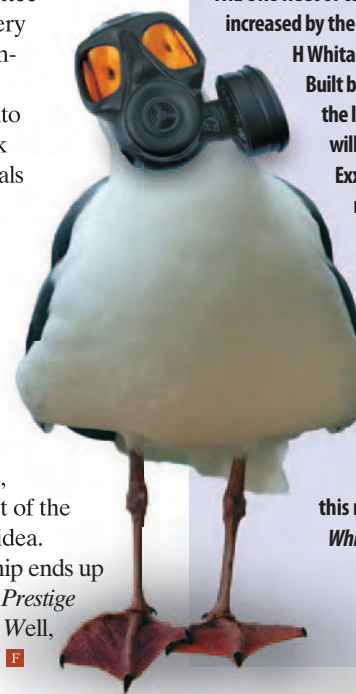
But there is no guarantee that the fuel used by every vessel is similar in its constituent parts.

The matter dumped into the oily waste sludge tank might contain heavy metals and Polycyclic Aromatic Hydrocarbons.

The latter are largely caused by incomplete combustion in the fuel; some are known to be carcinogenic.

This retains some fairly dangerous elements on board the ship, to the possible detriment of the crew, surely not a good idea.

And suppose such a ship ends up like *Erika*, *MSC Napoli*, *Prestige* and *Safmarine Agulhas*? Well, that list can run and run. 



## UK's bunkering fleet increased

THE UK's fleet of coastal bunkering tankers was recently increased by the delivery of the 6,200dwt *Whitonia* to John H Whitaker, the Southampton group.

Built by Dubai Drydocks, *Whitonia* has become the largest bunkering tanker in the UK. It will be operating out of Southampton with ExxonMobil Marine Fuels as the supplier of the marine bunker fuel.

As Southampton has now become Europe's largest cruise port. Some of the world's largest cruise ships regularly call, including vessels of such operators as Cunard, P&O and RCCL.

The growth in this market, plus the need for Whitaker to introduce double-hull bunkering tankers, underpin the company's investment in this new vessel.


*Whitonia* is the first of two new ships arriving this year at the company.

The second vessel is a 1,400dwt tanker due for commissioning

towards the end of 2007 from an Indian shipyard. *Whitonia* is the fifth vessel so named in the Whitaker fleet since 1960.

*Whitonia* is registered in the Isle of Man. It is 102m long and 18m in beam, with a laden draught of 6.3m. *Whitonia* has a carrying capacity of 6,214 tonnes in five pairs of tanks.

The vessel is equipped with Bornemann screw-type cargo pumps, which give a rate of up to 1,000 tonnes per hour. Twin Yanmar main engines driving HRP 360-degree Azimuth thrusters and a 450kW tunnel bow thruster provide a service speed of 10 knots and give the ship good manoeuvrability. *Whitonia* carries a crew of 10. Ashley Jenkins, a Whitaker director based in Southampton, tells *Fairplay* that: "We are serving an expanding market with the cruise and container ships in Southampton, as well as the ro-ro and ferry sector along the south coast." From Southampton, Whitaker operates three vessels supplying bunkers to ExxonMobil customers such as Carnival Cruises and Brittany Ferries.

"The need for doubled hulls means that Whitaker is investing new ships such as *Whitonia* and another 1,400dwt ship building in India for delivery later this year," Jenkins says. Whitaker operates a national bunkering service from its headquarters in Hull through a network of offices. 



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