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PRESS RELEASE

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Ecospec launches CSNOx, first-in-the-world "true green" technology for the shipping industry

- *CSNOx effectively reduces ships' harmful emissions of nitrogen oxide, sulphur dioxide, carbon dioxide and particulate matter in a single process system without harming the ocean*
- *Pilot test of CSNOx device on tanker proves a commercial success*
- *CSNOx's low cost and compact design will appeal to shipowners and its effectiveness in eliminating greenhouse gases will appeal to regulators*

SINGAPORE - 16 January 2009 - Ecospec Global Technology Pte Ltd ("Ecospec"), a homegrown research and technology company specialising in advanced water and oil treatment technologies, has developed a new green technology for the shipping industry which it believes will appeal to both shipowners and regulators and in the process, remove pollutants that contribute to global warming and degradation of the ocean environment.

This new device, known as ***CSNOx***, is the first of its kind in the world capable of reducing nitrogen oxide ("NO_x"), sulphur dioxide ("SO_2"), carbon dioxide ("CO_2") and particulate matter ("PM") emitted by ships into the environment in a single process system. Of significance, the scrubbing process carried out by CSNOx is achieved at a net carbon credit gain without any net increase in CO_2 to the atmosphere or acidifying the ocean. There is also no other secondary pollutants discharged into

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the sea. Adding further to its appeal, CSNOx is also highly cost-effective and due to its compact design, may be easily installed on ships.

"This is a major breakthrough for the global shipping industry in general and for Ecospec, a homegrown Singapore company, in particular. Prior to CSNOx, there is no single equipment aboard ships with the capability to remove CO_2, SO_2, NOx and PM at a go, and not generate further CO_2 emissions during the process or acidify the ocean. With the Marine industry going Green, Ecospec is proud to pioneer an all-in-one eco-friendly technology that is set to change the way the industry operates," declares Mr Chew Hwee Hong, Managing Director and founder of the company.

Drawing from its core technology in water and oil treatment in its development, Ecospec has successfully tested CSNOx onboard an ocean-going supertanker, jointly with the **American Bureau of Shipping (ABS),** a leading ship classification society, and a leading tanker shipping company.

Now all three parties in this ***Marine Go Green*** initiative – Ecospec, ABS and one of the world's leading international tanker operators – are ready to showcase CSNOx to the international shipping community.

The results of the test show that the device has 92.9%, 82.2% and 74.4% efficiency for scrubbing SO_2, NOx and CO_2 respectively.

The launch of CSNOx for commercial use is also seen as timely as regulators like IMO (International Maritime Organisation) – which oversees implementation of the law of the sea – and shipowners have been taking steps to tackle pollution problems caused by ocean-going vessels. Indeed, shipping companies' attitudes to caring for the sea have changed by the introduction of international legislations such as the

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International Convention on the Prevention of Marine Pollution from Ships (MARPOL) which was introduced in 1973.

Going forward, there is likely to be increasing pressure on shipowners to clean up their act with the recent introduction of the Carbon Indexing Scheme, among other legislations, for CO_2 management by IMO in 2005. Indeed, countries like the US and EU already have their own control measures which require all ships calling on their ports to comply with strict emissions requirements.

Prior to the development of CSNOx, ships had resorted to using lower-sulphur fuel to reduce SO_2, which is known to cause serious health problems for people. This lower-sulphur fuel not only costs more but in some cases causes engine trouble. Another alternative is to use natural seawater to scrub SO_2 but this method is not effective in scrubbing CO_2 and NOx. In addition, the scrubbed water also acidifies the ocean and, as large quantities of seawater is required for this form of scrubbing, space, which is already scarce aboard ships, is taken up and much energy is utilised to pump the seawater.

With CSNOx, an electrical method is used to convert atmospheric CO_2 into bicarbonates in water, which are discharged back into the ocean, while SO_2 and NOx are converted into sulphate and nitrate which are naturally present in seawater. Particulate matter (PM) after scrubbing is removed and separated as solid waste. The device effectively removes these green house gases and pollutants all in one process and in one single system.

Indeed, in what is believed to be a world's first, CSNOx's solution using seawater actually results in net carbon credit gain as it removes CO_2 without contributing more in the process.

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Besides its compact size, CSNOx is likely to appeal to shipowners as the system costs only a fraction of what is currently available in the market. Typically a container ship with 50 MW power will need to spend between S$5 million and S$10 million for a solution that removes SO_2, other gases and particulate matter.

According to Mr Chew, the market potential for CSNOx is substantial, as the latest Clarkson Report lists the world cargo fleet at about 55,500 ships, while ABS has about 10,600 ships in class.

Mr Chew says at present there is no commercially available CO_2 reduction product for the shipping/marine industry.

"For the shipping/marine industry to succeed in reducing SO_2, NOx, CO_2 and PM, it must be a device or compact plant that is able to reduce all these green house gases and pollutants all in one process. This will meet the most demanding space constraints problem on board ships. The process should also not discharge secondary pollutant into the sea nor acidify the ocean and cause further environmental problems. We believe CSNOx fits the bill," says Mr Chew.

About Ecospec Global Technology

Ecospec is a technology company that develops effective solutions for water, emission, energy related environmental problems for the onshore and marine industries. Established since 2001 with its global headquarters in Singapore, Ecospec is a pioneer and market leader in advanced water and oil treatment technologies, with more than 10 technology patents filed or granted to date. The Group currently has presence in Singapore, China, India, Indonesia, Thailand, the Far East, Europe, Central America and USA.

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Mr James B. Liebertz,
VP Global Marketing,
American Bureau of Shipping (ABS)

From left to right: Mr Chew Hwee Hong (Ecospec), Mr Chua Chee Yong (Ecospec), Mr James B. Liebertz (ABS), Ms Kirsi Tikka (ABS) , Mr Andrew Mak (ABS)

Note - Should you require high-res photos (press conference, products etc), please contact August Consulting team at +65 67338873

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