Air Quality Strategy Case Studies

Kotug Smit Towage

Kotug Smit is one of the main providers of ship towage services on the Thames. It operates a fleet of 5 vessels from its base at the Port of Tilbury.

As part of its commitment to the environment and emissions reduction Kotug operates five hybrid tugs across its European operations. One of our newest, RT *Evolution*, is operating on the Thames. Thanks to her batteries and electric motor systems, this tug is sailing in a highly efficient and eco-friendly way, delivering fuel-savings and optimizing working conditions for the crew and to the surrounding environment without compromising on performance.

The additional flexibility of her propulsion configuration allows the vessel to run the minimum number of diesel engines required at any given time. The use of advanced energy storage also permits extended periods of operation where no diesel engines are required.

Hybrid Technology: clean and simple

- **REDUCED EMISSIONS OF CO2, NOX AND PM**
  With Xeropoint Hybrid technology, diesel engines run at or near best efficiency – and only when needed. Lower fuel usage and cleaner combustion contribute to reducing harmful emissions.

- **IMPROVED FUEL ECONOMY**
  The main engines of tugs are designed for a high output. Because hybrid technology divides the propulsion load between diesel and electrical sources, it means no unnecessary idling of diesel engines. We save 900 litres of fuel per hour of operation with this technology!

- **NOISE REDUCTION**
  For standby or for low power operations, electrical energy storage permits the vessel to be operated in noiseless zero emissions mode, with no diesel engines running.

- **MAINTENANCE SAVINGS**
  Hybrid technology means minimized engine use and more time between engine overhauls and oil and filter changes.

- **HEALTHY WORKPLACE**
  Hybrid technology allows main engines to be shut down during transit. Fast switching from hybrid modes with electrical motors to conventional modes with diesel engines is possible. For low power operations operable on battery power alone.

Upgrading & investing

All the tugs in the Kotug Smit Thames fleet are phased in to run on ultra low sulphur grade fuel by the summer of 2019. The hybrid tug, *RT Evolution*, runs on an ultra-low (0.05%/500ppm) sulphur grade fuel already and is capable of transiting between areas purely on battery power with zero tailpipe emissions. This zero-emission

capability and ultra-manoeuvrability make it an ideal tug for working within the populated areas of the Thames. The use of her main engines is limited to towage operations, when assisting vessels in these areas.

Kotug Smit is also investing and upgrading the control system on *RT Evolution* to further reduce her emissions during charging cycles of the hybrid system. This will in turn further reduce emissions from her generating plant. The reduction will be achieved with planned upgrades to the existing control system software and hardware.

Long term plans for the rest of the fleet based on the Thames, is a continual review of available systems and products that can be adapted to our older more conventional vessels. These along with the ultra-low sulphur policy will see the fleet emission of legislated harmful particulates reduced ahead of the international MARPOL requirements and in line with discussions about clean air strategies with the Port of London Authority.