

## Being green on sulphur: Targets, measures and side-effects - DTU Orbit (09/11/2017)

### Being green on sulphur: Targets, measures and side-effects

Green House Gas (GHG) emissions are not the only emissions of concern to the international transport community. SO<sub>x</sub> emissions are non-GHG emissions that are caused by the presence of sulphur in the fuel. As the maximum percentage of sulphur in automotive and aviation fuels is strictly regulated in most countries around the world, much of the attention in recent years has focused on maritime transport. The attention mainly stems from the fact that in marine fuels the percentage of sulphur can be very high: it can be as high as 4.5 % in Heavy Fuel Oil (HFO), which is the fuel typically used in all deep-sea trades. Even though the amounts of SO<sub>x</sub> produced by ships are substantially lower than CO<sub>2</sub>, SO<sub>x</sub> emissions are highly undesirable as they cause acid rain and undesirable health effects in humans and animals. To mitigate these adverse environmental effects, the international shipping community has taken substantial policy measures. With the introduction of new limits for the content of sulphur in marine fuels in Northern European and North American sea areas, short-sea companies operating in these areas will face substantial additional cost. As of 1/1/2015, international regulations stipulate, among other things, a 0.1% limit in the sulphur content of marine fuels, or equivalent measures limiting the percent of SO<sub>x</sub> emissions to the same amount. As low-sulphur fuel is substantially more expensive than HFO, there is little or no room within these companies current margins to absorb such additional cost, and thus significant price increases must be expected. Unlike its deep-sea counterpart, in short-sea shipping such a freight rate increase may induce shippers to use landbased alternatives (mainly road). A reverse shift of cargo would go against the EU policy to shift traffic from land to sea to reduce congestion, and might ultimately (under certain circumstances) increase the overall level of CO<sub>2</sub> emissions along the entire supply chain. The purpose of this chapter is to investigate the potential effect of sulphur regulations on the share of cargo transported by the waterborne mode vis-à-vis land-based alternatives.

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