New EU strategy to reduce atmospheric emissions from seagoing ships

DG Environment, European Commission

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Emissions covered by the strategy

- Sulphur dioxide (SO2 or SOx)
- Particulate Matter (PM)
- Nitrogen oxides (NOx)
- Volatile Organic Compounds (VOCs)
- Carbon dioxide (CO2)
- Halon

SO2 and PM are priorities for action
Today’s strategy - introducing new fuel sulphur limits

IN THE NORTH SEA & BALTIC

• All ships to use <1.5% S fuel
  – to reduce acidification, by implementing the SOx Emission Control Areas defined in the IMO’s MARPOL Annex VI convention

THROUGHOUT THE EU

• All regular passenger vessels to use <1.5% S fuel by 2007
  – to improve air quality in coastal areas, maintain high standards for intra-EU regular vessels, and help ensure availability of 1.5% S fuel

IN ALL EU PORTS

• All ships at berth to use <0.2% S fuel (0.1% by 2008)
  – to reduce health impacts by cutting local SO2 and PM emissions
Today’s strategy - other elements

PUSH FOR TOUGHER GLOBAL STANDARDS

- As soon as MARPOL Annex VI enters into force, Commission will aim to submit proposal to IMO for tougher global engine standards, to reduce nitrogen oxide emissions

EU CLEAN MARINE AWARD SCHEME

- To promote low-emission shipping and spread best practice

MARKET-BASED INSTRUMENTS

- Launching a new study to explore different market-based instruments to promote emissions reductions in addition to regulation eg differentiated port dues, emissions trading
Ship v land emissions

- As land-based sources of emissions are abated (e.g., from large combustion plants and other modes of transport), ships’ contribution is growing.

- Possible scenario by 2010:
Reducing sulphur content of marine fuel is a priority

- Ship SOx emissions are now relatively high as a result of the high S content of marine fuel
  - marine heavy fuel oil average 2.7% or 27,000 ppm
  - petrol and diesel maximum 0.005% or 50 ppm

- Big reductions still possible at relatively low cost
- Reducing fuel S content also reduces PM
Environmental & health impacts of ship SO2 and PM emissions

- **Acid deposition**
  - kills fish
  - destroys forests
  - acidifies groundwater
  - erodes buildings

- **Poor air quality**
  - causes respiratory illnesses, eg asthma, bronchitis
  - harms human health
Map showing ship emissions of sulphur dioxide in EU seas
Map showing ship emissions’ contribution to acidification
Health effects of ship emissions and their monetary value

- Increased asthma, bronchitis and heart failure
- Health effects per kt emitted in EU sea areas:
  - Number of hospital admissions
    - SO2: 0.64 PM: 0.69
  - Number of life years lost
    - SO2: 3.94 PM: 14
- € value per kt emitted in EU ports
  - SO2: €8,200 PM: €30,500
Estimates of in-port emissions

- Top 10 highest emission EU ports include Rotterdam, Antwerp, Milford Haven, Hamburg, Augusta, Piraeus and Gothenburg.

- Of the top 50 highest emission EU ports
  - ten have populations of 500,000 or more
  - four have populations of 1 million or more
  - five are EU capitals

- Pollution damage in port cities much worse than high seas because more people live there (in big cities values per kt pollutant reduced increase by 5-15x)
Benefits and costs of the sulphur proposal

**BENEFITS**
- 507,000 tonne reduction in SO2 emissions
- 8,000 tonne reduction in PM emissions in ports
- 2000 fewer life years lost through long-term exposure
- Total annual monetized benefit of €2.7 billion (includes health & material benefits but not reduced acidification)

**COSTS**
- Likely to be born by shipowners through fuel price premium
- Assume a €50 per tonne price premium for low sulphur fuel
- Total annual cost €1.07 billion

**BENEFITS OUTWEIGH COSTS BY MORE THAN 2:1**
What happens next?

- Strategy docs sent to the Parliament and Council
- **Directive proposal** will be subject to political “co-decision”. Negotiations could take around 2 years before proposal adopted.
- **Communication** will be subject to Parliament and Council resolutions
- For more information, see http://www.europa.eu.int/comm/environment/air/transport.htm
- Or contact env-ships@cec.eu.int