



Results of the impact assessment of implementation of the Fuel Quality Directive in the Energy Community

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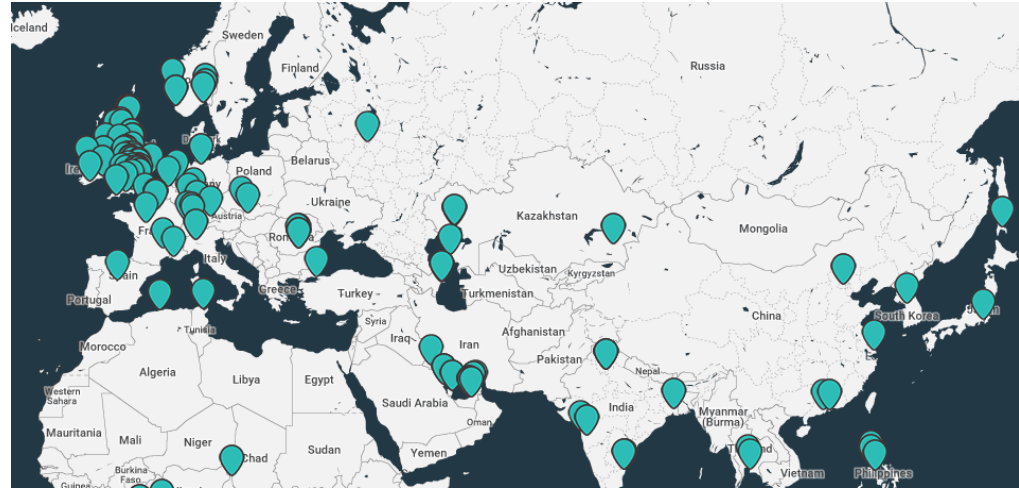
Presentation overview

- About Wood.
- Background to the Fuel Quality Directive.
- Anticipated costs.
- Anticipated benefits.
- Tailoring the assessment to the existing situation in Parties.
- Preliminary outcome of the assessment.



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- We provide performance-driven solutions throughout the asset life cycle, from concept to decommissioning across a broad range of industrial markets, including:
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 - power & process
 - environment and infrastructure
 - clean energy
 - mining
 - nuclear
 - general industrial sectors.



Background to the Directive

- Directive 98/70/EC relating to the quality of petrol and diesel fuels, as amended, sets the framework for fuel quality in the EU. It has the following objectives:
 - To achieve a high level of protection of the environment and human health in relation to fuel used in road transport as well as non road mobile machinery by reducing pollution from the transport sector and enhancing air quality;
 - Enhancing the functioning of the single market for transport fuels and vehicles by setting minimum standard for the quality of transport fuels and ensuring the compatibility of such fuel with internal combustion engines and after ; and
 - To reduced the lifecycle of greenhouse gas emissions from transport fuels.



Background to the Directive

- Fuel specifications are established in the Directive that limit primary air pollutants – lead and other metals, Sox, Nox, particulate matter, unburnt hydrocarbons, PAH, benzene and carbon monoxide which are emitted through exhausts and evaporative fumes.
- For non-road mobile machinery only limits for sulphur, lead and MMT (methylcyclopentadienyl manganese tricarbonyl) apply.
- National fuel quality monitoring systems are required including sampling and analysis to check that the specifications are met.



Background to the Directive

- The Directive requirements have evolved over time.
 - First specifications for road fuels came into force in 2000.
 - New specifications came into force in 2005 for lower Sulphur content of road fuels and for NRMM that was reduced in 2 steps in 2003 and 2008.
 - 2009 standards looked to reduce GHG emissions from fuel use, in particular concerning biofuels blends.
 - An upper limit of Fatty Acid Methyl Ester (FAME) was introduced as high blends of FAME can damage non-adapted engines.
 - Limits of PAH were reduced further and MMT was limited in phases in 2011 and 2014.
 - Further provisions in relation to biofuels were introduced in 2015.



Anticipated costs

Anticipated costs

- The project team examined the Articles of the FQD identifying the following provisions as likely to carry costs to Parties.
- **Article 3 – Petrol specifications** – including limits on the octane number, vapour pressure, hydrocarbons, oxygen content, oxygenates such as ethanol, **sulphur content**, lead content. Costs of complying with the specifications that will generally fall on refineries.
- **Article 4 – Diesel specifications** – similar to the costs resulting from the petrol specifications, with costs generally falling on the refining sector.
- **Article 8 – provisions on monitoring and reporting requirements** – the costs cover meeting monitoring requirements (assumed to fall on the operator), costs of supplying data to the relevant competent authority. Costs to the competent authority result from assessing monitoring data and reporting to the Energy Community.
- **Article 9a – provisions concerning penalties**– Generally concerning the costs to the competent authority of establishing and enforcing a penalty system.



Anticipated costs

Cost type	Original value from source (midpoint where a range was provided)	Value used (2017 prices)	Unit
Meeting FQD requirements for all clean fuels	8,500,000	8,625,850	€ per refinery per year
Meeting petrol specifications	3,400,000	3,450,340	€ per refinery per year
Meeting diesel specifications	4,900,000	4,972,549	€ per refinery per year
Total increase in annual operating costs attributed to additional fuel quality efforts	8,900,000	9,031,773	€ per refinery per year



Anticipated benefits

Anticipated benefits

- Benefits are derived from the damage costs avoided by reducing emissions.
- We have used the values of damage related to three pollutants to assess the benefits of applying the FQD:
 - SO₂ – €11,159 / tonne
 - Nox – €11,593 / tonne
 - PM – €43,152 / tonne
- This means that for each tonne of the above pollutants avoided through the implementation of the FQD a financial value can be derived.
- The benefits using the values above are an underestimate of the total benefits.
 - Other pollutants are reduced as a result of the FQD beyond the three listed above.
 - The value in relation to fuel conformity and vehicle performance.
 - In implementation in the EU it was encountered that anticipated existing standards were not always applied. The environmental benefits for these fuels are higher as a result.



Tailoring the assessment to Parties situations

Tailoring the assessment

- The previous impact assessment and cost evaluation exercises used at the EU level have been used as the basis for the assessment of costs and benefits.
- Administrative and compliance costs have been derived from those Member States more representative of the situation of Parties to the Energy Community.
- Data has been collected on the state of existing refinery capacity in the Parties.
- Data has been collected on existing fuel quality standards in the Parties.
- Costs are generally higher for those countries with a refining capacity where modifications will be required to be made.
- For countries that import a majority of their fuel existing data indicates a majority comes from the EU where the FQD is already implemented. Costs in these countries are generally administrative.



Preliminary outcome of the assessment

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	Costs results	Benefits results
	Costs FQD	Benefits FQD
Albania	€ 52,210,000	€ 60,870,000
Bosnia and Herzegovina	€ 26,160,000	€ 26,080,000
Kosovo*	€ 30,000	€ 32,430,000
FYROM	€ 50,000	€ -
Georgia	€ 52,240,000	€ 84,500,000
Moldova	€ 50,000	€ 290,000
Montenegro	€ 20,000	€ -
Serbia	€ 52,300,000	€ 189,370,000
Ukraine	€ 480,000	€ -
Total	€ 183,530,000	€ 393,550,000



The background is a solid teal color with several overlapping semi-circular shapes in various shades of teal, creating a layered, abstract design.

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