

ENVIRONMENTAL AND HEALTH BENEFITS OF LOW SULPHUR FUELS



Alinafe Mkavea
Director Fuels and Gas
Malawi Energy Regulatory Authority

Presentation outline

- ▶ **Introduction**
- ▶ **Environmental and health impacts of vehicular emissions**
- **Environmental and health benefits of low Sulphur fuels**
- **Conclusion**

Introduction

- ▶ Advances in fuel quality mean cars can be made cleaner and more efficient thereby lowering emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO₂), particles (including the fine dust and soot - PM₁₀) and volatile organic compounds (VOCs).
- ▶ This in turn lead to better air quality and will lower the risk of dangerous climate change.
- ▶ Outdoor air pollution has also been labelled as the ninth leading contributor to global disease burden.

Introduction

- Fuel quality is the foundation for air pollution control in the transport sector.
- These cleaner fuels include low sulphur fuels, unleaded fuels, low benzene fuels; and alternative fuels such as biofuels (ethanol, biodiesel, etc.)

Introduction

- Most African countries join the global community to advocate for the use of ultra low Sulphur cleaner fuels.
- Some SADC countries in particular have demonstrated interest to migrate to 50 ppm Sulphur fuels.
- Advances in the use of cleaner fuels technology has led to improved air quality which lowers negative impacts harmful emissions pose to the human health and the environment.
- This presentation outlines some of the benefits.

Environmental and health impacts of emissions

- Vehicular emissions have been a key source of urban air pollution in most cities.
- Our health, environment and global climate are all affected by diesel emissions.

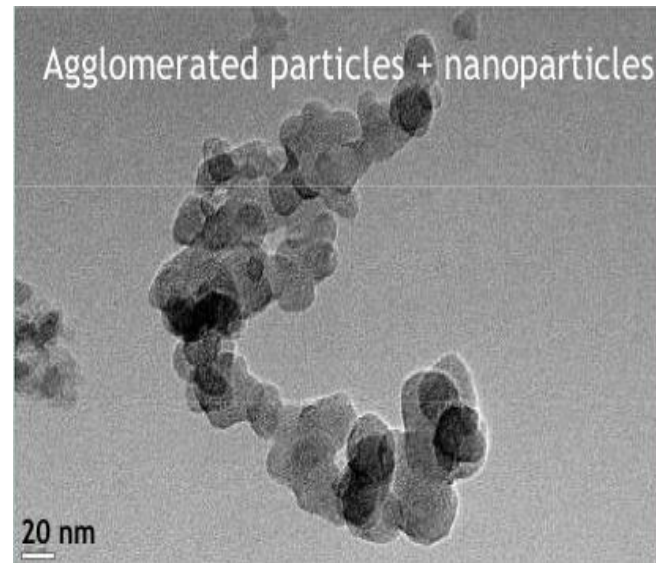


Major Diesel Pollutants of Concern Emitted

- ▶ **Particulate Matter (PM)**
- ▶ **Nitrogen Oxides (NO_x)-climate change**
- ▶ **Nitrogen Oxides (NO_x)-human health**
- ▶ **Carbon Monoxide (CO)**
- ▶ **Carbon Dioxide (CO₂)**
- ▶ **Other Green House Gases (GHG)**
- ▶ **Black Carbon (BC)**
- ▶ **Air Toxics**

Impact on Human Health

- Serious effects from gases, particulates and heavy metals; e.g. black carbon penetrates deep into the lungs
- Known to be carcinogenic



Impact on Human Health Cont'd

- Exposure to diesel exhaust can lead to serious health conditions like asthma and respiratory illnesses and can worsen existing heart and lung disease, especially in children and the elderly.
- These conditions can result in increased numbers of hospital admissions, absence from work and school, and premature deaths

Impact on the Environment

Environmental effects

- acidification
- Eutrophication
- Global climate change
- ecosystem and material damage

Also produced is acid rain, which affects soil, lakes and streams and enters the human food chain via water, produce, meat and fish. These emissions also contribute to property damage and reduced visibility.

Impact on the Environment

Economic loss

- crop yields
- corrosion of materials
- lost work days

Emissions from diesel engines contribute to the production of ground level ozone which damages crops, trees and other vegetation.

Impact on the Environment cont'd

Climate change affects

- ▶ air and water quality
- ▶ weather patterns
- ▶ sea levels
- ▶ ecosystems, and
- ▶ agriculture.

Environmental and health benefits of low sulphur diesel fuel

- protects human health
- improves air quality by reducing harmful emissions from diesel engines.
- Reducing greenhouse gas (GHG) emissions from diesel engines can help address climate change, improve our nation's energy security, and strengthen our economy
- Cost effective .Cost of environmental and health implications on usage of 'dirty' fuels has proved to surpass the cost of using cleaner fuels technology.
- Study by an Intermediate Care Facility (ICF-various organizations) weighed benefits (over 40 billion dollars savings) more than costs (8 billion dollars) on diesel clean-up in Sub-Saharan Africa as projected to 2020.

Looking into the future: Malawi's clean fuel program

- ▶ The country need to secure low sulphur fuels by:
 1. Reviewing logistics to segregate fuels; and
 2. enhancing fuel quality enforcement and monitoring mechanisms
- ▶ Malawi need to support research studies on cost-benefit analysis especially on health benefits to help decision making towards lower sulphur fuels
- ▶ To review pricing of cleaner fuels to avoid burdening the consumer



Malawi Clean Fuels Program....

- ▶ Malawi need to enforce regulations against procurement, sale and use of fuels not meeting current fuel specifications
- ▶ Malawi should also consider enacting regulations for mandatory vehicle emissions testing, maintenance and inspection to ensure that vehicles comply with the agreed emissions standards. Currently vehicle emission testing is voluntary
- ▶ Malawi Bureau of Standards has supported regulatory efforts towards migrating to unleaded Petrol; the bureau needs to be supported with sulphur testing equipment in order to provide testing program on moving to low Sulphur fuels.



Conclusion

- ▶ Ensuring fuel quality by using ultra-low Sulphur technologies would help realize full health and environmental benefits.
- ▶ Most nations are committed to migrating to clean fuel activities in order to reduce health and environmental harm from fuel emissions in the communities

THE END

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