UNITED NATIONS UNIVERSITY
CRIS
Institute on Comparative Regional Integration Studies

GR:EEN
Global Re-ordering:
Evolution through European Networks

Future Trends Series - GR:EEN Project

Title of the report

Global Transport Scenarios 2050

Area

Science and Technology

Reporter

World Energy Council

Type of the Reporter

Foundation

Periodically updated?

No

First issued year

2011

Latest update

/

Official website

http://www.worldenergy.org/

Language available

English

Short summary

In this report, the World Energy Council (WEC) presents scenarios to describe potential developments in transportation fuels, technologies, and mobility systems over the course of the next forty years. The report is divided into two possible scenarios, 'Freeway' and 'Tollway', with the main difference being the degree and style of government intervention in regulating future transport markets.

Key trends

The "Freeway" scenario envisages a world where pure market forces prevail to create a climate for open global competition.

The "Tollway" scenario describes a more regulated world where governments decide to intervene in markets to promote technology solutions and infrastructure development that put common interests at the forefront.

By 2050:

• Total fuel demand in all transport modes will increase by 30 per cent (Tollway) to 82 per cent (Freeway) above the 2010 levels. The growth in fuel demand will be driven mainly by trucks,

buses, trains, ships, and airplanes.

• Transport sector fuel mix will still depend heavily on gasoline, diesel, fuel oil and jet fuel, as they all will still constitute the bulk of transport market fuels with 80 per cent (Tollway) to 88 per cent (Freeway) in 2050.

• Demand for these major fuels will increase by 10 per cent (Tollway) to 68 per cent (Freeway) over the scenario period.

• Demand for diesel and fuel oil will grow by 46 per cent (Tollway) to 200 per cent (Freeway).

• Demand for jet fuel will grow by 200 per cent (Tollway) to 300 per cent (Freeway).

• Demand for gasoline is expected to drop by 16 per cent (Freeway) to 63 per cent (Tollway).

• Biofuels will also help to satisfy the demand for transport fuel as their use will increase almost four fold in both scenarios. Other fuels including electricity, hydrogen, and natural gas will increase six to seven fold.

• The additional transport fuel demand will come from the developing countries (especially China and India) where demand will grow by 200 per cent (Tollway) to 300 per cent (Freeway). In contrast, the transport fuel demand for the developed countries will drop by up to 20 per cent (Tollway).

• The total number of cars in the world is also expected to increase 2.2 times (Tollway) to 2.6 times (Freeway), mainly in the developing world, where the number of cars will increase by 430 per cent (Tollway) to 557 per cent (Freeway) while the developed countries will see an increase of only 36 per cent (Tollway) to 41 per cent (Freeway).

• At the end of the scenario period (2050) we expect conventional gasoline and diesel internal combustion engines (ICEs) to have a market share between 26 per cent (Tollway) and 78 per cent (Freeway). Other drive-train technologies will make up the rest with liquid hybrid, plugins, and electric vehicles leading in Tollway, while liquid hybrids, plug-ins and gas vehicles lead in Freeway.

• The total CO2 emissions from the transportation sector is expected to increase between 16 per cent (Tollway) and 79 per cent (Freeway), depending mainly on the degree of the government intervention and success in advancing low carbon fuel systems.

Suggestions

/

Methodology

Modelling

Reference to other trends reports? If yes, which reports?

/