
Session 3: Policy and technology evolutions in the road transport sector: What impact on energy demand and investment?

The 10th IEA-IEF-OPEC Symposium on Energy Outlooks

February 19th, 2020

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Outlook for World Final Energy Demand

Transportation sector is an important source for the growth

Energy consumption

Changes (2017-2050)

- **Industry**: 868 Mtoe, 0.8%
- **Transport**: 1,058 Mtoe, 1.0%
- **Buildings, etc.**: 892 Mtoe, 0.7%
- **Gen. & trans. losses**: 1,079 Mtoe, 0.9%
- **Non-energy use**: 500 Mtoe, 1.4%
- **Other transf.**: 387 Mtoe, 0.9%

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
Outlook for World Oil Demand by region/sector

Asia and Transportation drives the growth

By region

- Intl. bunkers
- Oceania
- Africa
- Oth. Europe/Eurasia
- Advanced Europe
- Middle East
- Asia
- Latin America
- North America

By sector

- Transformation
- Non-energy use
- Buildings, etc.
- Transport
- Industry

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
## Outlook for World Share of Passenger Vehicle

**ATS sees 80% plus ZEVs in 2050**

<table>
<thead>
<tr>
<th>Year</th>
<th>Reference</th>
<th>ATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>96%</td>
<td>97%</td>
</tr>
<tr>
<td>2030</td>
<td>63%</td>
<td>78%</td>
</tr>
<tr>
<td>2050</td>
<td>43%</td>
<td>64%</td>
</tr>
</tbody>
</table>

### New sales

- **Fuel cell vehicle**
- **Battery electric vehicle**
- **Plug-in hybrid vehicle**
- **Hybrid vehicle**
- **Natural gas vehicle**
- **Conventional engine vehicle**

### Stock

- **Fuel cell vehicle**
- **Battery electric vehicle**
- **Plug-in hybrid vehicle**
- **Hybrid vehicle**
- **Natural gas vehicle**
- **Conventional engine vehicle**

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
Outlook for World Fuel Efficiency of Passenger Vehicle

ATS sees 34% improvement of fuel efficiency (stock base) in 2050

Note: Litres of gasoline equivalent

Outlook for World Fuel Efficiency of Passenger Vehicle

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Outlook for World Primary Energy Demand

ATS sees “Oil Demand Peak” and other important change in energy mix

By region

By energy source

Note: Solid lines stand for Advanced Technologies Scenario and dotted lines stand for Reference Scenario.

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
Oil demand peaks by rapid penetration of ZEVs

Oil consumption

In the Peak Oil Demand Case, oil consumption hits a peak of 98 Mb/d around 2030 then declines. The reduction from the Reference Scenario is 7 Mb/d and 33 Mb/d in 2030 and in 2050, respectively.

Oil for Road [Peak Oil Demand Case]

Oil consumption by cars in Non-OECD, which continues to increase rapidly in the Reference Scenario, also declines from around 2030. It is as much as one third of the Reference Scenario in 2050.

Source: “IEEJ Outlook 2018” (IEEJ, October 2017)
Economic impacts of peak oil demand

Although the Middle East obtains the relative gain, its net oil export decreases of $1.6 trillion or 13% of nominal GDP is significant. On the other hand, the most benefiting country from net oil import decreases is India, the second largest oil consumer, followed by China, which has more car fleet than in any other countries. The United States has little impact despite of its consumption scale since it is almost oil self-sufficient.

Source: “IEEJ Outlook 2018” (IEEJ, October 2017)
Reference material
Outlook for World Final Energy Demand by sector/energy

Transportation/oil is an important source for the growth

By sector

- Non-energy use
- Buildings, etc.
- Transport
- Industry

By energy source

- Others
- Electricity
- Natural gas
- Oil
- Coal

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
Outlook for Asian Final Energy Demand by sector/energy

Transportation/oil is an important source for the growth

By sector
- Non-energy use
- Buildings, etc.
- Transport
- Industry

By energy source
- Others
- Electricity
- Natural gas
- Oil
- Coal

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)
Outlook for Asian Oil demand by country/sector

Transportation in emerging Asia drives the growth

By region

- Others
- Korea
- Japan
- ASEAN
- India
- China

By sector

- Transformation
- Non-energy use
- Buildings, etc.
- Transport
- Industry

Source: “IEEJ Outlook 2020” (IEEJ, October 2019)