India Energy Outlook 2021: a focus on transport

ITF Workshop

Siddharth Singh, 23 February 2021
India is growing from a low base

Key indicators in India as a percentage of global averages

India’s per capita car ownership is below the world average – although rising fast
Passenger transport activity in India

Indians have been travelling farther every year, resulting in growing energy demand from transport.
Oil demand grew faster than any other fuel, and this demand growth has largely come from transport.
Freight transport contributes to nearly half of the CO$_2$ emissions from road transport.
A global industrial pivot towards India, its fast-developing economy and increasingly urban population, underpin the largest increase in energy demand of any country, across all of our scenarios.
Renewables in the lead but, as things stand, all fuels still in the race

Change in demand by fuel and technology in the Stated Policies Scenario (STEPS), 2019-2040

India is re-ordering its energy priorities as renewables take the largest share of growth in the STEPS to 2040: it is nonetheless the largest global growth market for oil and coal, and among the fastest-growing for gas.
WARNING SIGNS ON THE COST OF IMPORT DEPENDENCE...

Market value of domestic production & import bills by fuel in India in the STEPS

India’s fuel import bill triples over the next two decades in the STEPS
Emissions from power flatten out, while industry & transport drive a 50% increase to 2040 in the STEPS: within two decades, most of India’s emissions come from factories, vehicles & other sources that do not exist today.
Energy demand from transport

Diesel-based freight transport underpins demand growth in the STEPS to 2040. Greater efficiency and an uptake in electric mobility is key to avoiding demand growth in the SDS.
While two-/three-wheelers form a large majority of the stock of vehicles, the biggest opportunity to reduce CO₂ emissions comes from passenger cars and freight transport.
The impact of road transport electrification on air pollutants

Road transport electrification reduces CO\textsubscript{2} and NO\textsubscript{X} emissions, but parallel changes in power generation are essential to eliminate potential rises in SO\textsubscript{2} emissions.
Conclusions

• As India recovers from the shock of Covid-19, it is re-entering a very dynamic phase in its energy development that will have a huge impact on the country’s future and on global trends.

• India’s continued growth in oil demand is led by transport, especially for trucks and passenger cars.

• The SDS provides a pathway to low carbon growth. In the transport sector, this means lower personal passenger car stock, more public transport, greater electrification of vehicles and alternate energy uses in freight transport.

• India can meet the aspirations of its citizens without following the high-carbon road that others have pursued. In this endeavour, it can count on the enduring support and partnership of the IEA.