



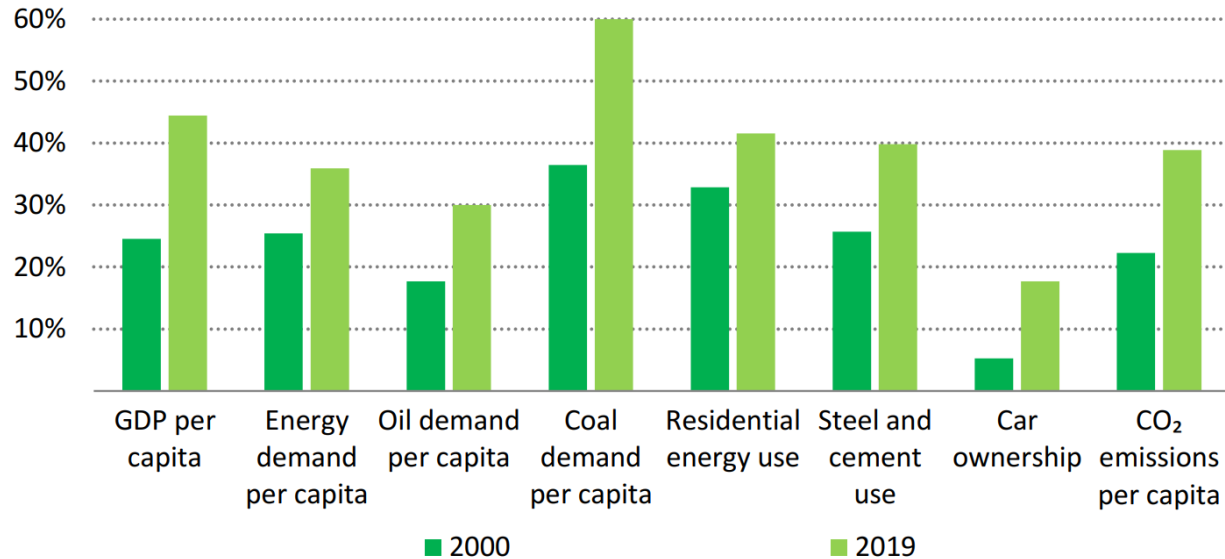
India Energy Outlook 2021: a focus on transport

ITF Workshop

Siddharth Singh, 23 February 2021

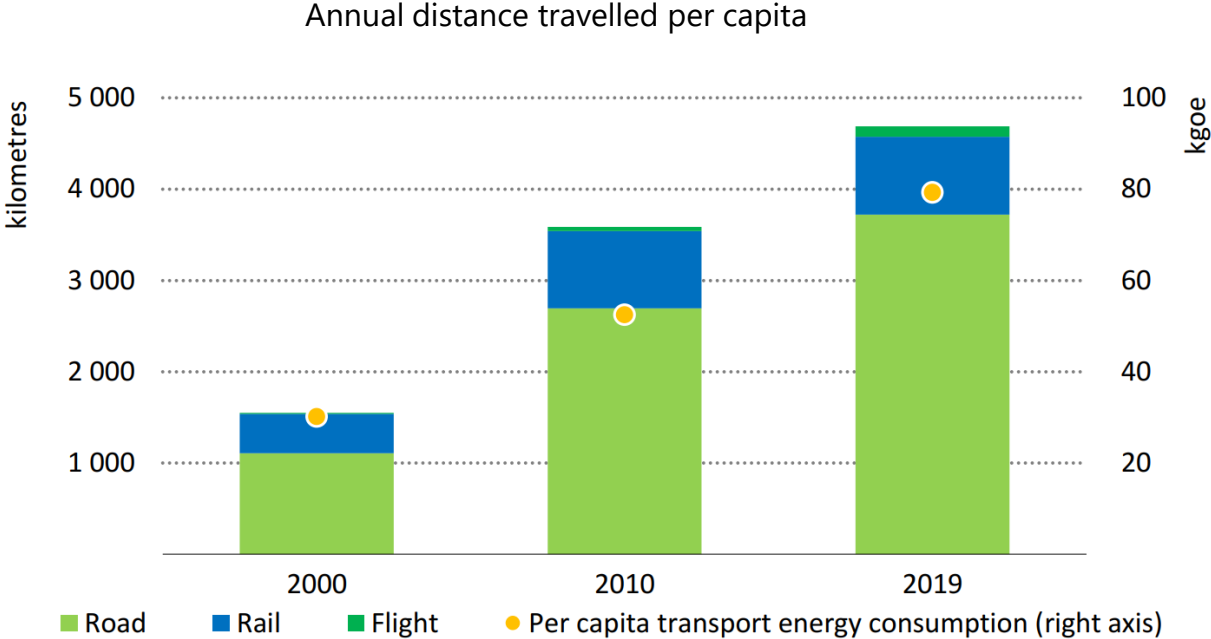
India is growing from a low base

Key indicators in India as a percentage of global averages



India's per capita car ownership is below the world average – although rising fast

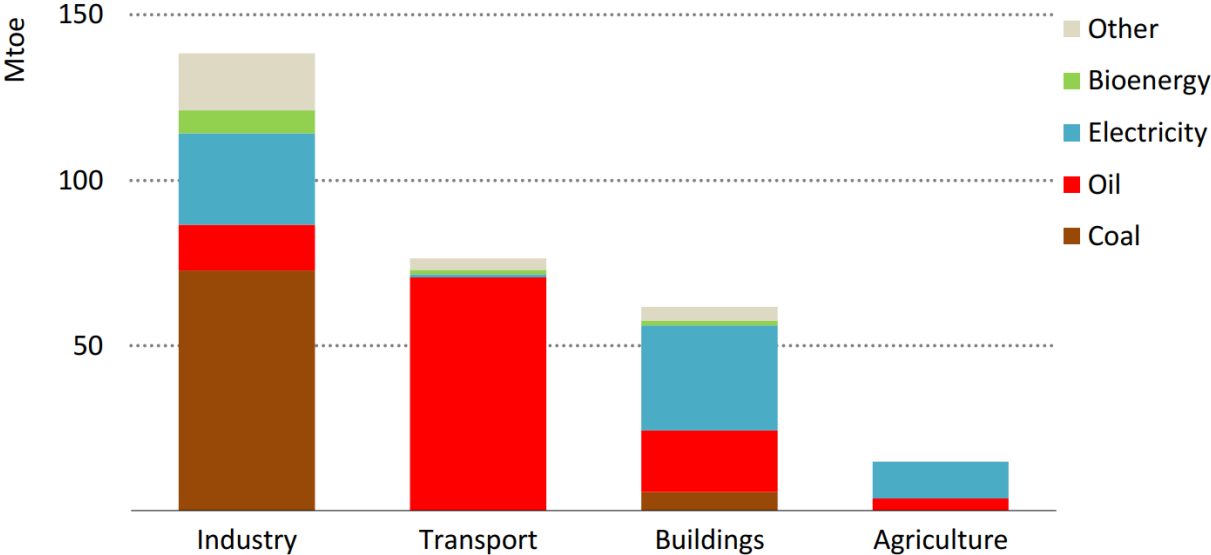
Passenger transport activity in India



Indians have been travelling farther every year, resulting in growing energy demand from transport

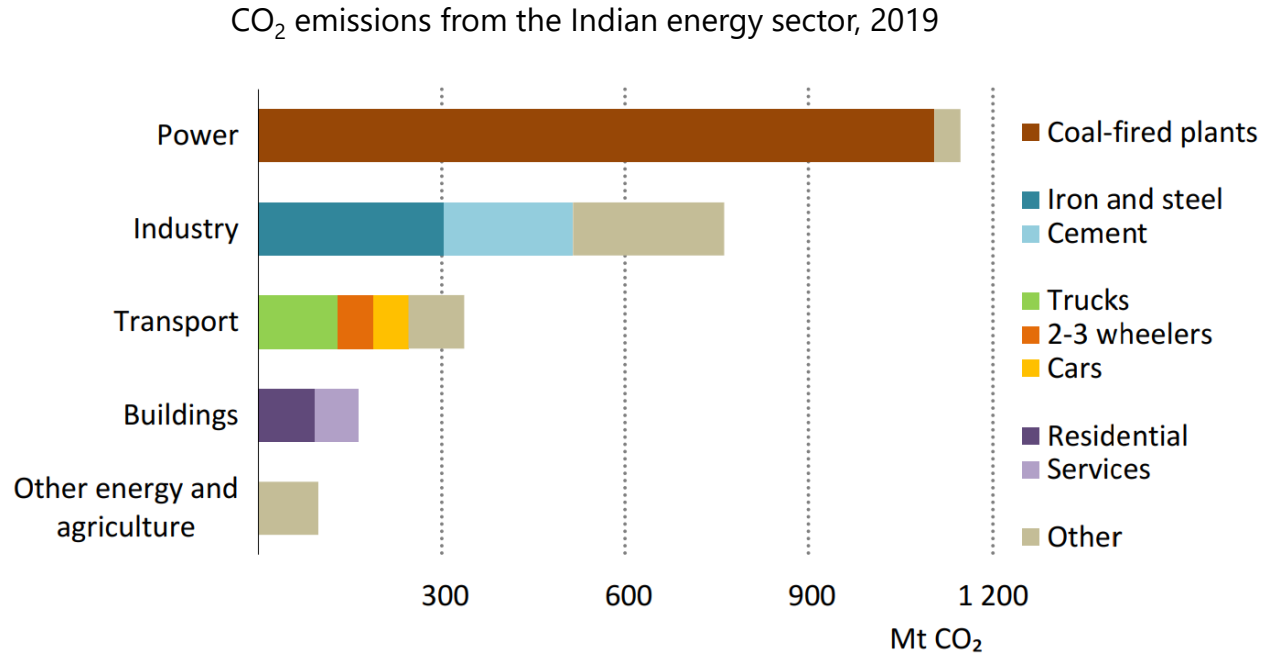
Rising energy demand

Change in energy demand by fuel in selected end-use sectors, 2000-19



Oil demand grew faster than any other fuel, and this demand growth has largely come from transport

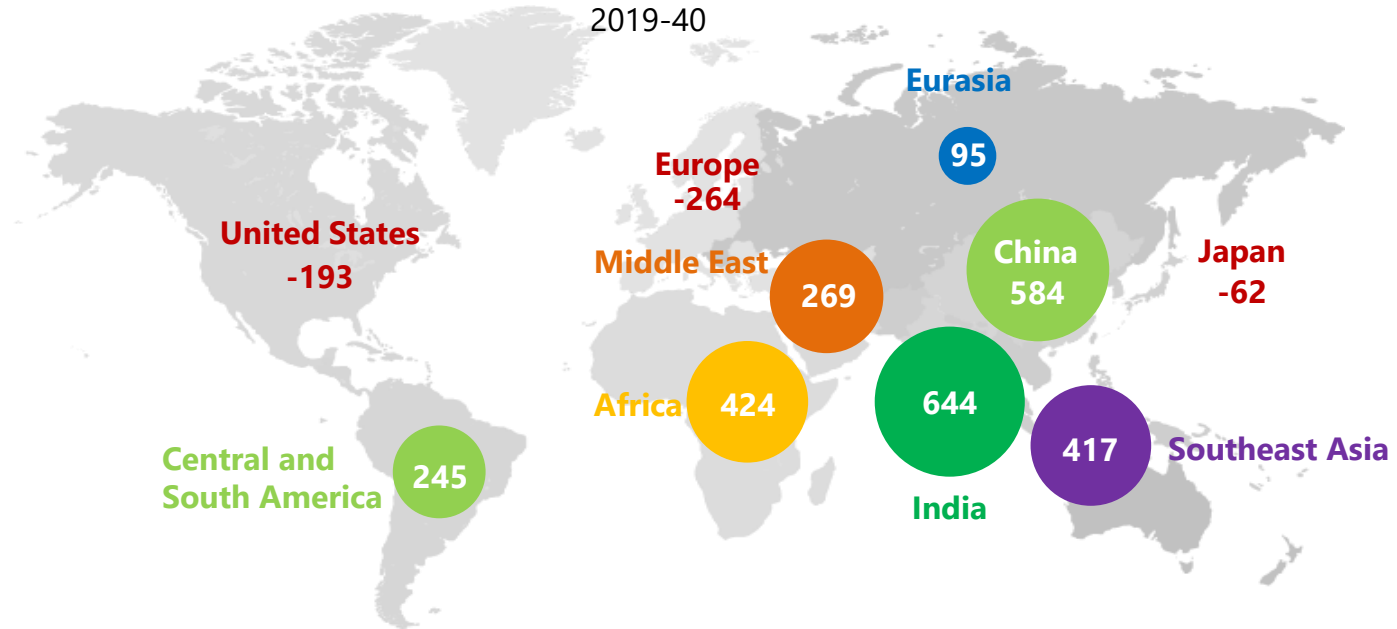
Carbon dioxide emissions from energy use in India



Freight transport contributes to nearly half of the CO₂ emissions from road transport

India at the centre of the global energy system

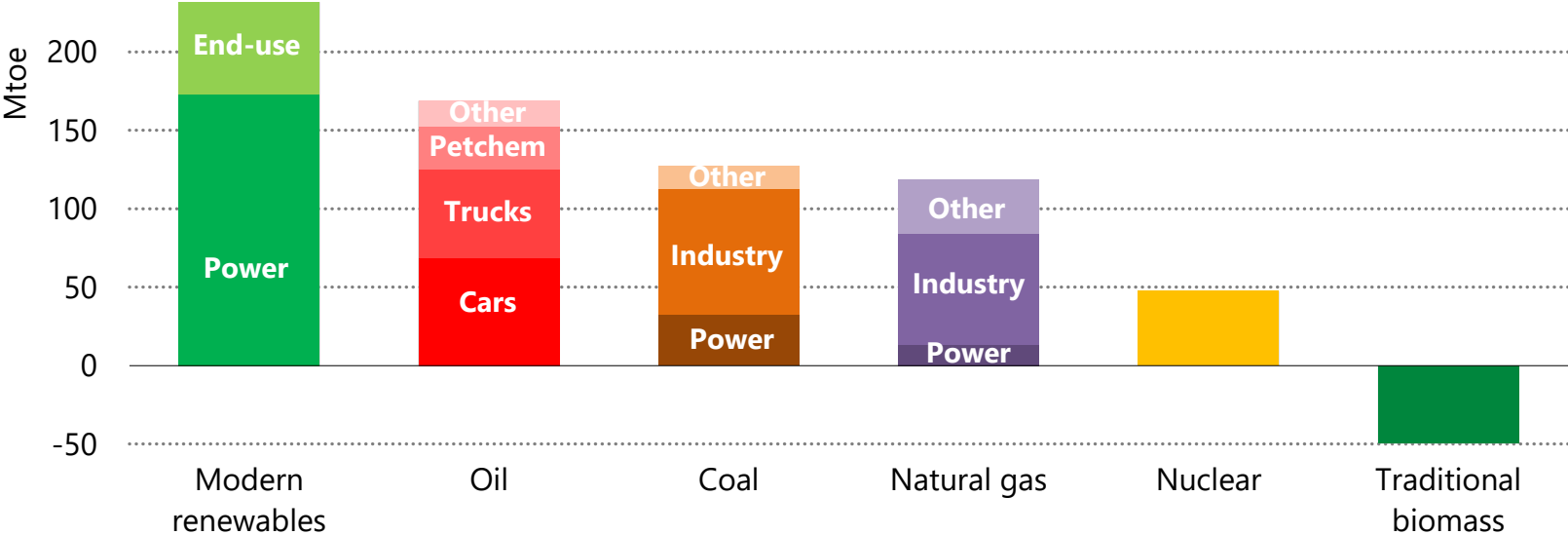
Change in energy demand in the Stated Policies Scenario (Mtoe)
2019-40



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

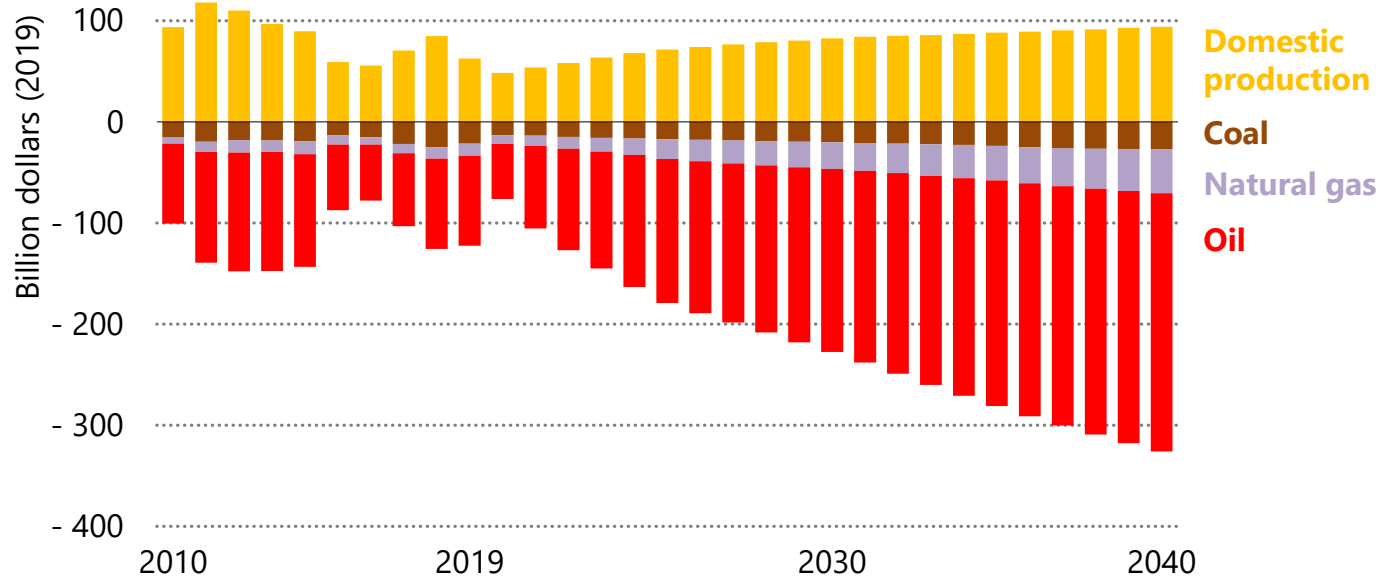
Change in demand by fuel and technology in the Stated Policies Scenario (STEPS), 2019-2040



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

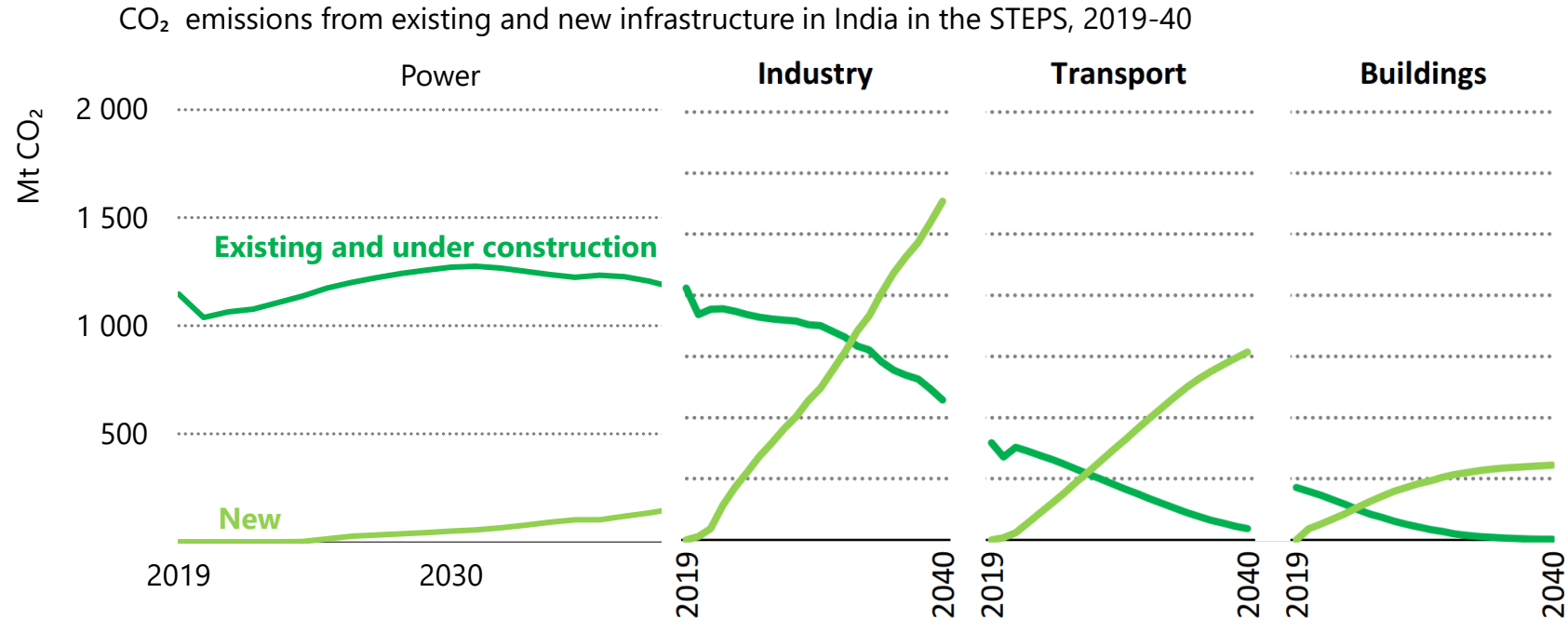
Warning signs on the cost of import dependence...

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

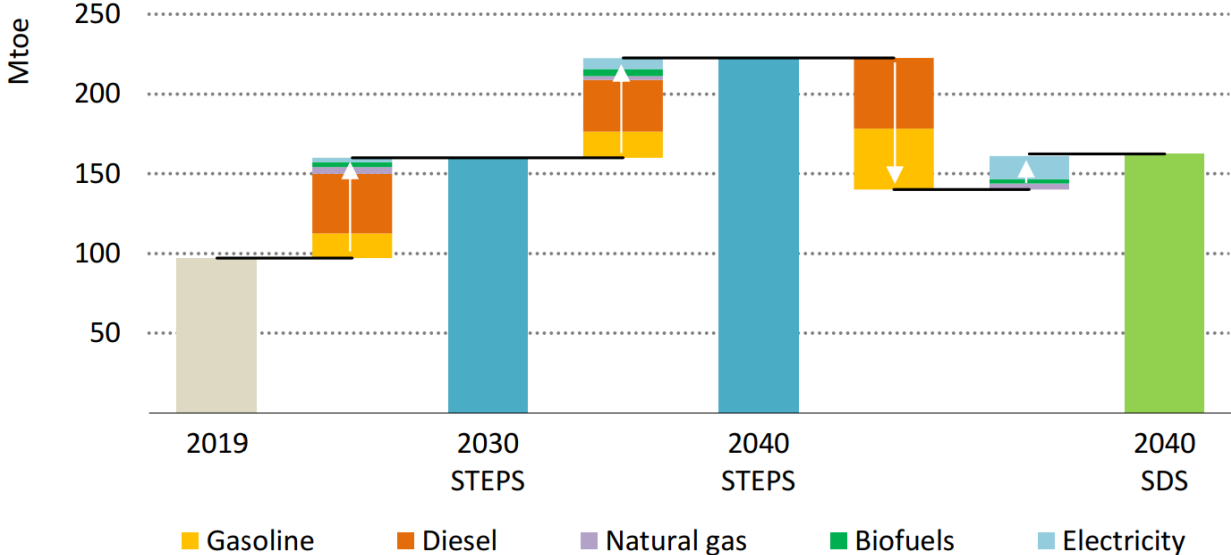
...and on emissions, old and new



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

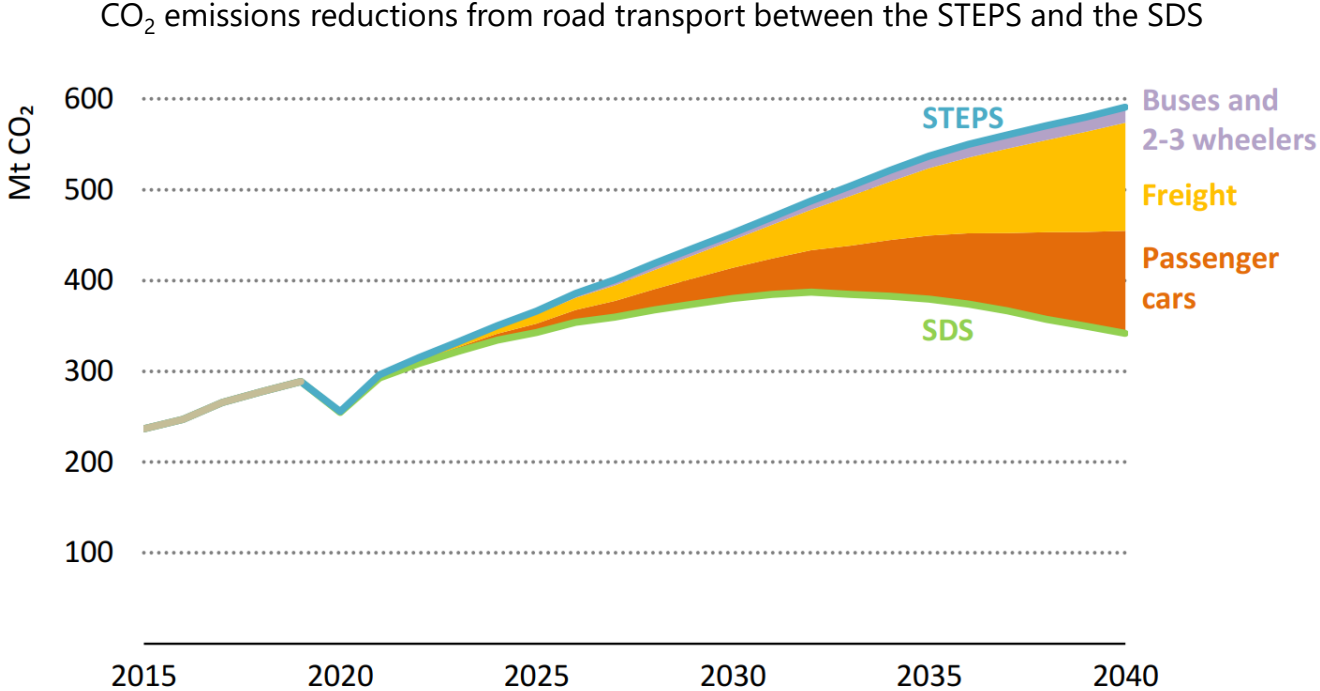
Energy demand from transport

Changes in road transport energy demand by fuel/technology and scenario, 2019-2040



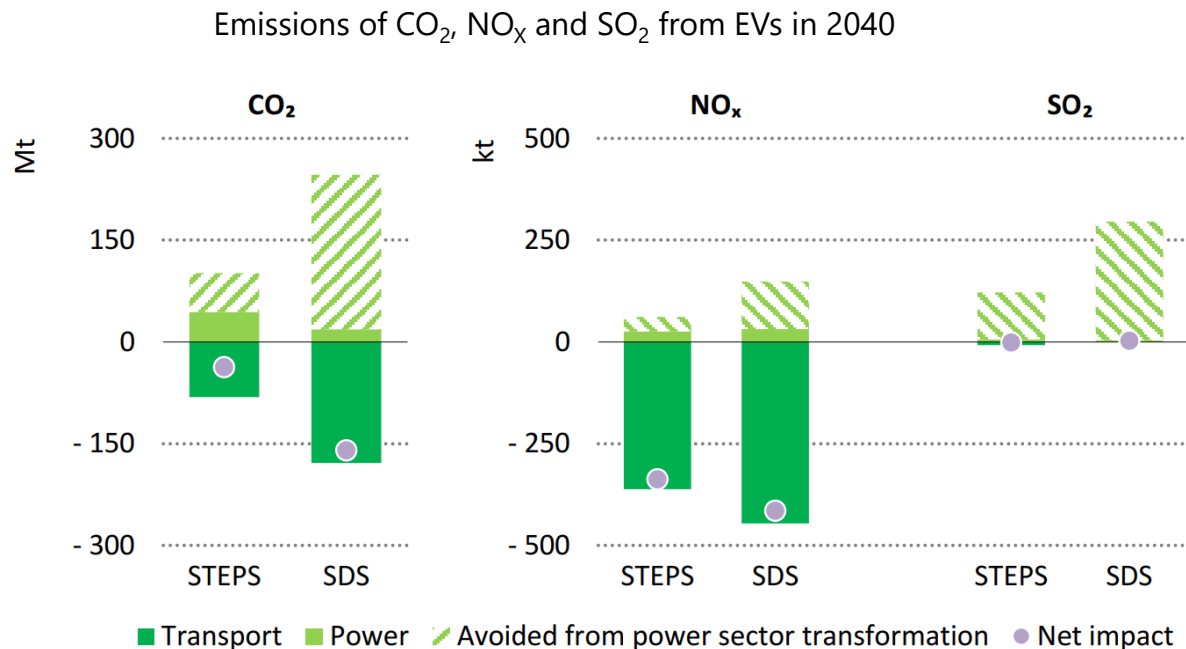
Diesel-based freight transport underpins demand growth in the STEPS to 2040. Greater efficiency and an uptake in electric mobility is key to avoiding demand growth in the SDS

Emissions from transport



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 CO₂ and NO_x emissions, but parallel changes in power generation are essential to eliminate potential rises in SO₂ 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