

IEF Thought Leaders' Roundtable:
**Transport Sector Sustainability: Outlooks on Energy
Demand and Sustainable Fuels**

February 20, 2025

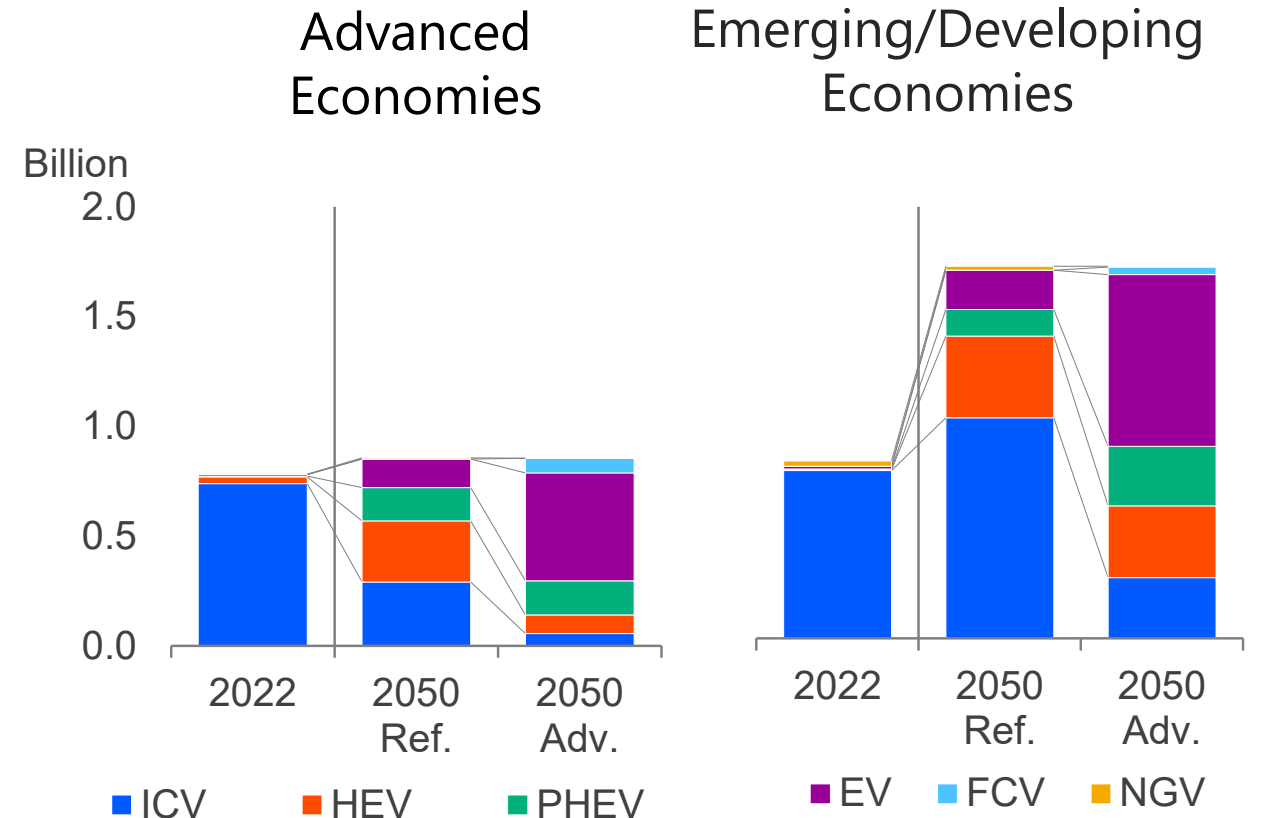
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How will the transport sector meet growing energy demand sustainably?

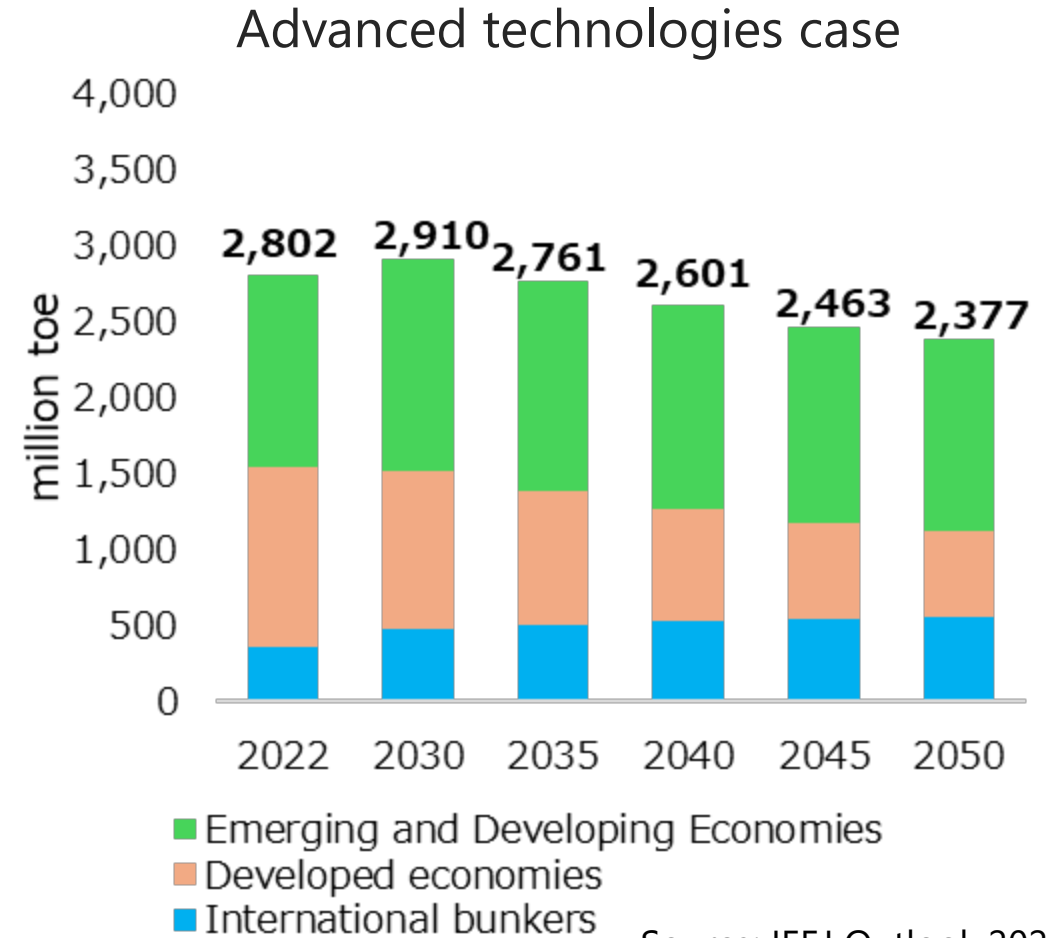
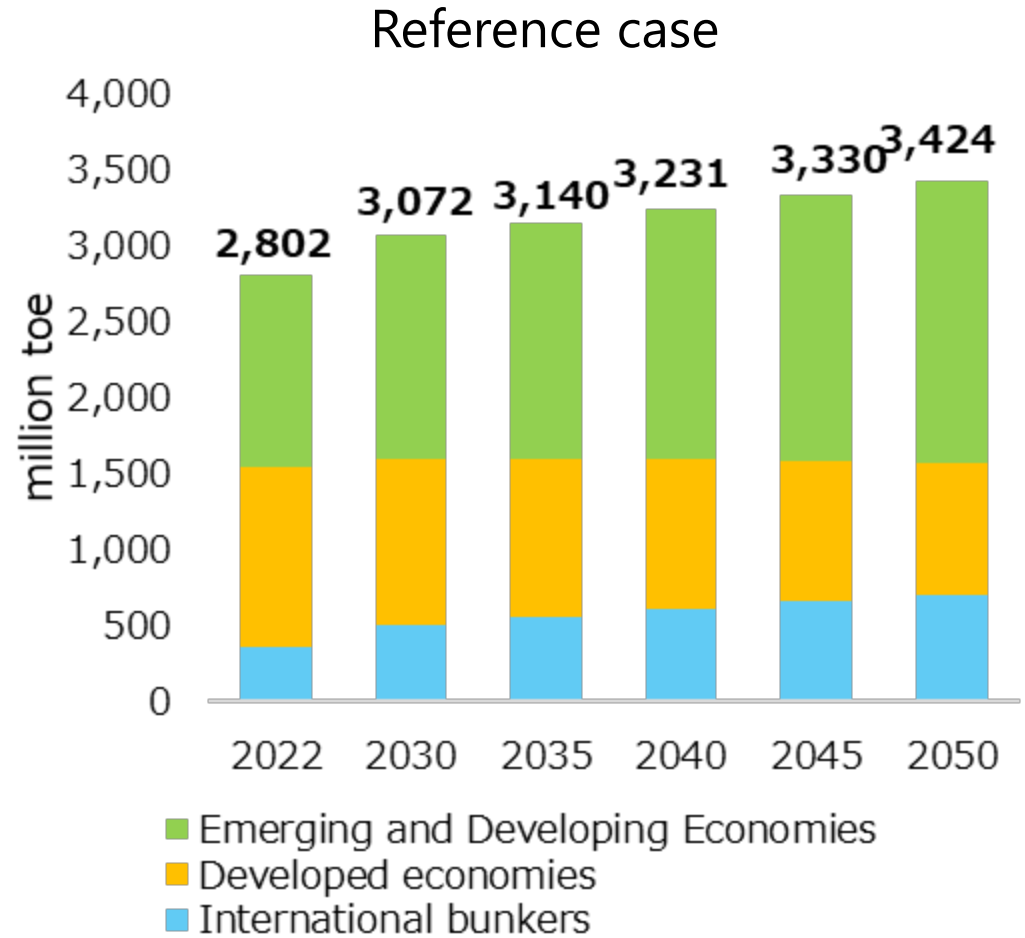
- Electrification through BEV and PHEV will be a major path although different countries may choose different options.
- However, considering the time required to replace the existing vehicle stock with new sales, the existence of second-hand car market, and the development or charging infrastructure, IEEJ expects a certain share of internal combustion engine vehicles (ICV) will remain in the vehicle stock in 2050.

Vehicle Ownership (By Powertrain)



How will the transport sector meet growing energy demand sustainably? (cont)

IEEJ's outlook of the transport energy demand



How does Sustainable Development Goal 7: to ensure access to affordable, reliable, sustainable and modern energy for all, cover access to clean transportation and mobility.

- Every country has its own way to realize the balanced goal of SDG#7
 - ✓ **Public transport** where there are sufficient investment funds, capability to realize well-designed urban plans, and concentrated population in limited areas
 - ✓ **Battery electric vehicle (BEV)** where there are abundant resources for battery, cost-competitive vehicle manufacturing, and low-carbon electricity supply
 - ✓ **Biofuel** where there are sufficient feedstock for biofuel production without conflict with food supply and sustainability requirement
 - ✓ **Hydrogen / synthetic fuel** where there are abundant surplus decarbonized power supply with cost competitive electrolysis capacities
 - ✓ **Transitional utilization of HEV / PHEV** where there are limited sales with higher vehicle price of BEV, insufficient charging infrastructure, high importance on economic security

Can adoption of a wider spectrum of clean and efficient technologies make transport and mobility demand more sustainable in developing economies?

- Yes, if it accompanies with a clear decarbonization target with well-designed mandates by the government.
 - Multiple choices in the decarbonization of the transport sector allow developing economies to choose the most appropriate pathway.
 - Yet such multiple pathways must have a single goal, carbon neutrality in the long run.
 - A clear roadmap with proper mandates and monitoring by the government has to be developed to ensure the economies to be on the right track toward the single goal.

How can IEF producer-consumers collaborate to make transportation and mobility demand trends and solutions more transparent and sustainable e.g. in support the G20 Global Biofuel Alliance, and Circular Carbon Economy?

- Recognition of the necessity of the long-term carbon neutrality goal
- Allowance of multiple pathways by each country but commitment to achieve the single goal
- Provisions of both normative and realistic visions of the future transport sector based on its transparent data collection and demand outlook development (JODI).
- Utilizing options beyond the transport sector, such as offsetting with other technologies such as CDR