International Energy Agency

Importance of demand side data and energy efficiency indicators for policy - transport

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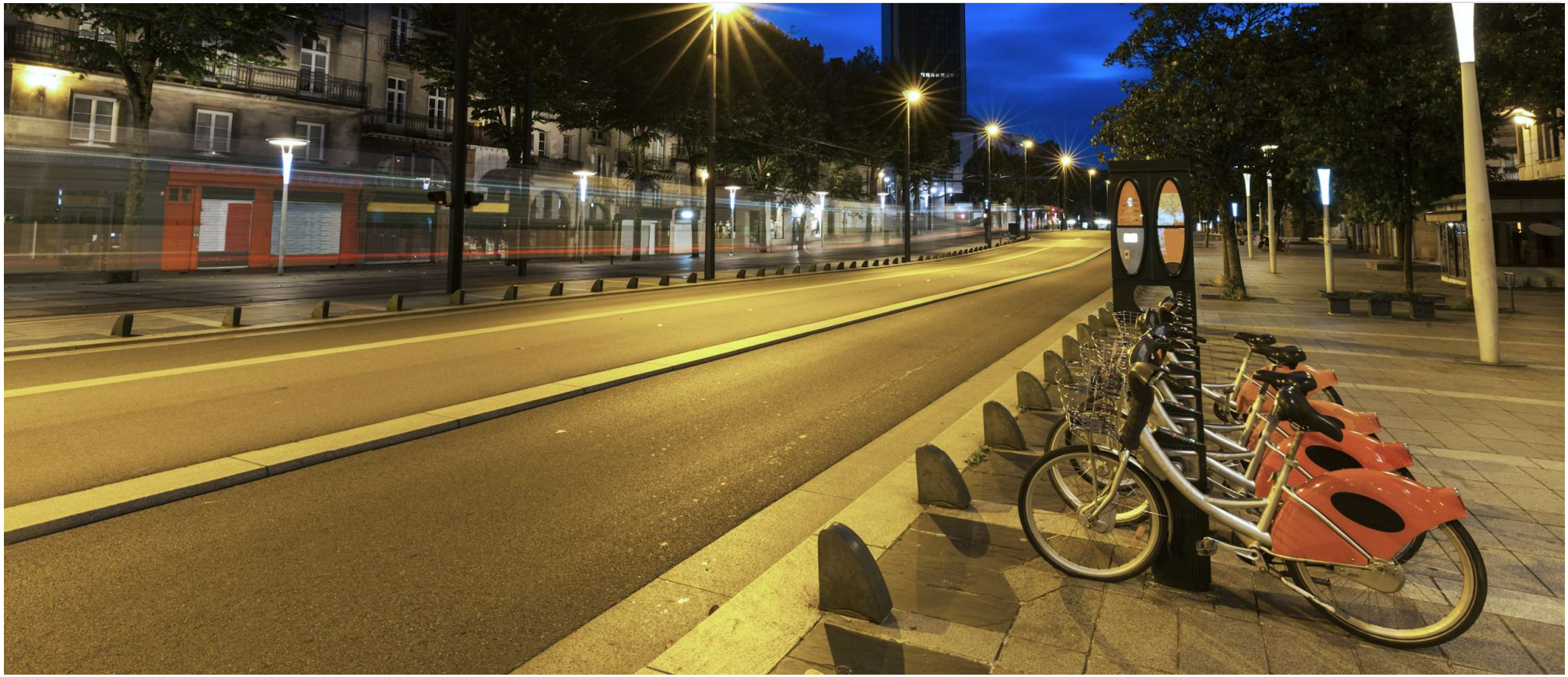
Demand side data and energy efficiency indicators - transport



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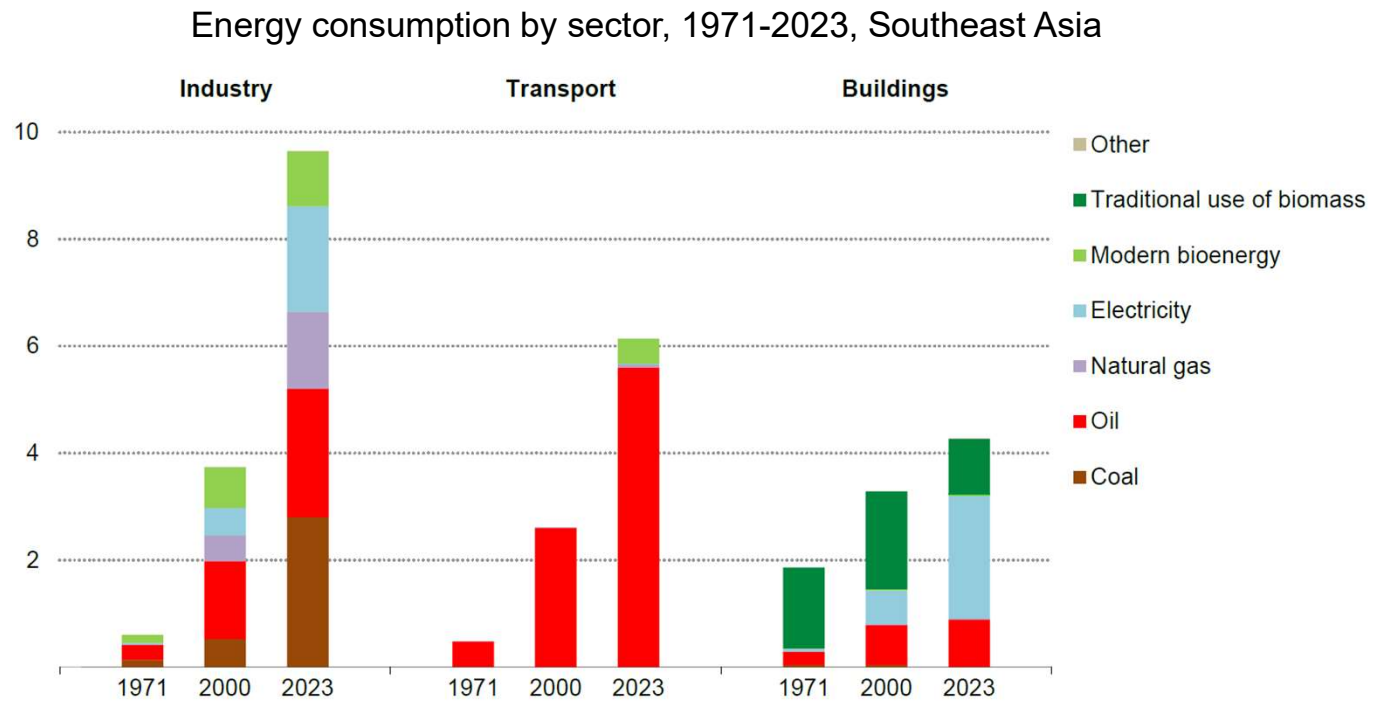
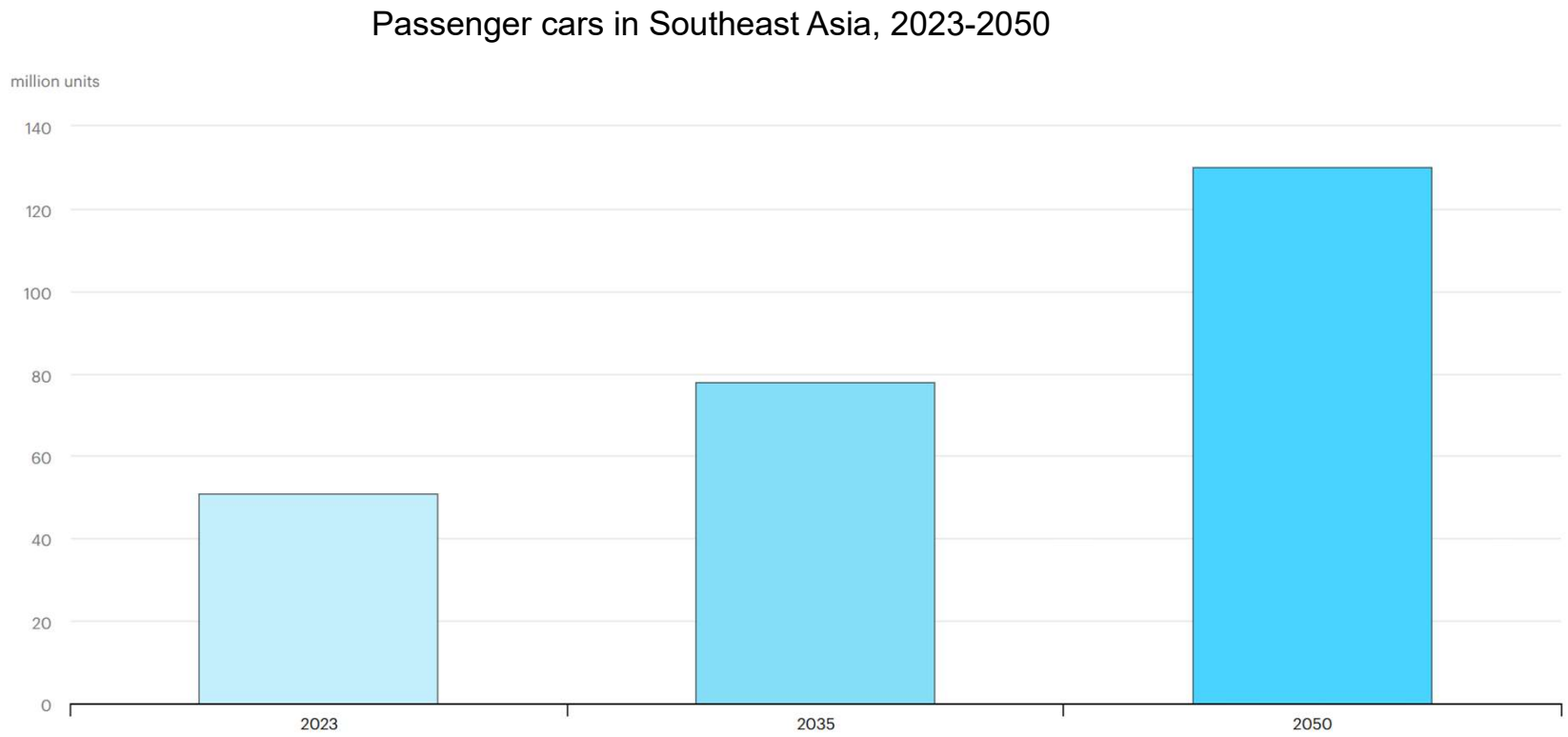
Transport sector energy consumption



Oil dominates as the main energy type used in the transport sector in Southeast Asia

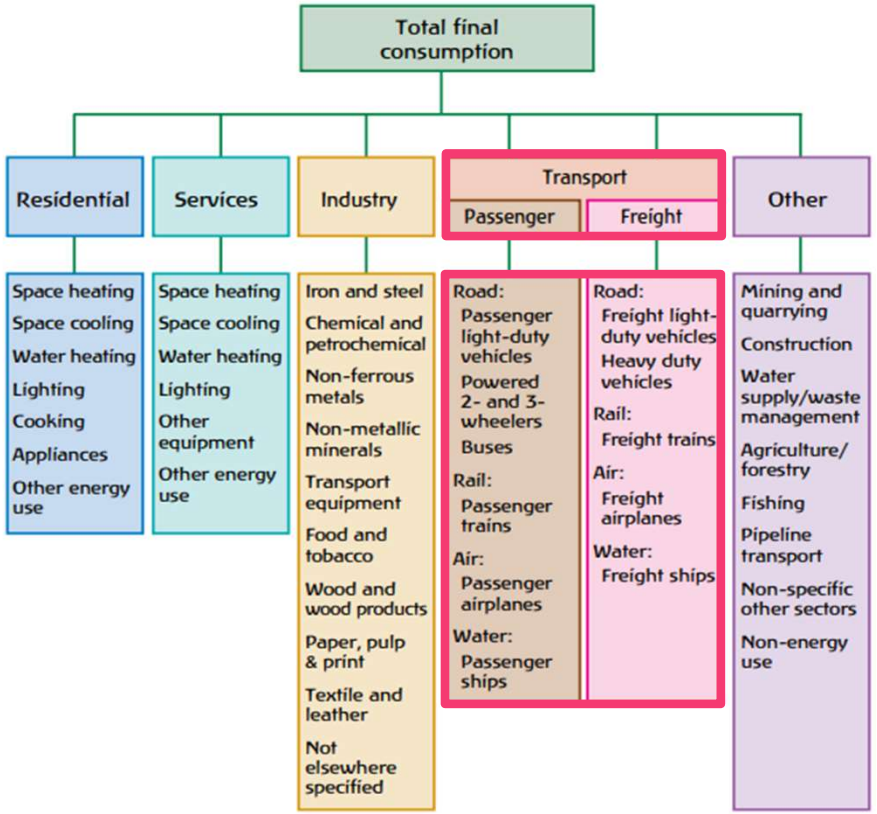
Projected growth of passenger cars in Southeast Asia



The number passenger cars in Southeast Asia is expected to rise from around 50 million units in 2023 to 130 million units in 2050

Demand side data

- Demand side data represents the **energy consumption** and **activity data** for the end use sectors
- Often grouped into the three end-use sectors of **buildings** (residential and services), **industry** and **transport**
- Energy consumption data is typically the **per annum consumption by fuel-type** for a given category. It can be expressed in various units (kWh, joule, tonnes of oil equivalent)
- **Activity data varies by category** and covers a wide range of activities. Population, passenger/tonne km travelled.



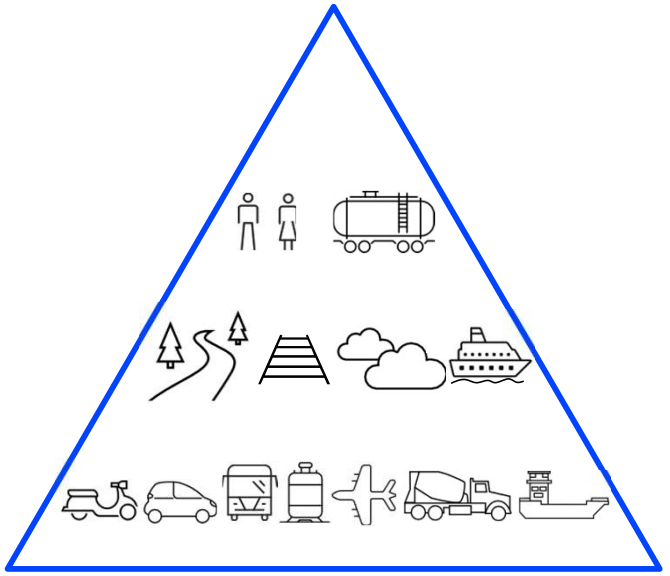
Energy efficiency indicators

- An energy efficiency indicator is typically a **ratio** that represents **energy consumption per unit of activity** of the given category

$$\frac{\text{energy consumption}}{\text{activity}}$$

Indicators are signs describing observable changes or events. They provide useful evidence for policymaking

- Energy intensity is the most general indicator of energy efficiency
- This concept applies at different scales (economy, sectoral, sub-sectoral, fleets/vehicles)
- Indicators **allow for tracking and comparisons**



Examples

Road energy consumption per capita
e.g., GJ per capita

Road energy consumption per passenger/tonne km
e.g., GJ per passenger km, GJ per tonne km

Demand side data is vital for effective policy making

Sectoral level demand side energy and activity data often supports data-driven policy in:

Policy development

Identify high potential opportunities to inform the policy approach, establish the baseline and set realistic targets for policy initiatives (e.g., targets for the penetration of electric motors in industry for equipment replacement programs)

Monitoring and enforcement

Track the progress towards the interim to long-term targets

Refinement

Modify policies based on the progress tracking to maximise their relevance and effectiveness

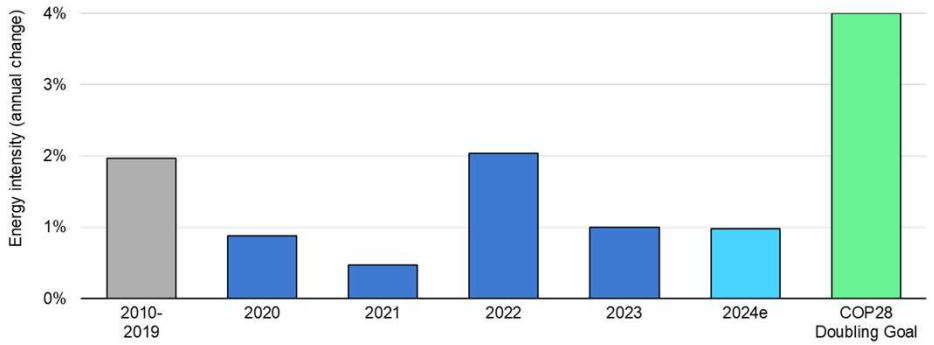
Global energy efficiency progress tracking

- COP28 global doubling energy efficiency goal
- Tracking energy efficiency progress at the global level
- Tracking energy efficiency progress at the regional and country level
- Helping countries to determine, what might be an appropriate level of progress to contribute to the COP28 2030 global doubling goal

Energy Efficiency Progress Tracker

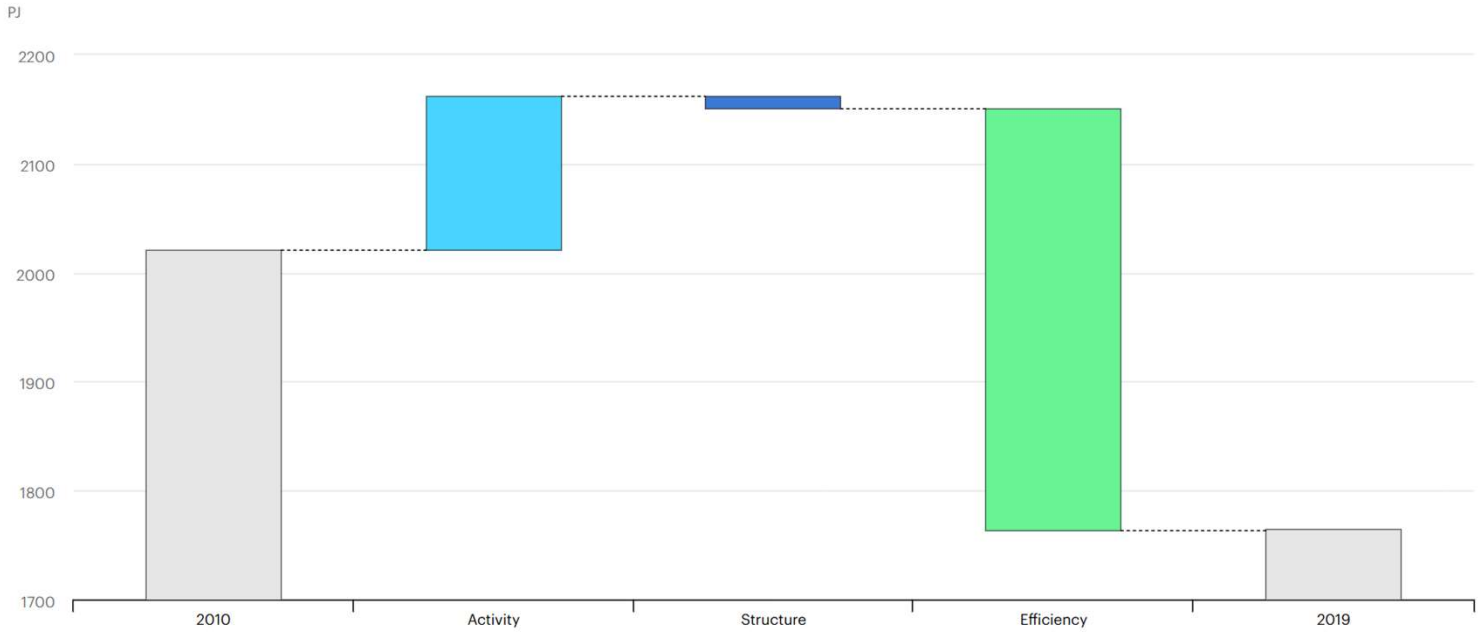
Tracking energy efficiency progress for all regions and countries

Global annual improvement in primary energy intensity, 2020-2024e, and rate needed to achieve the COP28 doubling goal



Example: tracking vehicle efficiency in Japan

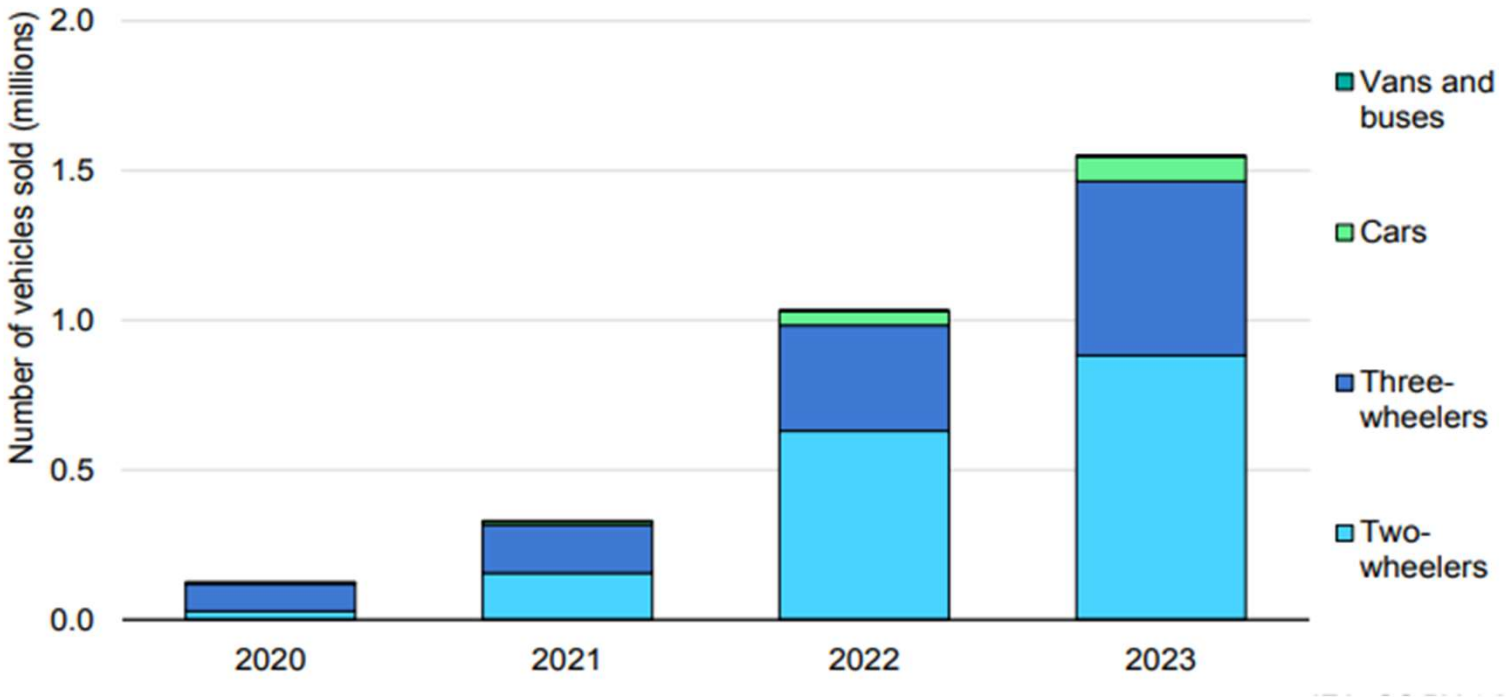
Decomposition of pre-Covid-19 transport energy demand in the Japan, 2010-2019



Japan has promoted transport energy efficiency and demand-side data confirms that reduced energy consumption was achieved through efficiency improvements despite increased distance travelled (activity)

Example: tracking electric vehicle sales in India

Electric vehicle sales, by category, India, 2020-2023



India accelerated electric vehicle adoption through the Faster Adoption and Manufacturing of Electric (FAME) Vehicles scheme, with Phase II (Fame II) running from 2019 to March 2024