

Renewables Global Status Report (GSR) Collection 2023 Transport Module Factsheet

What are the main takeaways of this report?

- Multiple crises – including the climate emergency and the energy crisis, along with associated inflation and higher energy prices – have played a **key role in increasing demand for renewable energy** in four sectors: buildings, industry, transport and agriculture.
 - Interest in **energy efficiency and renewables** increased across these sectors as a way to cut costs and enhance energy supply.
- The crises pushed countries to enact **key policy frameworks for renewable energy**.
 - If adequately backed by policy frameworks and political will, renewables have the potential to respond to crises by providing the **most reliable and cheapest energy option** to supply buildings, industries, transport and agriculture.
- The main barrier to renewable energy uptake in these demand sectors is the **ongoing support for fossil fuels from governments and multilateral development banks**.
 - These institutions provide subsidies and continued investment for new fossil fuel projects despite clear signals from the scientific community that this is incompatible with a pathway to keep global temperature rise within 1.5 degrees Celsius, as pledged in the Paris Agreement.
- In 2022, the United States announced the **Inflation Reduction Act (IRA)**, allocating USD 433 billion in new spending and tax credits, of which USD 370 billion is dedicated to energy security and climate change for the next 10 years.
- The European Commission advanced its **REPowerEU** plan to curtail the effects of the disruption of the energy markets caused by the Russian Federation’s invasion of Ukraine.
 - To reduce the European Union’s reliance on Russian gas, REPowerEU sets policies and objectives for energy efficiency, as well as specific renewable targets and initiatives such as a solar rooftop initiative requiring the installation of renewables in new buildings.
 - REPowerEU also establishes an EU solar strategy to double solar photovoltaic (PV) capacity by 2025 and install 600 gigawatts of solar by 2030. In addition, it calls for a doubling of heat pump deployment and the integration of solar thermal and geothermal in district heating.
 - A key REPowerEU objective is to reduce fossil fuel use in industry and transport.
- Momentum towards **net zero greenhouse gas emissions** is driving policies.
 - As of 2022, a total of 140 countries, representing 90% of global emissions, had committed to a net zero pathway, up from 130 countries representing 70% of emissions in 2021
- Because sectors have responded differently to crises, renewables **uptake across sectors varies widely**.
 - Policies must bring together the different sectors to avoid a siloed transition to renewables and to improve co-ordination among sectoral and energy policies.

- **Why is this report focused on demand – that is, the energy-consuming sectors?**
- Understanding trends on the demand side is critical because it helps **identify energy needs** across sectors and **advance progress** in the uptake of renewables – thereby speeding the energy transition.
- The energy transition involves different building blocks, **not only energy supply**, which typically dominates the narrative.
- This report provides evidence of the key role that energy-consuming sectors play in advancing the **structural transformations needed** for a full transition to renewables.
- REN21 decided to structure the GSR 2023 collection to bridge both angles – supply and demand – and will soon release a module on energy supply.

How did the sector respond?

- In 2021, the transport sector contributed an estimated **7% of the global gross domestic product** – some USD 6.8 trillion – and employed 5.6% of the workforce, or 193 million people.
- The transport sector consumed around **a third of the total energy consumption** in 2021.
- The transport sector released 7.7 gigatonnes of **carbon dioxide emissions** in 2021, or around 20% of the global total. Nearly a fifth of global CO₂ emissions come from road transport.
- Energy use in transport is growing rapidly, but the sector has the **lowest share of renewables** among the four demand sectors.
 - In 2020, renewables accounted for only 4.1% of the sector’s total energy consumption, comprising 3.7% biofuels and 0.4% renewable electricity
- Asia (in particular China) is the main **regional driver of transport demand** for both passengers and freight, followed by North America and Europe.
 - The Asia-Pacific region and North America together accounted for more than half of all transport energy use in 2022
- Current renewable energy production **is not keeping pace** with the rapid growth in energy demand for transport, especially in emerging regions.
- **Fossil fuel subsidies** remain one of the biggest barriers to the uptake of renewables in transport, and ongoing **tax exemptions** for kerosene are hindering the development of alternative fuels in aviation.
- Transport needs to apply an **“avoid-shift-improve” framework** to achieve greater sustainability and limit energy demand; this would enable higher share of renewables and help countries avoid the use private motorised transport as much as possible while enhancing the use of public transport and relying on less-polluting modes such as cycling and walking (and electric vehicles as a last resort).
- Several jurisdictions have set **targets for shares of renewables** in transport.
 - In 2022, two countries raised their targets for the share of renewables in transport by 2030: Portugal from 20% to 29%, and the Netherlands from 14% to 28%.
 - Italy lowered its target for renewables in transport from 22% to 16%.

- Curitiba (Brazil) set a target to power 100% of passenger transport with renewables by 2050.
- Transport is not just road transport. Positive sustainability initiatives are under way in **shipping and aviation** as well.
 - In 2022, the Port of Los Angeles in the United States and the Port of Shanghai in China announced a strategic partnership to create a green transport corridor to reduce emissions from one of the world’s busiest container shipping routes.
 - Denmark announced plans to make all domestic flights fossil fuel-free by 2030.
 - To reduce emissions, France banned all short-haul flights if there is an existing rail alternative of less than 2.5 hours’ duration.
- **Biofuel blending mandates** remain the most common policy for advancing renewable fuels in transport.
 - Four countries – Argentina, India, Indonesia and the Republic of Korea – increased their biofuel mandates or targets in 2022.
 - However, 10 countries – mostly in Europe but also in Latin America and the Caribbean – reduced or suspended their biofuel blending mandates, due to the high price of biofuels in light of the energy crisis and resulting inflation.
- Some countries adopted **bans on internal combustion vehicles**, providing indirect policy support for renewables.
 - The EU approved a ban on the sale of all new petrol and diesel cars from 2035.
 - In the United States, King County (Washington state) committed to achieving a zero-emission public transport fleet by 2040.
- Policies targeting the **electrification of road transport** have received growing interest, and the use of renewable electricity in transport grew in 2022.
 - However, incentives for electric vehicles do not necessarily lead to greater renewable energy uptake unless they are aligned specifically with efforts to increase renewables in the electricity mix.
 - Investment in **electric vehicles** and related charging infrastructure surged 53.6% in 2022 to reach USD 466 billion.
 - Electric cars accounted for 15-18% of all new automobiles sold in 2022, reflecting the steep growth in sales in recent years.
 - China alone registered around half of the estimated 10 million electric vehicles sold globally in 2022.
 - In Germany, the electric car fleet grew nearly 30-fold between 2016 and 2021, at an average annual rate of 109%.
 - Despite the sharp rise in electric vehicle sales worldwide, **most of the electricity** used to power battery electric vehicles and to produce hydrogen for fuel cell vehicles still **comes from fossil fuels**.
 - In 2022, just five countries – Chile, Denmark, New Zealand, Sweden and the United Kingdom – had both a 100% ban on internal combustion engine vehicles and a 100% renewable power target.