This is one of a series of country factsheets which summarise trends in fossil fuel and renewable energy use, transport energy targets, and threats and opportunities in the energy and transport sectors.

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Nexus between Transport and Renewable Energy

Pakistan

While Pakistan is moving quickly towards e-mobility, it has not yet realised efficiency in its existing vehicle fleet. Consumption subsidy reforms have been largely successful, despite a threat of rebound with recent global petroleum price increases. Pursuing transport decarbonisation through vehicle electrification will require enhanced renewables generation capacity and a strengthened transmission grid.

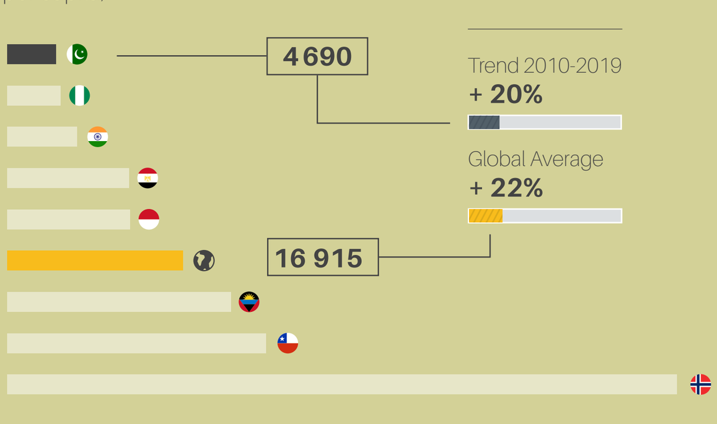
Country Typology Framework

This framework is the basis for an analysis of fossil fuel subsidy reform and renewable energy scale up in the transport sector, which can reduce carbon emissions and generate tax revenues for sustainable development.

Fossil fuel subsidy trends

Targets to reduce transport oil demand	Growing / 'rebound'	Decreasing
Ambitious targets	**Determined** Antigua & Barbuda	**Front runner** India | Norway
Moderate targets	**Mixed** Chile | US	**Progressive** **Pakistan**
Unambitious/ no targets	**Dormant** Nigeria	**Latent** Egypt | Indonesia

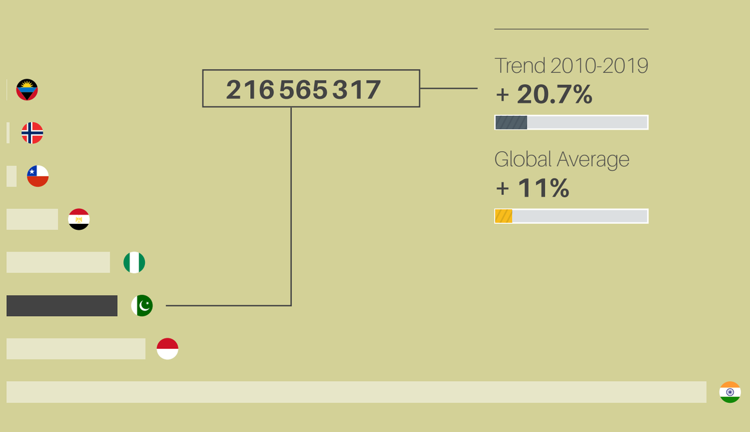
GDP per capita 2019
(PPP (constant 2017 international $) per capita)



Trend 2010-2019 + 20%

Global Average + 22%

Population 2019



Trend 2010-2019 + 20.7%

Global Average + 11%

(Source: World Bank)

Fossil Fuel Energy

Net import/export oil products (EJ) (2019)
(Source: IEA)

366 451 Net importer

Trend 2010-2020 -19%

Net import/export crude oil (EJ) (2019)
(Source: IEA)

368 042 Net importer

Trend 2010-2020 +24%

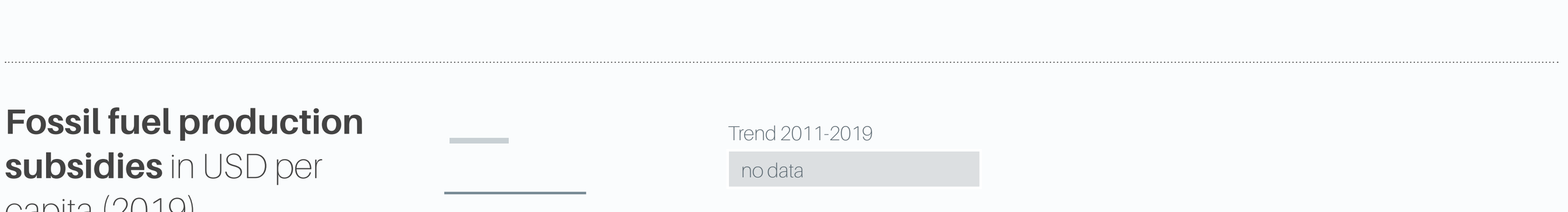
Share of power generation in total fossil fuel CO_2 emissions
(Source: EDGAR)

-1% 2010 - 2020

Pakistan 26.2%

World 36.5%

Total energy supply per capita (TJ/cap) (2019)
(Source: IEA)



21.53 — Trend 2010-2019 +29%

79.13 — Trend 2010-2019 +15%

Fossil fuel consumption subsidies in USD per capita (2019)
(Source: FossilFuelSubsidyTracker)

7.6

Share of GDP 0.59%

Trend 2011-2019 -88%

Pakistan has substantially reduced its consumer subsidies, with the majority of remaining subsidies supporting natural gas.

(Source: OECD)

Fossil fuel production subsidies in USD per capita (2019)

—

Share of GDP —

Trend 2011-2019 no data —

Transport fossil fuel subsidies in million USD per capita (2019)
(Source: IEA FFS)

zero

Share of GDP 0.00%

Trend 2014-2019 -100%

Transport fuel subsidies were eliminated in 2019; however, the government delayed raising petrol and diesel prices during an increase in global oil prices, effectively reinstating subsidies during 2020 and 2021. In response to the global price increase, the Federal Board of Revenue reduced sales tax on petrol from 17% to 1.6% during 2021

(Sources: Gulfnews, Tribune)

Renewable Energy

Share of renewables in:

Primary energy* (%): 35.9% (2018)

Electricity generation (%): 37.26% (2020)

(Source: REN21)

*Primary energy refers to all energy used in a country before transformation and encompasses all uses, including all non-electricity use of energy

Renewable electricity target
(Source: REN21)

2025 → 2030

20% interim target of 20% renewable power generation by 2025

30% power generation (excluding hydro)

Transport

Share of transport in total energy demand (%) (2019)
(Source: IEA)

+2.1% 2010 - 2019

Pakistan 18.4%

World 28.9%

Share of transport in total fossil fuel CO_2 emissions (%) (2019)
(Source: EDGAR)

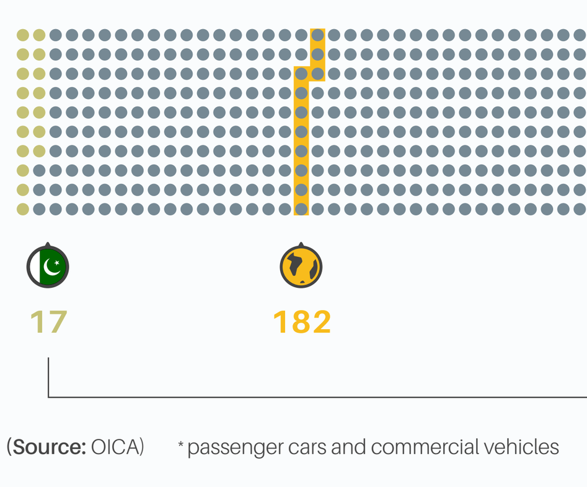
+6.5% 2010 - 2019

Pakistan 23.4%

World 21.8%

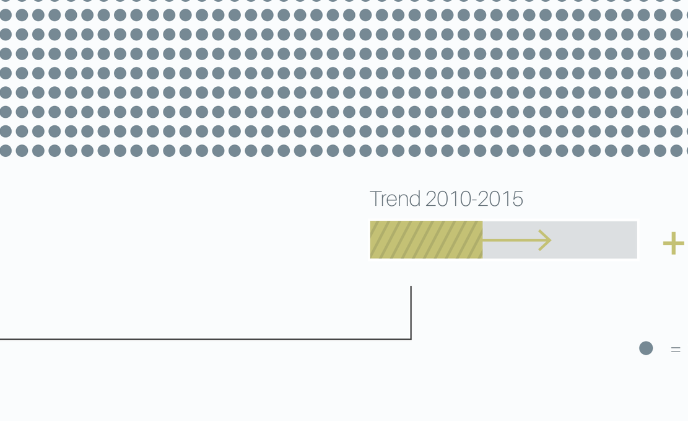
Transport CO_2/capita (t CO_2/cap) (2019)
(Source: EDGAR, World Bank)

Trend 2010-2019 +27%

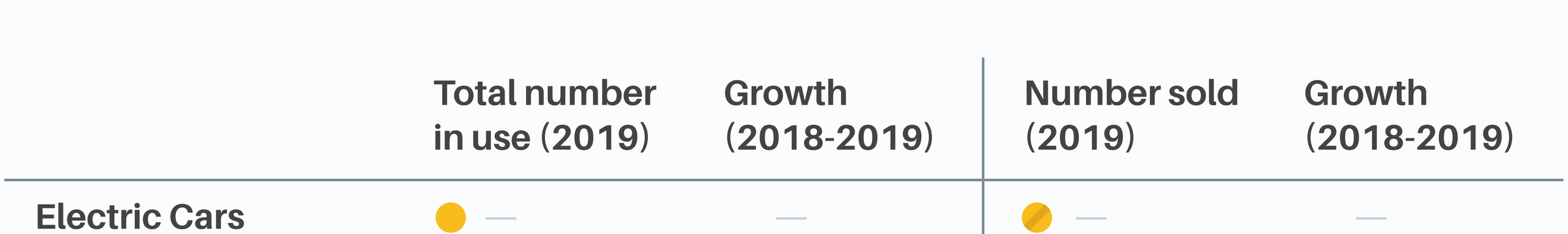


Carbon intensity of road transport (gCO_2/MJ)
(Source: IEA)

Trend 2010-2019 +1.7%



Motorisation rate 2015 (vehicles* per 1 000 inhabitants)



Pakistan 17 | World 182

Trend 2010-2015 +42%

● = 1 Inhabitant

(Source: OICA) *passenger cars and commercial vehicles

VEHICLE ELECTRIFICATION

	Total number in use (2019)	Growth (2018-2019)	Number sold (2019)	Growth (2018-2019)
Electric Cars	—	—	—	—
Electric 2-wheelers	—	—	—	—
Electric 3-wheelers	—	—	—	—
Electric Buses	—	—	—	—

In 2019, Pakistan adopted a policy to enhance EV uptake and increase domestic EV manufacturing capacity. The policy includes a range of incentives for cars, 2-/3-wheelers, buses, trucks and charging infrastructure

(Source: GoP EV).

EV targets
(Source: ICCT EV Targets)

90% of LDV, HDV, 2-/3-wheeler and bus sales by 2040.
(Source: GoP EV)

Intermediate targets: 30% of new sales of passenger vehicles and heavy-duty trucks and 50% of 2-/3-wheelers and buses by 2030.
(Source: GoP EV)

BIOFUELS

Mandate biodiesel blend (%): none

Mandate bioethanol blend (%): none

Use (2019) | Target (2030)

VEHICLE EFFICIENCY

Fuel efficiency standard passenger vehicles (g/km)
Current → Target
none

Vehicle efficiency standards HDVs (l/100 km)
Current → Target
none

Import restrictions on second-hand LDVs older than three years.
(Source: UNEP)

Other transport targets
none

Threats and Opportunities

THREATS

ENERGY

Pakistan's electricity system faces a widening gap between power generation demand and supply, and its transmission infrastructure requires reinforcement and expansion (IRENA). Projected increases in power demand from transport electrification will strain the existing electricity system, which has an increasing share of intermittent renewable energy generation.

TRANSPORT

New car ownership in Pakistan is growing rapidly, with more than 100 000 new cars sold from January to October 2021, roughly double pre-COVID-19 figures. At the same time, Pakistan's Euro-3 emission standards are among the weakest in the region (UNEP).

Pakistan has a high rate of importing secondhand heavy-duty vehicles (over 30 000 in 2018) with no established import regulations (UNEP).

OPPORTUNITIES

ENERGY

Pakistan's Alternative Renewable Energy Policy encompasses a wide range of renewable energy sources (e.g. wind, solar, biomass, geothermal, tidal energy, waste-to-energy). The Policy offers significant potential for low-carbon transport if it can be more closely aligned with projected increases in energy demand due to vehicle electrification.

TRANSPORT

Pakistan has among the lowest car ownership rate in Asia (TCC-GSR), which offers greater opportuntiy to move to electric vehicles due to the relatively limited stock of fossil fuel-driven vehicles.

Fleet electrification can reduce dependence on oil imports and provide budgetary resources to build a national industry, as described in the national EV policy. More than 90% of Pakistan's 2- and 3-wheeler fleet is produced domestically, providing ample potential for transition to a greener industry (GoP EV).

Karachi is home to the world's first zero emission BRT line, which runs on biogas producd from organic waste. Renewable energy use could be expanded to other BRT systems in Pakistan (e.g. the Peshawar BRT system, which carries 500 000 passengers daily) (TCC-GSR).

Sources

EDGAR | ET | ETT | Focus2move | GoP EV | GoP NDC | GRO | Gulfnews | ICCT EV Targets | ICCT LDV | IEA | IEA EV | IEA FFS | IRENA | Nation.com | OECD | OICA | Pro Pakistani | REN21 | SEA4ALL (UNDP) | TCC-GSR | Tribune | UNEP | World Bank

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SLOCAT Partnership on Sustainable, Low Carbon Transport