PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS

In recent years, Pakistan’s greenhouse gas emissions, excluding forestry, have grown at a rate of 8.5% (2012-2017).

2030 NDC TARGET

Pakistan’s 2030 NDC target is a 20% reduction below the projected 300% increase in levels of emissions from 2015 levels. This translates to an emissions level of 1259MtCO₂ e by 2030 (excl LULUCF). There is no Climate Action Tracker analysis for Pakistan.1,2

SOLAR COULD MEET DEMAND

Utilising 0.071% of the country’s surface area for solar photovoltaic power could meet Pakistan’s current electricity demand.

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION

1. Implement reforestation opportunities through the Plant4Pakistan project.
2. Stimulate investment in the burgeoning domestic electric vehicle industry.
3. Boost EV finance via tree planting.
5. Electric Vehicle Policy aims to electrify all passenger vehicles and heavy-duty trucks to reach 30% by 2030 and 90% by 2040.
6. Plans to pursue coal mining in Thar Desert include coal-to-gas, and coal-to-liquid operations.

RECENT DEVELOPMENTS

As part of the government’s response to the coronavirus epidemic, Pakistan launched the Green Economic Stimulus, focused on job creation and restoring the country’s natural ecosystems. In June 2021, the World Bank approved US $188 million for this initiative.

References: M Khan, 2020, Pakistan Today, 2021
CONTENTS
We unpack Pakistan’s progress and highlight key opportunities to enhance climate action across:

- **ADAPTATION** Page 3
- **MITIGATION** Page 5
- **FINANCE** Page 16

**Socio-Economic Context**

**Human Development Index**
The Human Development Index reflects life expectancy, level of education, and per capita income. Pakistan ranks medium, albeit at the lower end.

Data for 2018. Source: UNDP, 2019

**Gross Domestic Product (GDP) per capita**

$5,062 PPP constant 2015 international $

Data for 2018. Source: United Nations Department of Economic and Social Affairs Population Division, 2020

**Legend**

- **Trends** show developments over the past five years for which data are available. The thumbs indicate assessment from a climate protection perspective.

- **Policy Ratings** evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.

**Population and Urbanisation Projections**

(Population is expected to increase by about 59% by 2050 and become more urbanised. While urbanisation is generally correlated with economic growth, Pakistan faces challenges related to housing access and waste generation.

Sources: The World Bank, 2019; United Nations, 2018

**Death Rate Attributable to Ambient Air Pollution**

As a result of outdoor air pollution, over 121,000 people die in Pakistan every year from stroke, heart disease, lung cancer and chronic respiratory diseases.

Data for 2016. Source: WHO, 2018

**Just Transition**

As a country in the global south, and one that is highly susceptible to climate change, Pakistan faces the simultaneous challenges of mitigation, adaptation, and “just” economic development. The government has developed domestic policies to deal with these challenges, such as the Green Economic Stimulus initiative and its focus on job creation. However, foreign investment, such as coal mining in the Thar desert, has the potential to impede progress and increase environmental degradation and economic inequality.

Even though construction of new large-scale power plants has boosted the country’s energy capacity, more than 50 million people still lack access to electricity, and this is mainly due to a lack of transmission infrastructure.

On the other hand, the adoption of competitive bidding procedures in the National Electricity Policy should benefit the country and consumers through lower tariffs.

References: Sheikh, 2020; M Khan, 2020; Isaad, 2021
1. ADAPTATION
ADDRESSING AND REDUCING VULNERABILITY TO CLIMATE CHANGE

Increase the ability to adapt to the adverse effects of climate change and foster climate resilience and low-GHG development.

On average, 499 fatalities and almost USD 3.79bn in losses occur annually due to extreme weather events.

With global warming, Pakistani society will be exposed to increased monsoon variability, flooding caused by receding Himalayan glaciers, reduced crop yields, heatwaves and reduced hydropower during droughts.

In its NDC, Pakistan has estimated that adaptation to climate change-induced extreme events such as floods, heat waves, and droughts would require USD 7-14bn per annum.

ADAPTATION NEEDS

Climate Risk Index
Impacts of extreme weather events in terms of fatalities and economic losses that occurred in 2018.

**Annual weather-related fatalities**
- **499 DEATHS**
- **0.3 PER 100,000 INHABITANTS**
- High Death rate
- **RANKING 19th OUT OF 181**

**Annual average losses (USD mn PPP)**
- **$3,792 PER UNIT GDP (%)**
- High Losses
- **RANKING 90th OUT OF 181**

Source: Germanwatch, 2019

CORONAVIRUS RECOVERY

During 2020 the government mandated lockdowns to curb the spread of COVID-19, initially impeding its Ten Billion Tree Tsunami adaptation campaign; however, by April 2020 the Prime Minister allowed an exemption for the forestry agency and planting resumed. In response to the pandemic, Pakistan launched a ‘green stimulus package’ focused on protecting nature and creating green jobs. Interventions included planting more trees, expanding and reviving protected areas, and improving urban sanitation. Through government finance, 85,000 daily wage jobs were created in nurseries, plant care, protection of natural forests and firefighting activities.

References: Ministry of Climate Change Government of Pakistan, 2019; R Khan, 2020
ADAPTATION POLICIES

National Adaptation Strategies

<table>
<thead>
<tr>
<th>Document name</th>
<th>Publication year</th>
<th>Fields of action (sectors)</th>
<th>M&amp;E process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan 2025 - One Nation, One Vision</td>
<td>2017</td>
<td>⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤</td>
<td>n/a</td>
</tr>
<tr>
<td>National Climate Change Policy</td>
<td>2012</td>
<td>⬤ ⬤</td>
<td>n/a</td>
</tr>
<tr>
<td>Framework for the Implementation of Climate Change Policy</td>
<td>2014</td>
<td>⬤ ⬤</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Nationally Determined Contribution (NDC): Adaptation

**Targets**

Long-term Vision: Build a climate-resilient society and economy inclusive of economically and socially vulnerable sectors of the economy.

**Actions**

Medium-term (up to 2030) actions include improving irrigation systems, enhancing water resource management, building climate-resilient infrastructure, and strengthening risk management systems for the agriculture sector.

Near-term (2020-2025) actions include development of a National Adaptation Plan and enhancing adaptation and disaster risk management capacity.

Reference: Government of Pakistan, 2015
2. MITIGATION

REDUCING EMISSIONS TO LIMIT GLOBAL TEMPERATURE INCREASE

Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit to 1.5°C, recognising that this would significantly reduce the risks and impacts of climate change.

EMISSIONS OVERVIEW

Pakistan’s GHG emissions have increased by 140% (1990-2017). Pakistan’s 2030 emissions pathway, as proposed in its NDC, increase its emissions nearly 300% by 2030 above 2015 levels, instead of reducing emissions.

In 2030, global CO₂ emissions need to be 45% below 2010 levels and reach net zero by 2050. Global energy-related CO₂ emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

Source: Rogelj et al., 2018

GHG emissions across sectors and NDC target (MtCO₂e/year)

Pakistan’s emissions (excl. land use) have increased by 140% between 1990 and 2017. When considered by category, increases are evident in all sectors. The largest absolute increases have occurred in the energy and agriculture sectors, while industrial processes have seen the greatest relative increase. The country’s NDC states that by 2030 emissions are expected to grow by close to 300% relative to 2015 levels. The NDC reduction target of 20% below the anticipated 300% increase (from 2015 levels) by 2030 is not sufficient to reach 1.5°C compatibility, which would require an emissions level of 244 MtCO₂e by that year instead of the lowest end of Pakistan’s range of 1,259 MtCO₂e.

Source: Gütschow et al. 2019; Climate Analytics, forthcoming

Energy-related CO₂ emissions by sector

The largest driver of overall GHG emissions are CO₂ emissions from fuel combustion.

In Pakistan, following a decade of relative stability, energy related CO₂ emissions have increased since 2015. The industrial sector – at 32% – is the largest contributor, followed by transport and electricity at 28% and 27% respectively.

Source: Enerdata, 2020

CORONAVIRUS RECOVERY

A recent analysis of Pakistan’s energy regulatory authorities has found that these entities could have managed the changes in energy consumption patterns and energy prices due to the COVID-19 epidemic better. Operational effectiveness of the country’s energy system could be enhanced by using renewable energy sources to meet future demand, particularly as oil price variability during the epidemic was a major driver of CO₂ emissions reduction.

Reference: Iqbal, S et al., 2020
Fossil fuels make up around 60% of Pakistan’s energy mix (counting power, heat, transport fuels, etc). The shares of fossil fuels and zero carbon technologies in the country’s energy mix remained at essentially the same levels over the decade ending in 2019. However, carbon intensity has grown by 15% over that same period, reflecting increases in the country’s total energy supply.

The share of fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050 and to substantially lower levels without Carbon Capture and Storage. 

Source: Rogelj et al., 2018

This graph shows the fuel mix for all energy supply, including energy used not only for electricity generation, heating, and cooking, but also for transport fuels. Fossil fuels (oil, coal and gas) still make up 60% of Pakistan’s energy mix. While the share of renewables (mostly hydro) and nuclear in the energy mix increased slightly since 2015, the percentage of coal more than doubled between 2015 and 2019. “Other” includes waste and non-traditional biomass.

Solar, wind and biomass account for slightly over 5% of Pakistan’s energy supply. The share of renewables in total energy supply has increased by around 8% over the last five years in Pakistan (2014–2019). Bioenergy (for electricity and heat) makes up the largest share.
**Carbon Intensity of the Energy Sector**

Carbon intensity shows how much CO₂ is emitted per unit of energy supply. In Pakistan, carbon intensity remained fairly constant at around 38 tCO₂/TJ between 2000-2015, but has increased since then. This current high level of 43 tCO₂/TJ reflects the high share of fossil fuels in the energy mix.

Source: Enerdata, 2020

**Energy supply per capita**

21

GJ/capita

Sources: Enerdata, 2020; The World Bank, 2019


+9%

The level of energy use per capita is closely related to economic development, climatic conditions and the price of energy. Energy use per capita in Pakistan stands at 21 GJ/capita, but is increasing (9%, 2014-2019). The increase in per capita energy use reflects the government’s policies on energy access and industrial development.

Source: Ministry of Planning, Development & Reform, 2018

**Energy intensity of the economy**

4.34

TJ/PPP USD2015 millions

Data for 2018. Sources: Enerdata, 2020; The World Bank, 2019

This indicator quantifies how much energy is used for each unit of GDP. This closely relates to the level of industrialisation, efficiency achievements, climatic conditions or geography.

Source: Ministry of Planning, Development & Reform, 2018
Pakistan currently produces 10% of its electricity from coal. Despite an announced moratorium on new coal plants, coal capacity is set to increase further, with up to 6,600 MW already in planning or under development.

Coal and decarbonisation
Worldwide, coal use for power generation needs to peak by 2020 and, between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. Electricity generation has to be decarbonised before 2050, with renewable energy the most promising alternative.

Pakistan produces about a third of its power from renewables, with hydroelectricity making up the lion's share. Although wind and solar projects have recently come on line, this has not affected the use of unabated fossil fuels, mostly gas and oil, which still produce about two-thirds of the country's power. The level of coal, oil and natural gas in the mix has barely decreased, and still accounts for 57% of the electricity mix in 2019.

Source: National Electric Power Regulatory Authority, 2021
**Emissions intensity** of the power sector

![359 gCO₂/kWh](image)


-7.7%

Source: Enerdata, 2020

For each kilowatt hour of electricity, 359 gCO₂ is emitted in Pakistan. The emissions-intensity has only dropped marginally because the use of fossil fuels for power generation has barely dropped (still 57% of the power mix).

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**POLICY ASSESSMENT**

**Renewable energy in the power sector**

Medium

Pakistan’s Alternative and Renewable Energy Policy 2019 targets a 20% share of renewables in installed capacity of Pakistan’s power mix by 2025 and 30% by 2030.

At the Climate Ambition Summit in December 2020, Prime Minister Khan said that by 2030 60% of electricity produced will come from clean energy, including solar, hydro, wind and nuclear. The promotion of renewables is supported by tax benefits to investors, competitive auctions and incentives for local production of renewable energy equipment.

References: own evaluation based on Government of Pakistan, 2019; Lo, 2020

**Coal phase-out in the power sector**

Medium

In December 2020, Prime Minister Khan announced that no new coal power plants will be constructed. However, this does not include coal plants under construction: seven coal projects financed as part of the China-Pakistan Economic Corridor (CPEC). From 2020 onward, according to the government, the only new coal in the electricity generation mix will be projects already under development, and there is no new coal planned after 2024. Most of the new generation capacity will be renewables and large hydro.

References: own evaluation based on Lo, 2020; Millan Lombrana et al., 2020; M Khan, 2021
**TRANSPORT SECTOR**

Emissions from energy used to transport people and goods

Emissions from transport in Pakistan are increasing, with per capita emissions in this sector showing a 44% increase over the period 2013-2018. Transport accounted for 76% of the 19 million tonnes of oil consumed in Pakistan in 2018-2019, and 28% of the 199 MtCO₂ emissions from fuel combustion in 2019. To stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.

**Share in energy-related CO₂ emissions from transport sector**

Source: Enerdata, 2020

**COMPATIBILITY**

The share of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.

Source: Rogelj et al., 2018

---

**STATUS OF DECARBONISATION**

**Transport energy mix**

Final energy consumption of transport by source (PJ/year)

Due to rounding, some graphs may sum to slightly above or below 100%.

Fossil fuels, in the form of oil and natural gas, make up 100% of Pakistan’s energy mix in the transport sector.

**Transport emissions per capita**

excl. aviation (tCO₂/capita)

Data for 2018. Source: Enerdata, 2020

**Transport emissions: 5-year trend (2013-2018)**

+44%
Aviation emissions per capita

Data for 2017. Source: Enerdata, 2020

POLICY ASSESSMENT

Phase out fossil fuel cars

Pakistan’s 2019 National Electric Vehicles Policy aims for 30% of all passenger vehicle sales being electric vehicles by 2030 and 90% by 2040 (100% by 2035 would be 1.5°C compatible). So far, the implementation of this policy has been delayed by the government’s focus on responding to COVID. Electric vehicles are promoted by incentives for direct foreign investment, lower taxes for EV manufacturing, assembly and related industries; and lower import duty for charging equipment. The government also invests in charging stations. In 2020, Pakistan updated its vehicle emissions standards to be compliant with Euro 5 for both diesel and petrol fuel.

References: own evaluation based on Pakistan’s National Electric Vehicles Policy, 2019; Ministry of Water & Power, 2007; The International Council on Clean Transportation, 2020

Phase out fossil fuel heavy-duty vehicles

Pakistan’s National Electric Vehicles Policy 2019 aims for 30% of all heavy-duty truck sales to be electric vehicles by 2030 and 90% by 2040 (100% by 2035 would be 1.5°C compatible).

References: own evaluation based on Pakistan’s National Electric Vehicles Policy, 2019; The International Council on Clean Transportation, 2020

Modal shift in (ground) transport

Pakistan is expanding its railway infrastructure as part of the China Pakistan Economic Corridor (CPEC). The project covers both passenger and freight trains. The goals of the National Energy Conservation Policy (2006), such as the promotion of public transport, a cycling culture and pedestrianisation, have been reiterated in the “Pakistan Vision 2025”. In 2019, the Government of Pakistan signed a memorandum of understanding on introducing electric buses in cities of Karachi and Lahore.

References: own evaluation based on Ministry of Planning, Development & Reform, 2018; Ministry of Water & Power, 2007
Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioners, appliances, etc). In the decade to 2019, the share of total CO₂ emissions from Pakistan’s buildings, has remained fairly stable at 10% and 15% respectively. As the country’s total CO₂ emissions have risen substantially since 2015, emissions from buildings have likewise increased.

Recent analysis shows that use of roof insulation in residential buildings is rare, suggesting a need to implement energy audits and other measures to encourage energy efficiency.

Source: Ghafoor, et al., 2020

Building-related emissions per capita reflect increasing income levels, climate conditions (leading to high use of air conditioning during heat waves), low energy efficiency in buildings, and also the high ratio of square footage per person. Pakistan has increased this level by 17.6% (2014-2019).

Source: Enerdata, 2020

Pakistan’s Building Energy Code from 1986 and its updates, including the Energy Provisions 2011, provide minimum requirements for energy-efficient design and construction of buildings. However, Pakistan has no national strategy for near-zero new energy buildings.

References: own evaluation based on Ministry of Planning, Development & Reform, 2018; Ministry of Housing & Works, 1990

Pakistan’s Building Code and related Energy Provisions 2011 provide minimum energy efficiency requirements for the design and construction of new systems and new equipment in existing buildings. In contrast, the government has no strategy nor incentives to promote the retrofitting of existing buildings.

Reference: own evaluation based on Ministry of Housing and Works, 2013
Industry-related emissions make up 38% of CO₂ emissions in Pakistan. Pakistan has only managed to slightly reduce emissions from this sector.

### Share in energy-related CO₂ emissions from industrial sector

<table>
<thead>
<tr>
<th>CO₂ emissions</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity-related</td>
<td>7%</td>
</tr>
<tr>
<td>Direct emissions</td>
<td>32%</td>
</tr>
</tbody>
</table>

Data for 2018  
Source: Enerdata, 2020

### Industrial emissions need to be reduced by 75-90% from 2010 levels by 2050.

*Source: Rogelj et al., 2018*

### COMPATIBILITY

1.5°C

### STATUS OF DECARBONISATION

#### Industry emissions intensity

<table>
<thead>
<tr>
<th>Data for 2018</th>
<th>Source: Enerdata, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.89 tCO₂e/USD2015 GVA</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Data for 2017</th>
<th>Sources: Gutschow et al., 2019; Enerdata, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>+11%</td>
<td></td>
</tr>
</tbody>
</table>

#### Carbon intensity of cement production

<table>
<thead>
<tr>
<th>Data for 2018</th>
<th>Sources: CAT Decarbonisation Data Portal, 2020; Mir et al., 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.73 MtCO₂e</td>
<td></td>
</tr>
</tbody>
</table>

In 2012, cement production emitted 14.73 MtCO₂e. With a production of 29.56 Mt that year, the country’s emissions-intensity of cement production was 498 kgCO₂e/tonne. More recent data is not available for Pakistan.

### Carbon intensity of steel production

<table>
<thead>
<tr>
<th>Data for 2018</th>
<th>Sources: Mir et al., 2017, World Steel Association, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,900 kgCO₂e/tonne</td>
<td></td>
</tr>
</tbody>
</table>

Steel production and steelmaking are significant GHG emission sources, and challenging to decarbonise. In 2012, Pakistan produced 0.25 MT of metal (iron and steel). With associated emissions of 0.59 MtCO₂e, the country’s emissions-intensity of steel production stood at 2,360 kgCO₂e/tonne. More recent data is not available for Pakistan.

### POLICY ASSESSMENT

#### Energy Efficiency

Pakistan is planning to set sectoral energy efficiency targets via its NEECA Strategic Plan 2020-2030. The 2006 National Energy Conservation Policy lists several initiatives for the industry sector. These include the facilitation of energy audits; the implementation of low-cost, fast-payback energy conservation measures; the promotion of energy efficient combustion processes, instrumentation and control; the development of management information systems; and the promotion of small-scale technology programmes in small and medium scale industrial units.

*Source: Ministry of Water & Power, 2007*
Pakistan is one of the top 10 countries for non-CO2 emissions from crops and livestock. The country’s agricultural emissions are mainly from digestive processes in animals, livestock manure and the use of synthetic fertilisers. A 1.5°C pathway requires dietary shifts, increased organic farming and less fertiliser use.

**Dietary shifts are needed**

The 2015 National Forest Policy aimed for a national level mass afforestation programme: to control deforestation through regulating the movement and inter-provincial trade of timber.

In 2020 the Prime Minister announced the one billion trees target would increase to 10 billion by 2023. With one of the highest deforestation rates in Asia in 2020, Pakistan has no net zero deforestation target.

**Global tree-cover loss**

Between 2001 and 2018, Pakistan lost 9.68 kha of tree cover, equivalent to a 99% decrease from 2000. This does not take tree-cover gain into account.

**Emissions from agriculture (excluding energy)**

Pakistan’s largest sources of GHG emissions in its agricultural sector are digestive processes in animals (enteric fermentation), livestock manure, and the use of synthetic fertilisers. In 2017, livestock accounted for 65% of the country’s CH4 emissions. Note that while the emissions-intensity of the agricultural sector and its share in the country’s GDP have been steadily declining since 2000, the government, in its NDC, projects an increase of around 160% in emissions from this sector between 2015 and 2030. A shift to organic farming, more efficient use of fertilisers and diet changes can help reduce emissions.

**Net sink of emissions**

To stay within the 1.5°C limit, Pakistan needs to make the land use and forest sector a net sink of emissions, a goal which the Ten Billion Tree Tsunami project will aid. In addition, the country needs to halt the expansion of residential areas, discontinue the degradation of peatland, and convert cropland into wetlands.

**1.5°C compatibility**

Global deforestation needs to be halted and changed to net CO2 removals by around 2030.

Source: Rogelj et al., 2018

Global deforestation needs to be halted and changed to net CO2 removals by around 2030.

**1.5°C compatibility**

Global deforestation needs to be halted and changed to net CO2 removals by around 2030.

Source: Rogelj et al., 2018

**Policy assessment**

Target for net-zero deforestation

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References: own evaluation, based on Ministry of Climate Change, 2015, FAO, 2003

**1.5°C compatibility**

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**Agriculture sector**

Emissions from agriculture

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Source: FAO, 2020

**Emissions from agriculture**

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Due to rounding, some graphs may sum to slightly above or below 100%.

Sources: Government of Pakistan, 2015, Pakistan Bureau of Statistics, 2021
MITIGATION: TARGETS AND AMBITION

The combined mitigation effect of nationally determined contributions (NDC) submitted by September 2020 is not sufficient and will lead to a warming of 2.7°C by the end of the century. This highlights the urgent need for all countries to submit more ambitious targets by 2020, as they agreed in 2015, and to urgently strengthen their climate action to align to the Paris Agreement’s temperature goal.

AMBITION: 2030 TARGETS

Nationally Determined Contribution (NDC): Mitigation

Targets
Pakistan anticipates a baseline increase of 300% from 2015 emission levels by 2030. Its NDC is a 20% reduction of GHG emissions (incl. LULUCF) from that baseline by 2030, subject to availability of international funding to the amount of USD 40bn (2016 prices).

Actions
No concrete actions are mentioned in Pakistan’s NDC, but instead a number of priority areas for mitigation. Examples are: increased grid efficiency and large-scale renewable energy (energy supply); energy efficient appliances for irrigation, cooking and heating (energy demand); improved irrigation and water management techniques (agriculture).

TRANSPARENCY: FACILITATING AMBITION

Countries are expected to communicate their NDCs in a clear and transparent manner in order to ensure accountability and comparability.

The NDC Transparency Check has been developed in response to Paris Agreement decision (1/CP.21) and the Annex to decision 4/CMA.1. While the Annex is only binding from the second NDC onwards, countries are “strongly encouraged” to apply it to updated NDCs, due in 2020.

AMBITION: LONG-TERM STRATEGIES

<table>
<thead>
<tr>
<th>Status</th>
<th>NDC submitted to UNFCCC in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>2050 target</td>
<td>No</td>
</tr>
<tr>
<td>Interim steps</td>
<td>No</td>
</tr>
<tr>
<td>Sectoral targets</td>
<td>No</td>
</tr>
<tr>
<td>Net-Zero target</td>
<td>No</td>
</tr>
<tr>
<td>Net-Zero year</td>
<td>No</td>
</tr>
</tbody>
</table>

The Paris Agreement invites countries to communicate mid-century, long-term, and low GHG emissions development strategies by 2020. Long-term strategies are an essential component of the transition toward net-zero emissions and climate-resilient economies.
3. FINANCE
MAKING FINANCE FLOWS CONSISTENT WITH CLIMATE GOALS

Make finance flows consistent with a pathway towards low-GHG emissions and climate-resilient development.

Pakistan spent USD 5,047m on fossil fuel subsidies in 2018, mostly on gas and electricity (52% and 46% of total respectively). Pakistan has no explicit carbon price.

Investment in green energy and infrastructure needs to outweigh fossil fuel investments by 2025.

Source: Rogelj et al., 2018

FISCAL POLICY LEVERS

Fiscal policy levers raise public revenues and direct public resources. Critically, they can shift investment decisions and consumer behaviour towards low-carbon, climate-resilient activities by reflecting externalities in the price.

Fossil Fuel Subsidies

According to IEA (2020), in 2019 Pakistan subsidised the consumption of fossil fuels for a total of USD 1.9bn. The large share of these subsidies went to subsidising the consumption of gas (USD 1.745bn), and a smaller share was directed to oil consumption (USD 155m).

Broadly in line with the IEA figures, according to Government of Pakistan (2020), a total of USD 1.7bn is reported in the state budget as subsidies to electricity, oil and gas for the fiscal year 2019-2020. The subsidies directed to support electricity consumption amounted to around USD 1.4bn – the large majority of these (USD 1.0bn) went to distribution companies (DISCOs) to cover the difference between the National Electric Power Regulatory Authority-approved tariff schedules, which can differ across DISCOs, and the uniform tariff schedule notified by the Ministry of Water and Power in all regions of the country.

While the government has made considerable efforts to reduce electricity consumption subsidies over the last few years, it is now trying to further cut subsidies by reducing transmission losses, i.e. with a limited impact on electricity prices. The remaining reported subsidies are those directed at the oil and gas sector: a USD 154m consumption subsidy to LNG sector for providing gas on lower rates to industry, and the USD 148m subsidy provided to the production and distribution of oil and gas by means of supporting companies such as PSO, APL and others.

The other subsidies to fossil fuel production recorded are those representing incentives to investors in the upstream oil and gas sector (Ministry of Energy, 2020), namely:

- The establishment of a specific gas pricing formula for local and foreign companies, as well as transparent criteria for the award of exploration licenses on the basis of work units (per unit cost is USD 10,000)
- Concessionary rates of duty for import of machinery/equipment/material, etc. vehicles, vessels
- Capping of the corporate tax for the sector at 40%
- A bonanza of USD 1/MMBTU for the first three discoveries in any offshore areas.

Data on the total amount of subsidies provided so far through these channels are not available.

In 2020 the government of Pakistan incurred around USD 820m in foregone revenues related to fossil fuel production and sales activities in the form of tax expenditures (Redonda et al. 2021)**.

The favourable tax treatments went to oil refining activities, to the sales of electricity, coal, lignite and LPG, and - to a smaller extent - to the aviation and automotive sectors.

Sources: Ahmed, 2019; Department of Energy, 2003; IMF, 2019

Carbon pricing and revenue

Pakistan has no explicit carbon price, but is considering this option. In December 2019, Pakistan launched the National Committee on Establishment of Carbon Markets, tasked with assessing the role and scope of carbon markets in delivering Pakistan’s NDC and identifying opportunities for and challenges to improving emissions data. The ongoing work is focused on developing recommendations for the government on a domestic ETS and credit-based trading mechanisms linked to international carbon markets.


CORONAVIRUS RECOVERY

As part of the government’s response to the coronavirus pandemic, Pakistan launched the Green Economic Stimulus, focused on job creation and restoration of the country’s natural ecosystems. In June 2021, the World Bank approved USD 188m for this initiative. This funding is part of a larger Ecosystem Restoration Fund platform for public and private investment. Further initiatives include a ‘Debt-for-nature’ scheme targeting USD 1bn in funding, the launch of a USD 500m ‘Green Euro’ Bond and a variety of so-called ‘Nature Bonds’.

Sources: M Khan, 2020, M Khan, 2021, Pakistan Today, 2021
Financial policy and regulation

Through policy and regulation, governments can overcome challenges to mobilising green finance, including real and perceived risks, insufficient returns on investment, capacity and information gaps.

Between 2017 and 2019 Pakistan moved from preparation to implementation stage with regards to sustainable finance policy action. Pakistan’s central bank, the State Bank of Pakistan, introduced guidelines that require financial institutions to monitor their climate risk exposure at portfolio level and encourage them to take steps to mitigate the risks they identify.

Stress testing is used to evaluate the resiliency of the financial sector to economic shocks that are caused by the effects of severe but plausible scenarios. In 2020, the State Bank of Pakistan revised its guidelines on stress-testing in a bid to further strengthen the risk management capacity of banks, development finance institutions and microfinance banks in the country. The revised measures replace earlier guidelines issued in 2012. While the stress testing guidelines do not consider climate change explicitly, they include guidance on macro stress-testing and reverse stress-testing aside from sensitivity analysis, with an enhanced number of shock scenarios including sectoral shocks. The central bank also requires Islamic banks, Islamic banking branches and microfinance banks to perform sensitivity analysis exercises. In addition, domestic, systemically important banks must conduct annual macro stress-testing and reverse stress-testing.

The state bank of Pakistan also provides an incentive scheme for renewable energy through three distinct categories for borrowing. There is no such incentive scheme available for fossil fuel-based projects.

Sources: Gambe, 2020; Sustainable Banking Network, 2019

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<th>Nationally Determined Contribution (NDC): Finance</th>
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For more detail on the sources and methodologies behind the calculation of the indicators displayed, please download the Technical Note at: https://www.climate-transparency.org/g20-climate-performance/g20report2020

1 'Land use' emissions is used here to refer to land use, land use change and forestry (LULUCF). The Climate Action Tracker (CAT) derives historical LULUCF emissions from the UNFCCC Common Reporting Format (CRF) reporting tables data converted to the categories from the IPCC 1996 guidelines, in particular separating Agriculture from LULUCF, which under the new IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).

2 The 1.5°C fair-share ranges for 2030 and 2050 are drawn from the CAT, which compiles a wide range of perspectives on what is considered fair, including considerations such as responsibility, capability, and equality. Countries with 1.5°C 'fair-share' ranges reaching below zero, particularly between 2030 and 2050, are expected to achieve such strong reductions by domestic and international reductons, supplemented by contributions to global emissions reduction efforts via, for example, international finance. On a global scale, negative emissions technologies are expected to play a role from the 2030s onwards, compensating for remaining positive emissions. The CAT’s evaluation of NDCs shows the resulting temperature outcomes if all other governments were to put forward emission reduction commitments with the same relative ambition level.

3 In order to maintain comparability across all countries, this report utilises the PRIMAP year of 2017. However, note that Common Reporting Format (CRF) data is available for countries which have recently updated GHG inventories. The Decarbonisation ratings appear only in the CTR profiles for the G20 countries, on which this profile is based.

4 The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the IPCC 2018 SR15 and the Climate Action Tracker (2016). The table below displays the criteria used to assess a country’s policy performance.

5 This indicator adds up emissions from domestic aviation and international aviation bunkers in the respective country. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.

6 This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.

7 This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).

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**BIBLIOGRAPHY**


