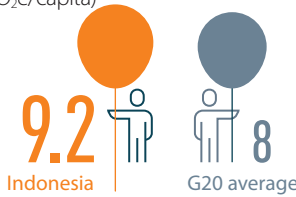## Climate Transparency

BROWN TO GREEN:

THE G20 TRANSITION TO A LOW-CARBON ECONOMY | **2018**

INDONESIA

GREENHOUSE GAS (GHG) EMISSIONS (INCL. FORESTRY) PER CAPITA
(tCO$_2$e/capita)

9.2 Indonesia

8 G20 average

*Data from 2015 | Source: PRIMAP 2018*

The gap:

Is Indonesia on track to stay below the Paris Agreement temperature limit?

Based on implemented policies, Indonesia's **GHG emissions** are expected to increase to between 1,573 and 1,751 MtCO$_2$e by 2030 (excl. forestry). This emission pathway is not compatible with the Paris Agreement.[1]

Indonesia's **NDC** is not consistent with the Paris Agreement's temperature limit but would lead to a warming of between 3°C and 4°C.[2]

Indonesia's sectoral **policies** still fall short of being consistent with the Paris Agreement, especially on coal power, energy efficiency in industry and deforestation.[3]

Current NDC[2]

− + 4°
− + 3°
− + 2°
− + 1.5°
− + 1.3°
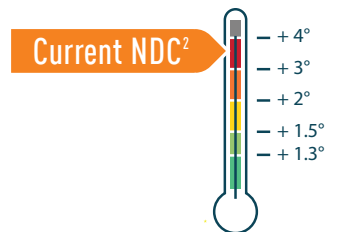
Source: CAT 2018

Recent developments:

What has happened since the Paris conference?

Indonesia's state-owned power utility expects coal use to double between 2017 and 2025.

The government announced in 2017 that no new coal power plants would be built on Java, the largest island, in a pledge to reach the country's renewables target of 23% in energy mix by 2025.

Deforestation rates dropped by 60% between 2016 and 2017, likely due to a 2016 peat drainage moratorium.
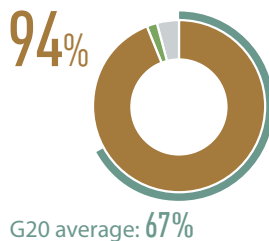

Brown and green performance:

Where does Indonesia lead or lag compared to G20 countries?
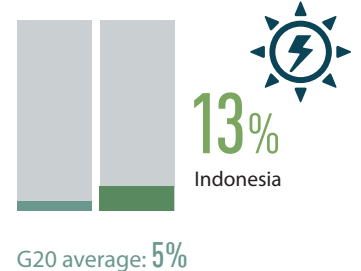
FOREST AREA COMPARED TO 1990 LEVEL (%)

77%
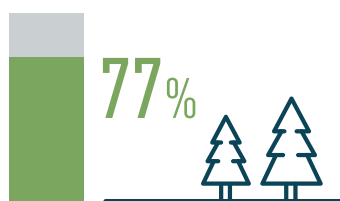
Data from 2015 | Source: PRIMAP 2018

SHARE OF BROWN PUBLIC POWER FINANCE (2013-2015 annual average)

94%

G20 average: 67%

Source: Oil Change International 2017

SHARE OF NEW RENEWABLES IN THE ENERGY MIX

13% Indonesia

G20 average: 5%

Data from 2017 | Source: Enerdata 2018

This country profile is part of the **Brown to Green 2018** report. The full report and other G20 country profiles can be downloaded at: *http://www.climate-transparency.org/g20-climate-performance/g20report2018*

BACKGROUND INDICATORS: INDONESIA
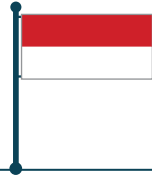
GDP PER CAPITA[4]
(PPP US$ const. 2015, international)

11,914 Indonesia
20,790 G20 average

Source: World Bank 2017

HUMAN DEVELOPMENT INDEX[5]

0.69

low   very high
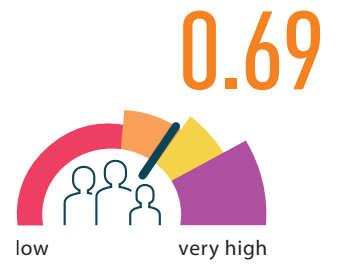
Data from 2017 | Source: UNDP 2018

INDONESIA'S EXPOSURE TO CLIMATE IMPACTS[6]

This indicator shows the extent to which human society and its supporting sectors are affected by the future changing climate conditions based on an approximately 2°C scenario. This sectoral exposure will be even higher given that the efforts depicted in current NDCs will lead to an approximately 3°C scenario.

FOOD

Projected climate impacts on cereal yields
low — high
G20 country range

Projected increase of food demand due to population growth
low — high
G20

WATER

Projected climate impacts on annual run-off
low — high
G20 country range

Projected climate impacts on annual groundwater recharge
low — high
G20

HEALTH

Projected climate impacts on a spread of malnutrition and diarrhoeal diseases
low — high
G20 country range

Projected climate impacts on spread of vector-borne diseases
low — high
G20

ECOSYSTEM SERVICE

Projected climate impacts on biomes occupying the countries
low — high
G20

Projected climate impacts on marine biodiversity
low — high
G20 country range

HUMAN HABITAT

Projected climate impacts on frequency of high temperature periods
low — high
G20 country range

Projected climate impacts on frequency and severity of floods
low — high
G20

INFRASTRUCTURE

Projected climate impacts on hydropower generation capacity
low — high
G20

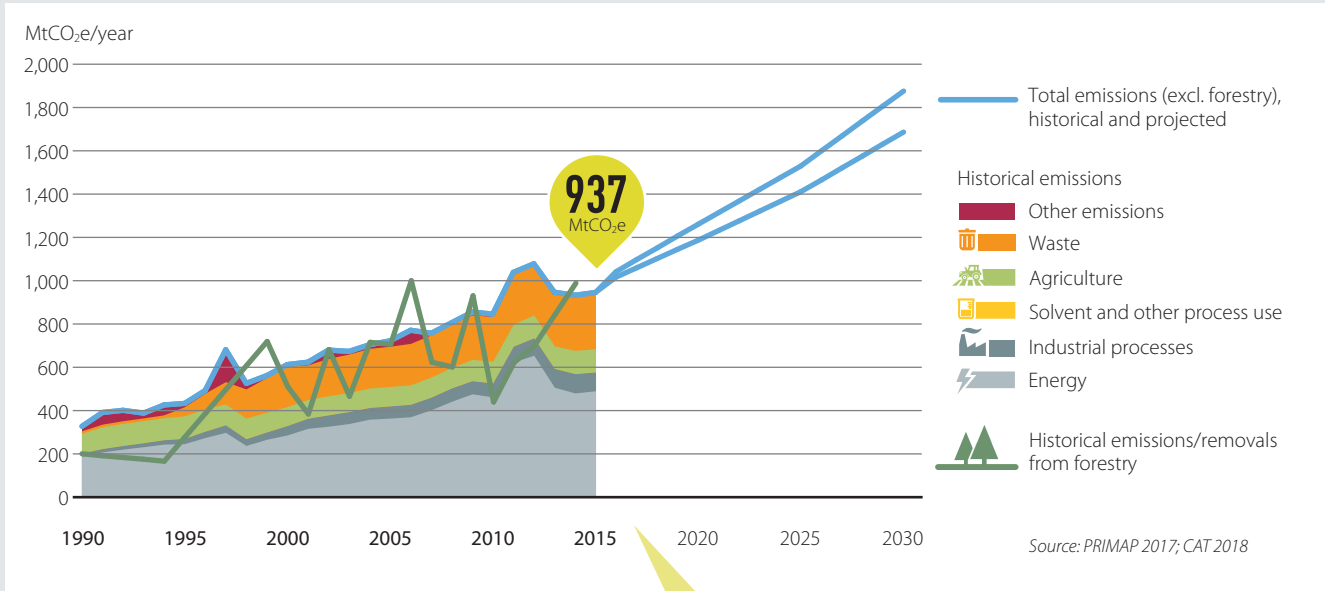Proportion of coastline impacted by sea level rise
low — high
G20

Own composition based on ND-GAIN 2017 (based on data for 2016)

GREENHOUSE GAS (GHG) EMISSIONS

INDONESIA

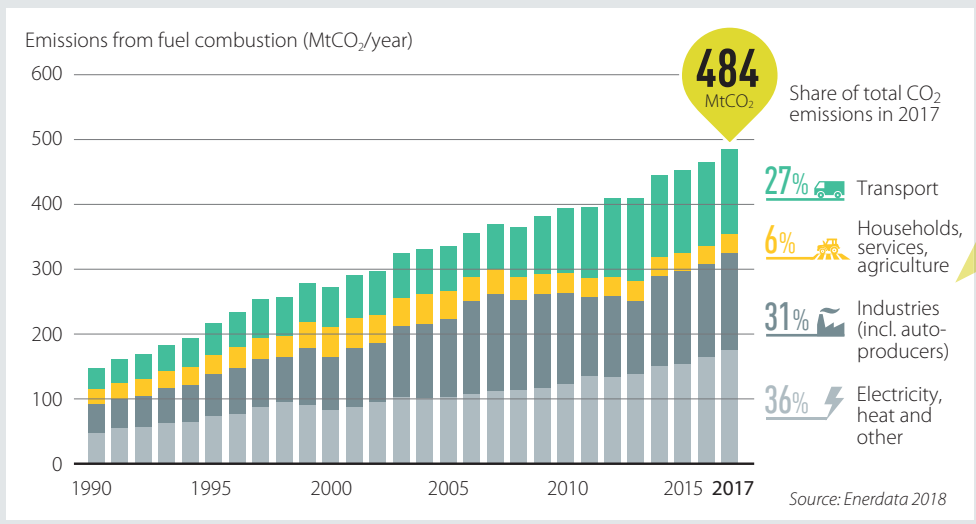### TOTAL GHG EMISSIONS ACROSS SECTORS[7]

MtCO$_2$e/year

937 MtCO$_2$e

Total emissions (excl. forestry), historical and projected

Historical emissions
- Other emissions
- Waste
- Agriculture
- Solvent and other process use
- Industrial processes
- Energy

Historical emissions/removals from forestry

Source: PRIMAP 2017; CAT 2018

CCPI PERFORMANCE RATING OF GHG EMISSIONS PER CAPITA[8]

Recent developments (2010-2015): **very low** | low | medium | high | very high

Current level (2015): very low | **low** | medium | high | very high

Current level compared to a well below 2°C pathway: very low | low | **medium** | high | very high

Source: CCPI 2018
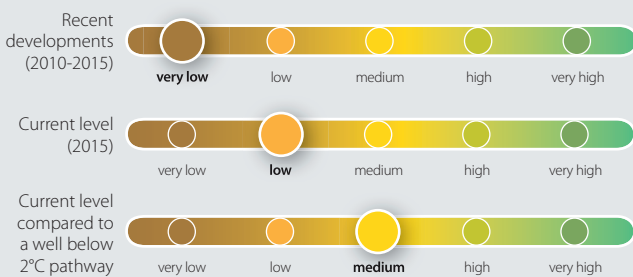
Indonesia's emissions almost tripled between 1990 and 2015 (+196%), and the trend is expected to pick up speed towards 2030. Forestry and energy sectors currently contribute most to overall emissions.

ENERGY-RELATED CO$_2$ EMISSIONS[9]

Emissions from fuel combustion (MtCO$_2$/year)

484 MtCO$_2$

Share of total CO$_2$ emissions in 2017

- **27%** Transport
- **6%** Households, services, agriculture
- **31%** Industries (incl. auto-producers)
- **36%** Electricity, heat and other
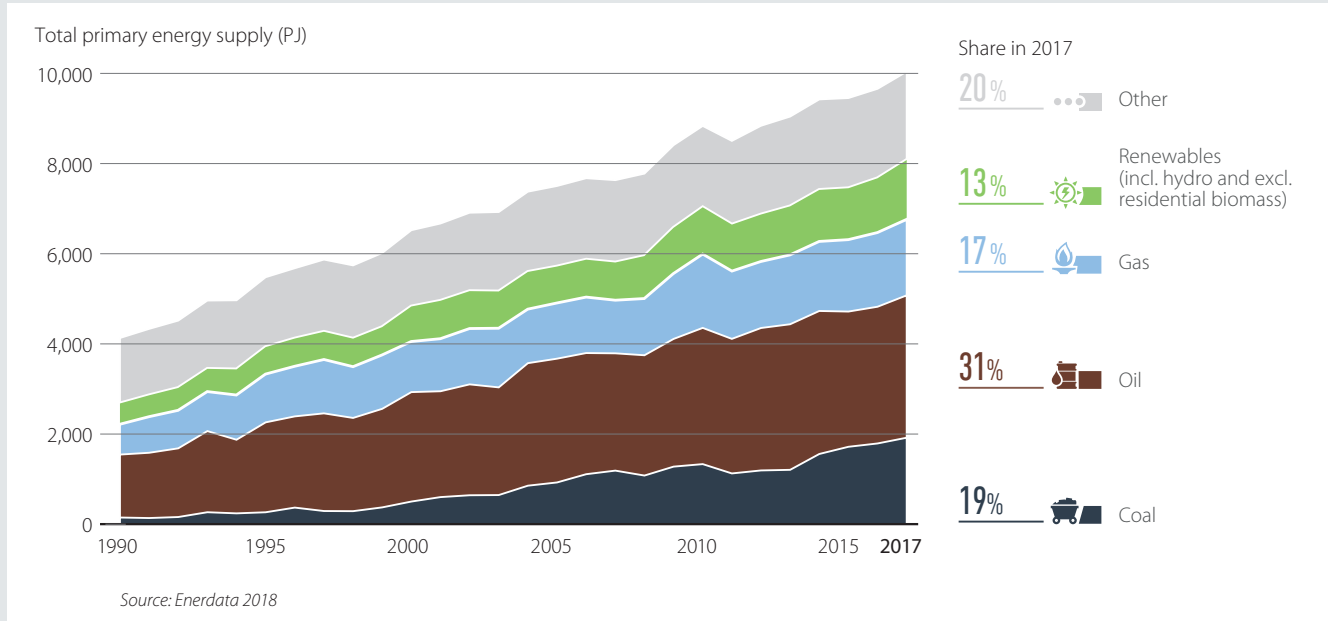
Source: Enerdata 2018

The largest contributor for overall GHG emissions are CO$_2$ emissions from energy, which have increased by 18% (2012–2017), largely driven by increasing emissions from power generation, industries and transport.
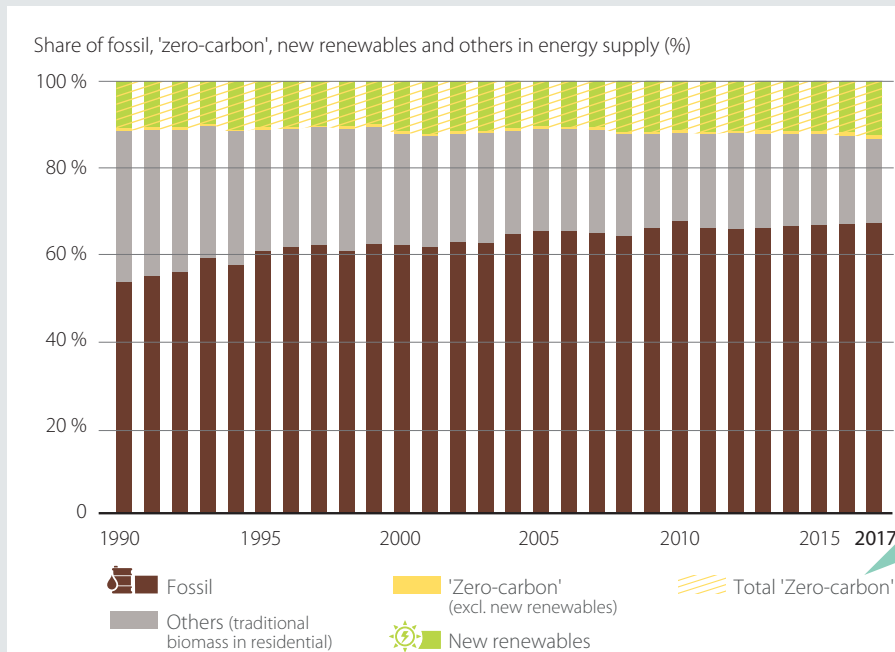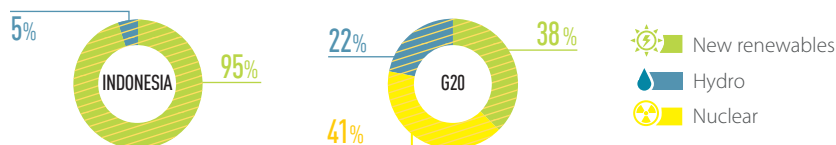
DECARBONISATION

INDONESIA

ENERGY MIX[10]

Total primary energy supply (PJ)

Share in 2017

20% ●●◖ Other

13% Renewables
(incl. hydro and excl.
residential biomass)

17% Gas

31% Oil

19% Coal

Source: Enerdata 2018

SHARE OF FOSSIL FUELS AND 'ZERO-CARBON' FUELS IN ENERGY SUPPLY[11]

Share of fossil, 'zero-carbon', new renewables and others in energy supply (%)

Fossil

Others (traditional
biomass in residential)

'Zero-carbon'
(excl. new renewables)

New renewables

Total 'Zero-carbon'

'ZERO-CARBON' SHARES

5% INDONESIA 95%

22% G20 38%
41%

New renewables

Hydro

Nuclear

Source: Enerdata 2018

PERFORMANCE RATING OF SHARE OF FOSSIL FUELS[12]

Recent
developments
(2012-2017)

very low | low | medium | high | very high

Current level
(2017)

very low | low | medium | **high** | very high

Source: own evaluation

Zero-carbon fuels include nuclear,
hydropower, new renewables.
Indonesia's share of zero-carbon
fuels (mainly new renewables) in
the energy mix increased by 11%
(2012–2017) to 13%, near the G20
average.

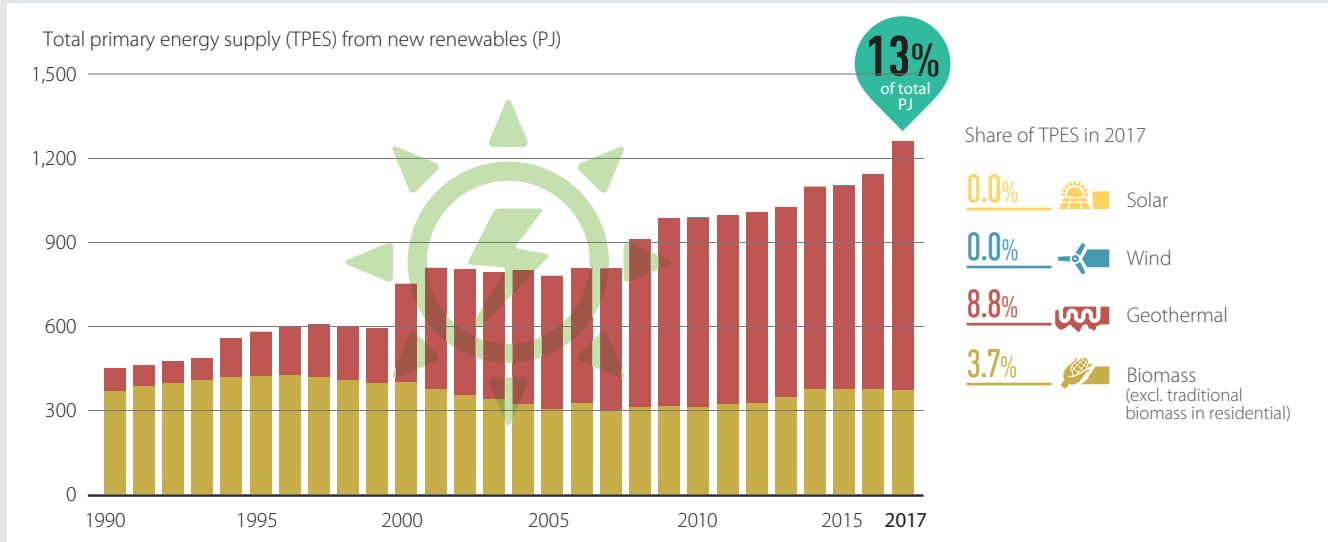### PERFORMANCE RATING OF SHARE OF ZERO-CARBON TECHNOLOGY[12]

Recent
developments
(2012-2017)

very low | low | **medium** | high | very high

Current level
(2017)

very low | low | **medium** | high | very high
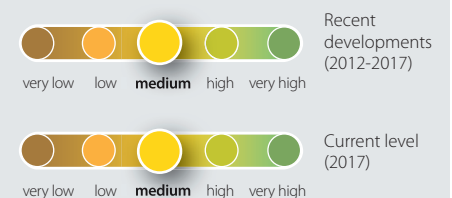
Source: own evaluation

DECARBONISATION

INDONESIA

NEW RENEWABLES[13]

Total primary energy supply (TPES) from new renewables (PJ)

13% of total PJ

Share of TPES in 2017

0.0% ☀ Solar

0.0% ✂ Wind

8.8% 〰 Geothermal
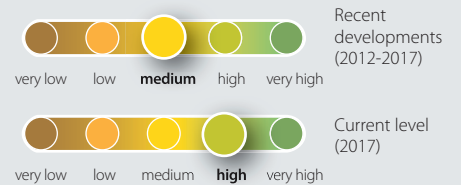
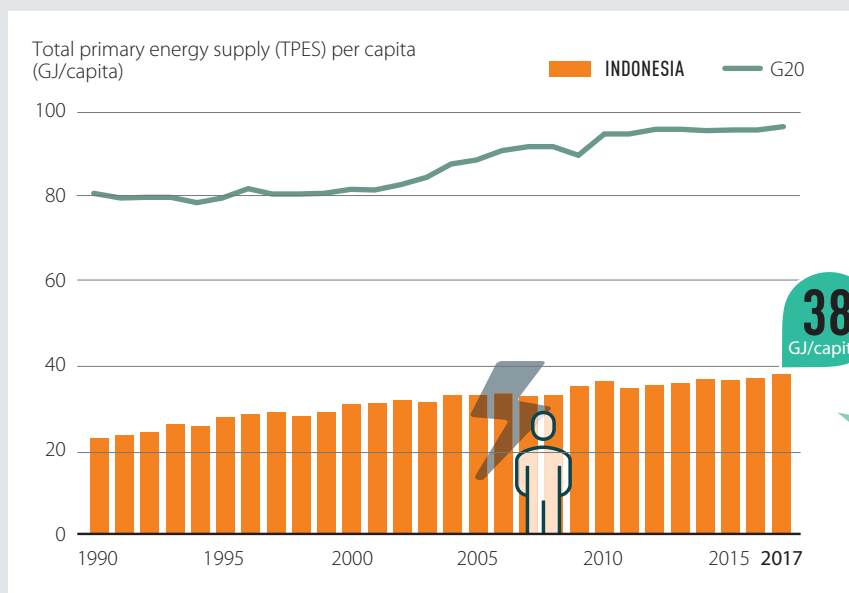**3.7%** 🌾 Biomass (excl. traditional biomass in residential)

Source: Enerdata 2018

"New renewables" excludes unsustainable renewable sources such as large hydropower. Indonesia sources 13% of its energy supply from new renewable sources, which is above the G20 average (5%). The energy supply from new renewables increased by 25% (2012–2017), mainly through an increase in geothermal energy.

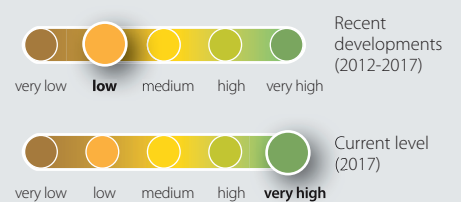### PERFORMANCE RATING OF NEW RENEWABLES[12]

Recent developments (2012-2017)

very low   low   **medium**   high   very high

Current level (2017)

very low   low   medium   **high**   very high

Source: own evaluation

ENERGY USE PER CAPITA[14]

Total primary energy supply (TPES) per capita (GJ/capita)

■ INDONESIA   — G20

38 GJ/capita

PERFORMANCE RATING OF ENERGY USE PER CAPITA[12]

Recent developments (2012-2017)

very low   **low**   medium   high   very high

Current level (2017)

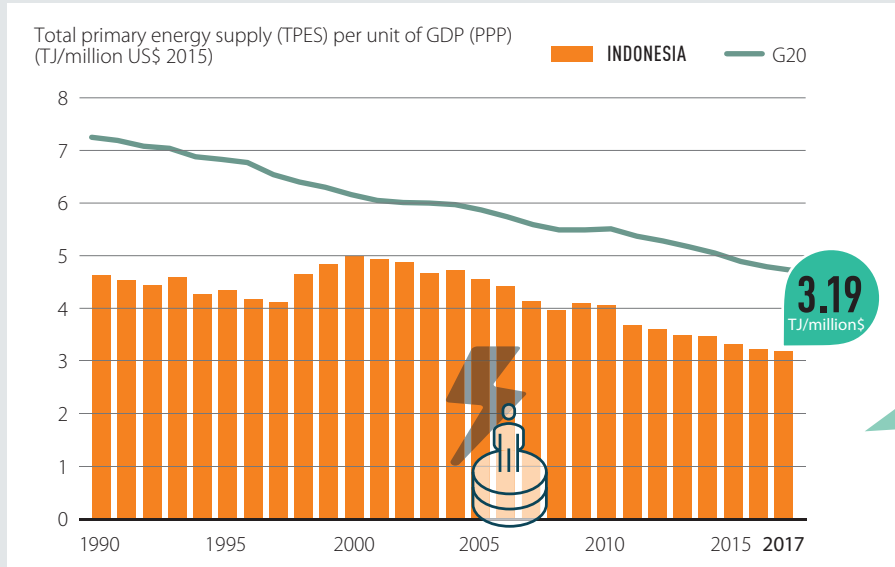very low   low   medium   high   **very high**

Source: own evaluation

Indonesia's energy use per capita rose by 7% (2012–2017), faster than the G20 average (+1%), but the level is less than half the G20 average.

Source: Enerdata 2018

DECARBONISATION

INDONESIA

ENERGY INTENSITY OF THE ECONOMY[15]

Total primary energy supply (TPES) per unit of GDP (PPP)
(TJ/million US$ 2015) ■ INDONESIA — G20

3.19
TJ/million$

Source: Enerdata 2018

This indicator quantifies how much energy is used for each unit of GDP. Indonesia's energy intensity decreased at a similar pace to the G20 average, by 11% (2012–2017), but the level remains 30% below the average.
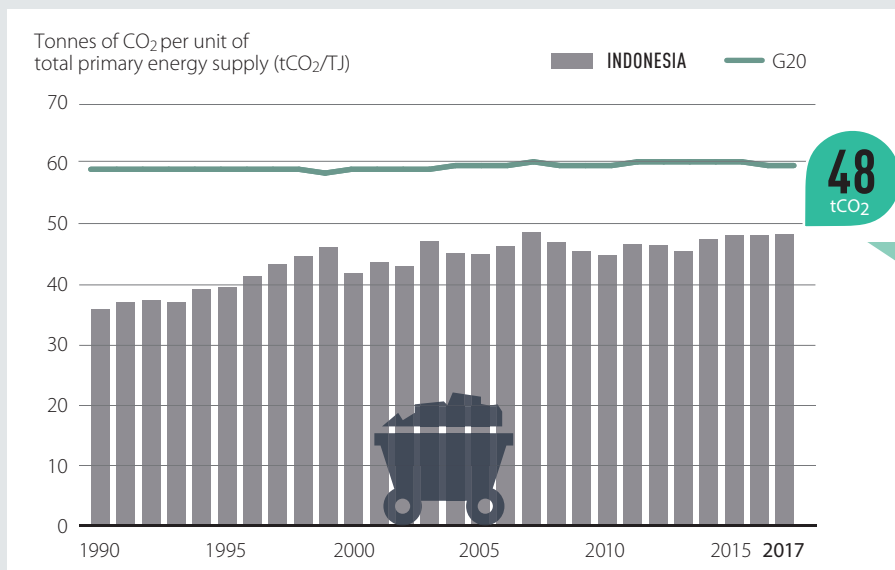
PERFORMANCE RATING OF ENERGY INTENSITY[12]

Recent developments (2012-2017)

very low low medium **high** very high

Current level (2017)

very low low medium high **very high**

Source: own evaluation

CARBON INTENSITY OF THE ENERGY SECTOR[16]

Tonnes of CO_2 per unit of
total primary energy supply (tCO_2/TJ) ■ INDONESIA — G20

48
tCO_2

Source: Enerdata 2018

The carbon intensity of Indonesia's energy sector increased by 4% (2012–2017) but remains below the G20 average due to the high share of geothermal energy.

PERFORMANCE RATING OF CARBON INTENSITY[12]

Recent developments (2012-2017)

very low low medium high very high

Current level (2017)

very low low medium **high** very high

Source: own evaluation

DECARBONISATION

INDONESIA

Legend for trend: ↓ negative   ↑ positive

The trend number shows developments over the past five years, where data is available

SECTOR-SPECIFIC INDICATORS

POWER SECTOR

ELECTRICITY DEMAND PER CAPITA (kWh/capita)	EMISSIONS INTENSITY OF THE POWER SECTOR (gCO$_2$/kWh)	SHARE OF RENEWABLES IN POWER GENERATION (incl. large hydro)	SHARE OF POPULATION WITH ACCESS TO ELECTRICITY	SHARE OF POPULATION WITH BIOMASS DEPENDENCY
3,920 G20 — 856 Indonesia	734 / 490 G20 average	12% G20 average: 24%	98%	38%
Trend: ↓ +27%	Trend: ↑ -4%	Trend: ↑ +5%	Trend: ↑ +3%	
Data from 2017 Source: Enerdata 2018	Data from 2016 Source: Enerdata 2018	Data from 2017 Source: Enerdata 2018	Data from 2016 Source: World Bank 2018	Data from 2014 Source: IEA 2016

TRANSPORT SECTOR

TRANSPORT EMISSIONS PER CAPITA (tCO$_2$/capita)	MOTORISATION RATE (Vehicles per 1000 inhabitants)	PASSENGER TRANSPORT (modal split in % of passenger-km)	FREIGHT TRANSPORT (modal split in % of tonne-km)	MARKET SHARE OF ELECTRIC VEHICLES IN NEW CAR SALES (%)
1.13 / 0.5 G20 average	50	n.a.	n.a.	n.a.
Trend: ↓ +1%		car & bus / rail	road / rail / inland waterways / air / pipeline	
Data from 2017 Source: Enerdata 2018	Data from 2014	Source: Agora Verkehrswende, 2018	Source: Agora Verkehrswende 2018	Source: Agora Verkehrswende 2018	Data from 2017 Source: IEA 2018

INDUSTRY SECTOR / BUILDING SECTOR / AGRICULTURE SECTOR / FOREST SECTOR

INDUSTRY EMISSIONS INTENSITY (tCO$_2$e/thousand US$2015 sectoral GDP (PPP))	BUILDING EMISSIONS PER CAPITA (tCO$_2$/capita)	AGRICULTURE EMISSIONS INTENSITY (tCO$_2$e/thousand US$2015 sectoral GDP (PPP))	FOREST AREA COMPARED TO 1990 LEVEL (%)
0.20 G20 average: 0.357	0.48 / 0.09 G20 average	0.30 G20 average: 0.95	77%
Trend: ↑ -9%	Trend: ↓ +5%	Trend: ↑ -17%	
Data from 2015 Source: PRIMAP 2018	Data from 2016 Source: Enerdata 2018	Data from 2015 Source: PRIMAP 2018	Data from 2015 Source: PRIMAP 2018

CLIMATE POLICY

INDONESIA

COMPATIBILITY OF CLIMATE TARGETS WITH THE PARIS AGREEMENT[2]

Total emissions across sectors (MtCO₂e/year)

- Total emissions (excl. forestry), historic and projected
- Max. emissions level under mitigation targets
- Min. emissions level under mitigation targets
- Climate Action Tracker's 2°C compatible and 1.5°C Paris Agreement compatible emissions range
- Historical emissions/removals from forestry

Source: CAT 2018
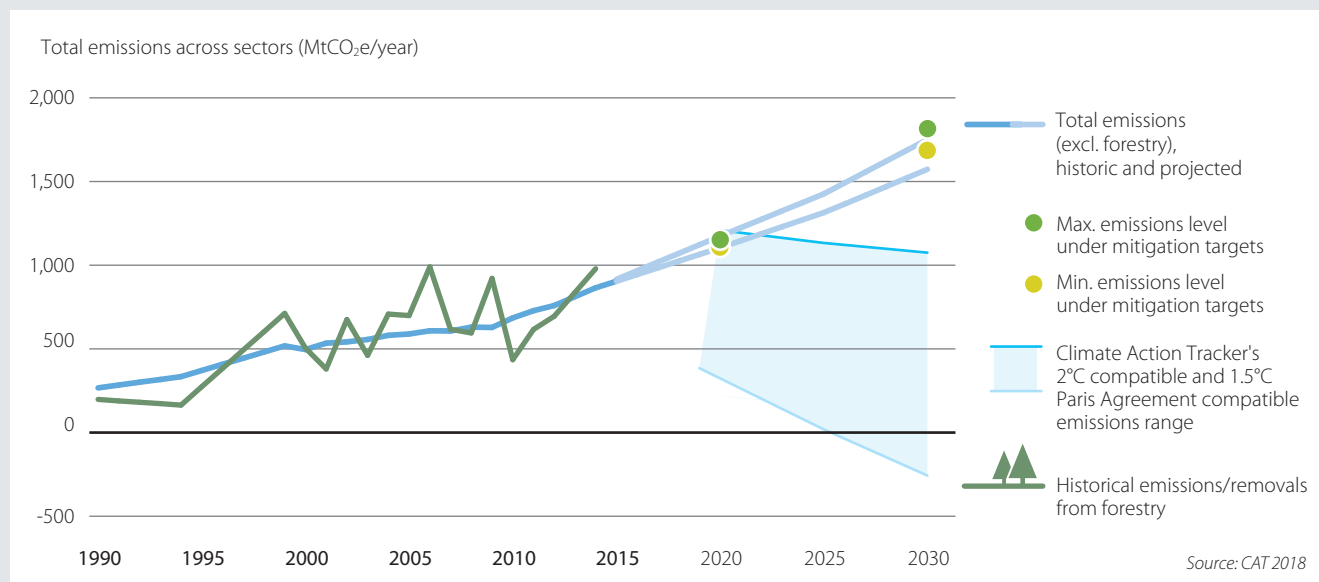
The CAT rates Indonesia's NDC "highly insufficient" as it is not ambitious enough to limit warming to below 2°C, let alone to 1.5°C. To be consistent with the Paris Agreement, Indonesia's emissions (excl. forestry) should be stabilising, if not beginning to decline, by 2030. According to CAT's analysis, Indonesia will achieve its NDC targets without any additional efforts while still doubling current levels of emissions (excl. forestry).

CLIMATE ACTION TRACKER (CAT) EVALUATION OF NDC[2]

critically insufficient | **highly insufficient** | insufficient | 2°C compatible | 1.5°C Paris Agreement compatible | role model

Source: CAT 2018
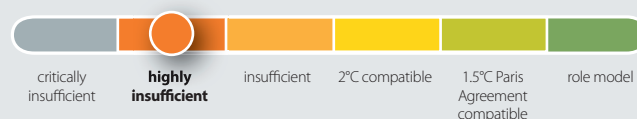
NATIONALLY DETERMINED CONTRIBUTION (NDC)

MITIGATION	
Targets	**Overall targets** To reduce unconditionally 26% of its GHG emissions against the 'business as usual' scenario by the year 2020 and 29% by the year of 2030 **Coverage** • Sectors covered: energy (including fugitive), waste, industrial processes and product use; agriculture; forestry • GHG covered: Carbon dioxide (CO_2); methane (CH4); nitrous oxide (N_2O) • Percentage of national emissions covered: Not specified **Sectoral targets** **Energy:** Primary energy supply mix with shares as follows: a) new and renewable energy at least 23% in 2025 and at least 31% in 2050; b) oil should be less than 25% in 2025 and less than 20% in 2050; c) coal should be minimum 30% in 2025 and minimum 25% in 2050; and d) gas should be minimum 22% in 2025 and minimum 24% in 2050.
Actions	Actions specified (sectors: land use and forestry, agriculture, energy, waste)

ADAPTATION	
Targets	Not mentioned
Actions	Actions specified (sectors: agriculture, water, forestry, health, infrastructure, biodiversity/ecosystems)

FINANCE	
Conditio-nality	NDC partly conditional on international financial support (Indonesia could increase its contribution up to a 41% reduction of emissions by 2030, subject to availability of international support for finance, technology transfer, and development and capacity-building)
Investment needs	Not specified
Actions	National actions to align financial flows specified (public spending)
International market mechanisms	Not mentioned

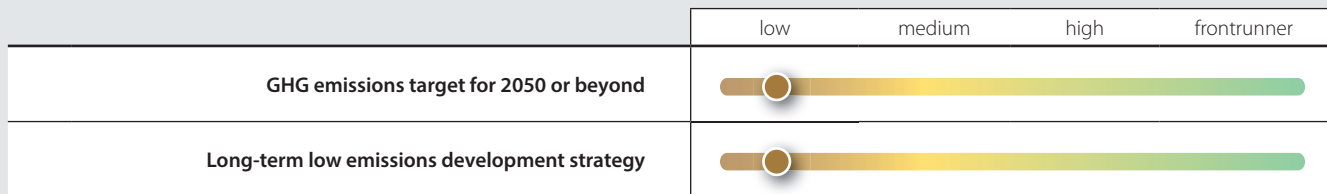*Source: own compilation based on UNFCCC 2018*

CLIMATE POLICY

INDONESIA

POLICY EVALUATION[17]

The ratings evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit. They do not represent a complete picture of what is necessary.

Legend:
low No action
medium Some action
high Significant action and a long-term vision
frontrunner Significant action, and a long-term vision that is compatible with 1.5°C
! most important measures based on share of emissions and political relevance

|	low	medium	high	frontrunner
GHG emissions target for 2050 or beyond	●			
Long-term low emissions development strategy	●			

The Indonesian government is currently forming a long-term low emission development strategy, which it expects to enact in 2018. The Medium-Term Planning 2015–2019 clearly aspires to long-term low emission development. Indonesia has a 2030 target but has not set a 2050 target.

POWER

| !	**Renewable energy in power sector**	**low** ● / medium / high / frontrunner
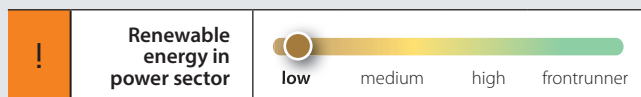
Indonesia plans to increase the share of new and renewable energy in the primary energy mix to 31% by 2050. The government offers feed-in tariffs for various renewable technologies but the rate is based on the average generation cost of electricity (including subsidised coal power), which renders unsubsidised renewable energy projects uneconomical in some regions.

| !	**Coal phase-out**	**low** ● / medium / high / frontrunner
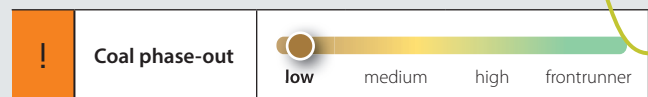
The government expects that 56 GW of new capacity will be needed in the next decade, and plans to cover 26,8 GW of this by coal. No coal phase-out is under consideration.

TRANSPORT

|	Phase-out fossil fuel light duty vehicles	**low** ● / medium / high / frontrunner
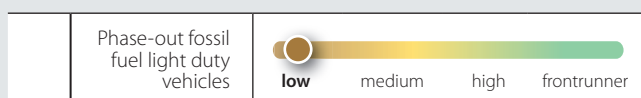
Since 2018, petrol vehicles need to adhere to EURO 4 standards while for diesel the former EURO 2 standard still applies until 2021. There are no targets to phase out fossil-fuelled LDVs.

BUILDINGS

	Near-zero energy new buildings	low / **medium** ● / high / frontrunner
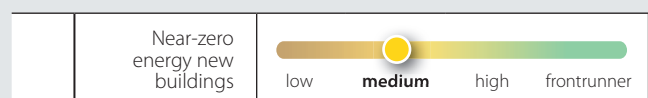
Green building codes and standards are in place, yet there is no national strategy to promote zero-energy buildings.

INDUSTRY

	Low-carbon new industry installations	low / **medium** ● / high / frontrunner
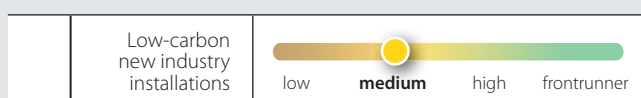
Energy Management System standards for industry are in place such as textile and garment, pulp and paper, chemical, food and beverages, fertiliser, and ceramic glass industries. Several companies are ISO 50001 certified. National expert energy managers and energy auditors are certified.

FORESTS

!	**Net zero deforestation**	low / **medium** ● / high / frontrunner
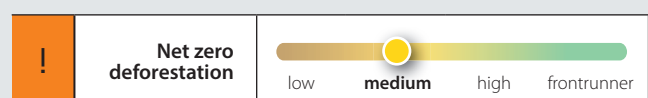
There is no national target to reach zero deforestation. Despite a 2011 moratorium on logging in undisturbed areas, valid until May 2019, Indonesia is still facing alarmingly high rates of deforestation, mainly driven by the pulp and palm oil industry. However, the government offers support schemes for reforestation, is currently establishing an agency tasked to manage financing for REDD+ activities, and has frozen the licensing of new palm oil plantations until 2021.

Source: own evaluation

CLIMATE POLICY

INDONESIA

CCPI EXPERTS' POLICY EVALUATION[18]

Experts criticise Indonesia's lack of ambition to align its energy use and renewable energies to the targets of the Paris Agreement. Furthermore, they claim the country is not moving forward, as its existing policy for renewable energies prevents investment and the country does not take action to phase out fossil fuels. International performance is ranked medium and therefore slightly better than the national performance (low).

CCPI EVALUATION OF CLIMATE POLICY (2018)

Evaluation of international climate policy

Evaluation of national climate policy

Source: CCPI 2018
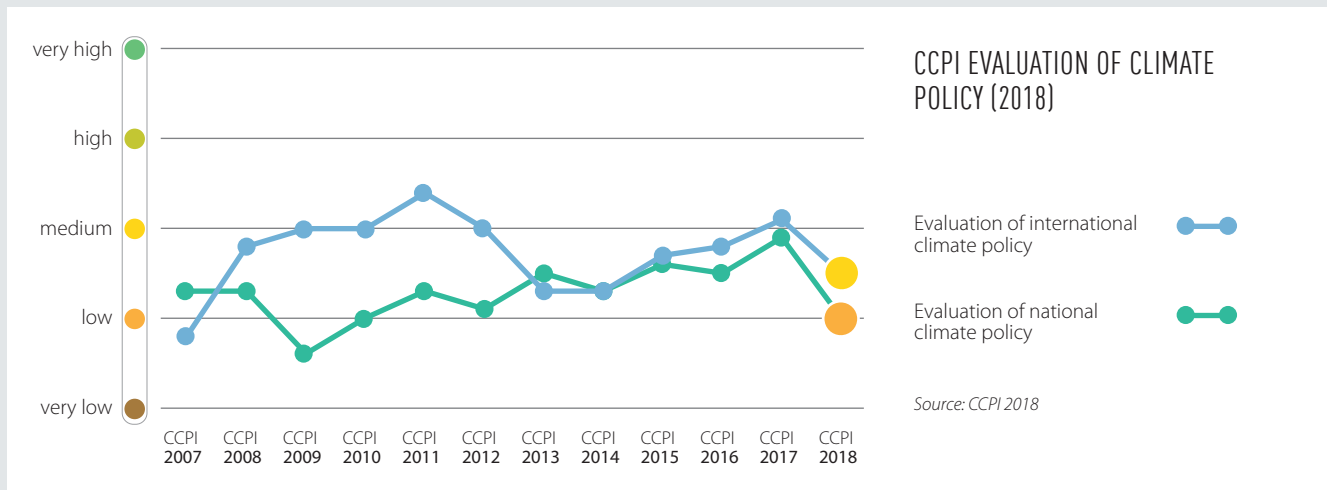
JUST TRANSITION[19]

Indonesia is the fourth largest coal and tenth largest gas producer in the world, but increasingly relies on oil imports. The 2014 National Energy Policy calls for reducing the share of oil in the energy mix to under 25%, and growing the share of renewables to 23%, by 2025; however it also sets "minimum" shares for coal and gas of 30% and 22% respectively. Earlier in 2018, the Energy Ministry capped prices of domestic coal for power stations for two years, to avoid rises in electricity prices, and increased the quota of coal production by 100 Mt, so it could exceed 500 Mt for the year.

Indonesia's oil consumption last peaked in 2014. In 2015, a new fuel pricing mechanism was introduced to reduce gasoline subsidies and reallocate this spending to socially linked programmes (including indirectly universal health coverage) to boost growth and reduce poverty. The government also increased funding for electrification, aiming to reach 97% by the end of 2018.

FINANCING THE TRANSITION

INDONESIA

FINANCIAL POLICIES AND REGULATIONS

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.

APPROACHES TO IMPLEMENTING THE RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)[20]

This indicator establishes the degree of government engagement with the recommendations of the G20 Financial Stability Board's Task Force on Climate-Related Financial Disclosure.

| No formal engagement with TCFD	Political and regulatory engagement	Formal engagement with private sector	Publication of guidance and action plans	Encoding into law
�				

Source: CISL 2018

No evidence of formal engagement with TCFD-compliant initiatives was found in Indonesia. More broadly, Indonesia's Financial Service Authority has recently issued regulation on Sustainable Finance for banking, capital markets and non-bank financial institutions.

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 prices.

FOSSIL FUEL SUBSIDIES

In 2016, Indonesia provided US$8.8bn in fossil fuel subsidies (fluctuating US$7.0-25.8bn since 2007). From 2007 to 2016, subsidies were greater (US$0.006) than the G20 average (US$0.003) per unit of GDP. Subsidies primarily target consumption (96%), through direct budget support and tax exemptions. The largest subsidy is annual compensation to state-owned Perusahaan Listrik Negara for selling (fossil fuel-dominated) electricity at below market prices (US$4.2bn in 2016).

Fossil fuel subsidies (US$ billions)

Source: OECD/IEA 2018
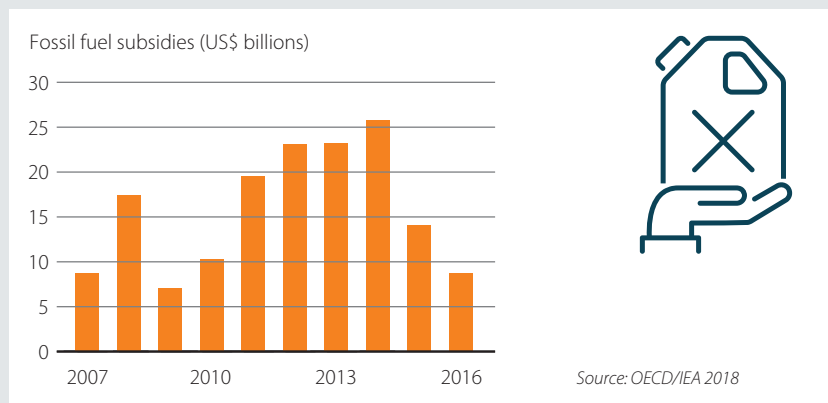
CARBON REVENUES

Indonesia does not have a national carbon tax or emissions trading scheme, nor are any such schemes planned. Despite this, 16% of domestic emissions from energy usage are subject to other taxes.

NO EXPLICIT CARBON PRICING SCHEME FROM 2007 TO 2017

+CO₂

Source: I4CE 2018; OECD 2018
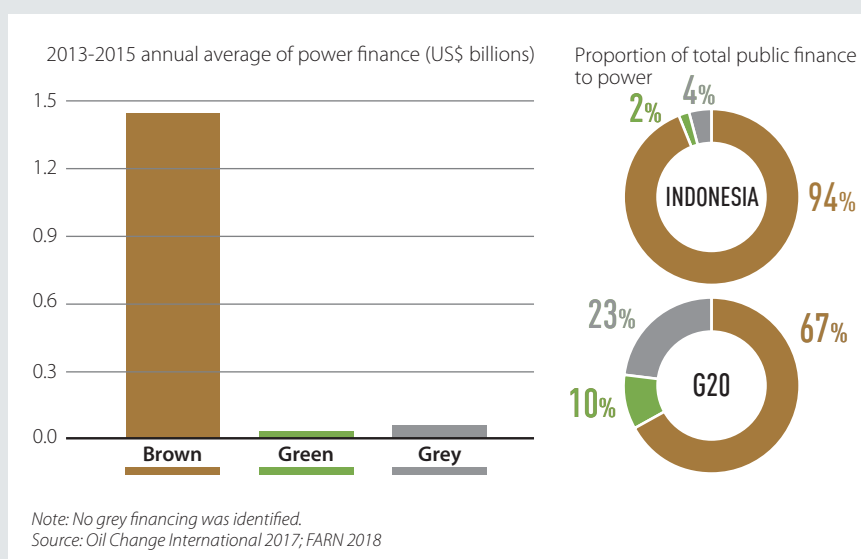
FINANCING THE TRANSITION

INDONESIA

■ PUBLIC FINANCE

Governments steer investments through their public finance institutions including via development banks, both at home and overseas, and green investment banks. Developed G20 countries also have an obligation to provide finance to developing countries and public sources are a key aspect of these obligations under the UNFCCC.

NATIONAL AND INTERNATIONAL PUBLIC FINANCE IN THE POWER SECTOR[21]

From 2013 to 2015, Indonesia's public finance institutions spent an annual average of US$1.4bn brown, US$0.03bn green and US$0.06bn grey financing in the power sector domestically. The largest transaction was Indonesia Infrastructure Guarantee Fund loan guarantee (US$4bn) to the Sumsel Mounmouth coal power plant. This data is likely to be non-comprehensive due to the lack of financial institutions' transparency.

coal, oil and gas projects (and associated infrastructure)	**brown**
large-scale hydropower, biofuels, biomass, nuclear, incineration, transmission, distribution, storage, energy efficiency, other general electricity support	**grey**
renewable energy projects (excluding grey financing)	**green**

2013-2015 annual average of power finance (US$ billions)

Proportion of total public finance to power

INDONESIA: 94%, 4%, 2%

G20: 67%, 23%, 10%

Note: No grey financing was identified.
Source: Oil Change International 2017; FARN 2018

PROVISION OF INTERNATIONAL PUBLIC SUPPORT

Indonesia is not listed in Annex II of the UNFCCC and is therefore not formally obliged to provide climate finance. While Indonesia may channel international public finance towards climate change via multilateral and other development banks, this has not been included in this report.

OBLIGATION TO PROVIDE CLIMATE FINANCE UNDER UNFCCC

YES   **NO**

CONTRIBUTIONS THROUGH THE MAJOR MULTILATERAL CLIMATE FUNDS[22]

Note: See Technical Note for multilateral climate funds included and method to attribute amounts to countries

Source: Climate Funds Update 2017

Annual average contribution (mn US$, 2015-2016)	Theme of support		
	Adaptation	Mitigation	Cross-cutting
0.02	**0%**	**100%**	**0%**

BILATERAL CLIMATE FINANCE CONTRIBUTIONS[23]

Source: Country reporting to UNFCCC

Annual average contribution (mn US$, 2015-2016)	Theme of support			
	Mitigation	Adaptation	Cross-cutting	Other
n.a.	**n.a.**	**n.a.**	**n.a.**	**n.a.**

ANNEX

G20

For more detail on sources and methodologies, please refer to the Technical Note at:
https://www.climate-transparency.org/wp-content/uploads/2018/11/Technical-Note_data-sources-and-methodology.pdf

1) The 2030 projections of the future development of greenhouse gas (GHG) emissions under current policies are based on the Climate Action Tracker (CAT) estimates.

2) The CAT is an independent scientific analysis that tracks progress towards the globally agreed aim of holding warming to well below 2°C, and pursuing efforts to limit warming to 1.5°C. The CAT "Effort Sharing" assessment methodology applies state-of-the-art scientific literature on how to compare the fairness of government efforts and (Intended) Nationally Determined Contribution ((I)NDC) proposals against the level and timing of emission reductions consistent with the Paris Agreement. The assessment of the temperature implications of a country's NDC is based on the assumption that all other governments would follow a similar level of ambition.

3) This assessment is based on the policy evaluation on page 9 of this Country Profile.

4) Gross Domestic Product (GDP) per capita is calculated by dividing GDP with mid-year population figures. GDP is the value of all final goods and services produced within a country in a given year. Here GDP figures at purchasing power parity (PPP) are used. Data for 2017.

5) The Human Development Index (HDI) is a composite index published by the United Nations Development Programme (UNDP). It is a summary measure of average achievement in key dimensions of human development. A country scores higher when the lifespan is higher, the education level is higher, and GDP per capita is higher.

6) The ND-GAIN index summarises a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. This report looks only at the exposure indicators as part of the vulnerability component of the ND-GAIN index for six sectors. It displays the exposure scores provided by the ND-GAIN on a scale from low (score: 0) to high (score: 1).

7) The indicator covers all Kyoto gases showing historic emissions in each of the IPCC source categories (energy, industrial processes, agriculture, etc.). Emissions projections (excl. forestry) under a current policy scenario until 2030 are taken from the Climate Action Tracker and scaled to the historical emissions from PRIMAP (see Brown to Green Report 2018 Technical Note).

8) The ratings on GHG emissions are taken from the Climate Change Performance Index (CCPI) 2018. The rating of "current level compared to a well below 2°C pathway" is based on a global scenario of GHG neutrality in the second half of the century and a common but differentiated convergence approach.

9) CO_2 emissions cover only the emissions from fossil fuels combustion (coal, oil and gas) by sector. They are calculated according to the UNFCCC methodology (in line with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories).

10) Total primary energy supply data displayed in this Country Profile does not include non-energy use values. Solid fuel biomass in residential use has negative environmental and social impacts and is shown in the category "other".

11) Zero-carbon fuels include nuclear, hydropower and new renewables (non-residential biomass, geothermal, wind, solar).

12) Climate Transparency ratings assess the relative performance across the G20. A high scoring reflects a good effort from a climate protection perspective but is not necessarily 1.5°C compatible.

13) New renewables include non-residential biomass, geothermal, wind and solar energy. Hydropower and solid fuel biomass in residential use are excluded due to their negative environmental and social impacts.

14) Total primary energy supply (TPES) per capita displays the historical, current and projected energy supply in relation to a country's population. Alongside the intensity indicators (TPES/GDP and CO_2/TPES), TPES per capita gives an indication on the energy efficiency of a country's economy. In line with a well-below 2°C limit, TPES per capita should not grow above current global average levels. This means that developing countries are still allowed to expand their energy use to the current global average, while developed countries have to simultaneously reduce it to that same number.

15) TPES per GDP describes the energy intensity of a country's economy. This indicator illustrates the efficiency of energy usage by calculating the energy needed to produce one unit of GDP. Here GDP figures at PPP are used. A decrease in this indicator can mean an increase in efficiency but also reflects structural economic changes.

16) The carbon intensity of a country's energy sector describes the CO_2 emissions per unit of total primary energy supply and gives an indication of the share of fossil fuels in the energy supply.

ANNEX (continued)

G20

17) The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement and the Climate Action Tracker (2016): "The ten most important short-term steps to limit warming to 1.5°C". The table below displays the criteria used to assess a country's policy performance. See the Brown to Green Report 2018 Technical Note for the sources used for this assessment.

18) The CCPI evaluates a country's performance in national climate policy, as well as international climate diplomacy through feedback from national experts from non-governmental organisations to a standardised questionnaire.

19) See the Brown to Green 2018 Technical Note for the sources used for this assessment.

20) The University of Cambridge Institute for Sustainability Leadership (CISL) in early 2018 reviewed the progress made by the national regulatory agencies of G20 members in making the Task Force on Climate-related Financial Disclosures (TCFD) recommendations relevant to their national contexts. See the Brown to Green Report 2018 Technical Note for more information on the assessment.

21) This data includes bilateral public finance institutions such as national development banks and other development finance institutions, overseas aid agencies, export credit agencies, as well as key multilateral development banks. The analysis omits most finance delivered through financial intermediaries and significant volumes of multilateral development bank (MDB) development policy finance (due to a lack of clarity on power finance volumes). Given a lack of transparency, other important multilateral institutions in which G20 governments participate are not covered. See the Brown to Green Report 2018 Technical Note for further details.

22) Finance delivered through multilateral climate funds comes from Climate Funds Update, a joint ODI/Heinrich Boell Foundation database that tracks spending through major multilateral climate funds. See the Brown to Green Report 2018 Technical Note for multilateral climate funds included and method to attribute approved amounts to countries.

23) Bilateral finance commitments are sourced from Biennial Party reporting to the UNFCCC. Financial instrument reporting is sourced from the OECD-DAC; refer to the Brown to Green Report 2018 Technical Note for more detail. Figures represent commitments of Official Development Assistance (ODA) funds to projects or programmes, as opposed to actual disbursements.

On endnote 17)	Criteria description			
	● Low	● Medium	● High	● Frontrunner
GHG emissions target for 2050 or beyond	No emissions reduction target for 2050 or beyond	Existing emissions reduction target for 2050 or beyond	Existing emissions reduction target for 2050 or beyond and clear interim steps	Emissions reduction target to bring GHG emissions to at least net zero by 2050
Long-term low emissions development strategy	No long-term low emissions strategy	Existing long-term low emissions strategy	Long-term low emissions strategy includes interim steps and/or sectoral targets	Long-term low emissions strategy towards full decarbonisation in the second half of the century; includes interim steps and/or sectoral targets, plus institutions and measures in place to implement and/or regularly review the strategy
Renewable energy in power sector	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 0-25	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 26-60	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), average 61-100	Allianz Monitor 2018 Category 1.2 (targets) and 2 (policies), 61-100 plus 100% renewables in the power sector by 2050 in place
Coal phase-out	No consideration or policy in place for phasing out coal	Significant action to reduce coal use implemented or coal phase-out under consideration	Coal phase-out decided and under implementation	Coal phase-out date compatible with 1.5°C
Phase-out of fossil fuel light duty vehicles (LDVs)	No policy or emissions performance standards for LDVs in place	Energy/emissions performance standards or support for efficient LDVs	National target to phase out fossil fuel LDVs in place	Ban on new fossil-based LDVs by 2025/30
Near zero-energy new buildings	No policy or low emissions building codes and standards in place	Building codes, standards or fiscal/financial incentives for low emissions options in place	National strategy for near zero-energy buildings (at least for all new buildings)	National strategy for near zero-energy buildings by 2020/25 (at least for all new buildings)
Low-carbon new industry installations	No policy or support for energy efficiency in industrial production in place	Support for energy efficiency in industrial production (covering at least two of the country's sub-sectors (e.g. cement and steel production))	Target for new installations in emissions-intensive sectors to be low-carbon	Target for new installations in emissions-intensive sectors to be low-carbon after 2020, maximising efficiency
Net zero deforestation	No policy or incentive to reduce deforestation in place	Incentives to reduce deforestation or support schemes for afforestation / reforestation in place	National target for reaching zero deforestation	National target for reaching zero deforestation by 2020s or for increasing forest coverage

CLIMATE TRANSPARENCY

Partners:

Funders:

Supported by:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag

Data Partners:

http://www.climate-transparency.org/g20-climate-performance/g20report2018

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