



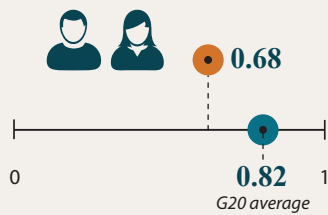
## BROWN TO GREEN: G20 TRANSITION TO A LOW CARBON ECONOMY

# Indonesia

This country profile assesses Indonesia's past, present and indications of future performance towards a low-carbon economy by evaluating emissions, decarbonisation, climate policy performance and climate finance. The profile summarises the respective findings from, amongst others, the Climate Change Performance Index (CCPI, operated by Germanwatch and Climate Action Network Europe), the Climate Action Tracker (CAT, operated by Climate Analytics, NewClimate Institute, Ecofys and the Potsdam Institute for Climate Impact Research), and analyses from the Overseas Development Institute (ODI).

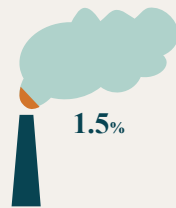


### Human Development Index



Source: UNDP, data for 2015

### Share of global GHG emissions



Source: World Bank Indicators, data for 2012

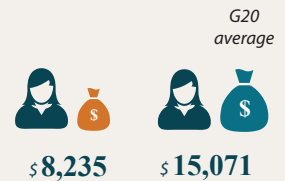
### GHG emissions per capita (tCO<sub>2</sub>e/cap)



### Share of global GDP

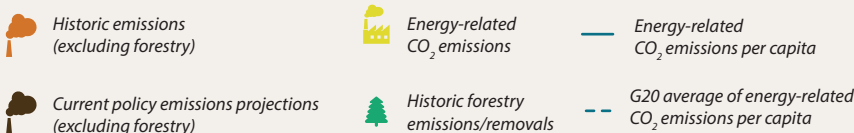
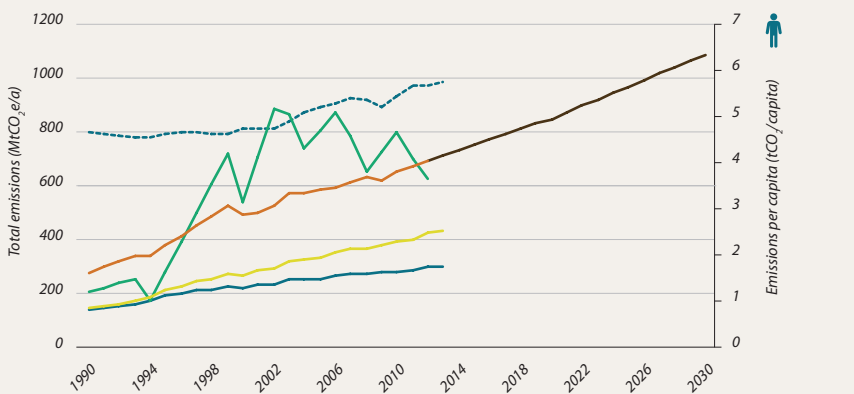


### GDP per capita



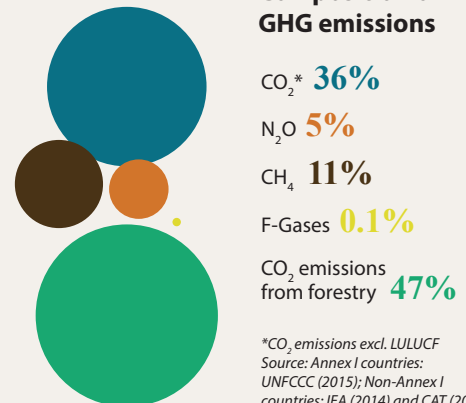
Source: IEA, data for 2013

## GREENHOUSE GAS (GHG) EMISSIONS



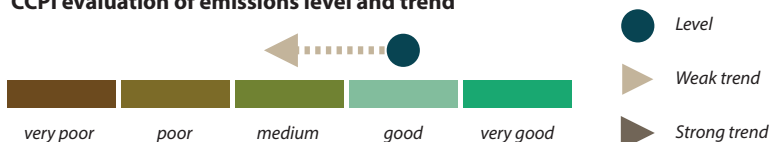
Indonesia's greenhouse gas (GHG) emissions have more than doubled since 1990, a steep increase that projections say will continue until 2030. Emissions from land use, land-use change and forestry (LULUCF) vary widely and up until 2012, have been higher than emissions from all other sources combined. Indonesia's carbon dioxide (CO<sub>2</sub>) emissions are rising, but from a very low level. CO<sub>2</sub> per capita emissions are increasing, but at 1.7 tCO<sub>2</sub>/capita in 2013, are still well below the G20 average. The CCPI evaluates Indonesia's emissions level as relatively good, but with a negative trend.

### Composition of GHG emissions



\*CO<sub>2</sub> emissions excl. LULUCF  
Source: Annex I countries: UNFCCC (2015); Non-Annex I countries: IEA (2014) and CAT (2015)

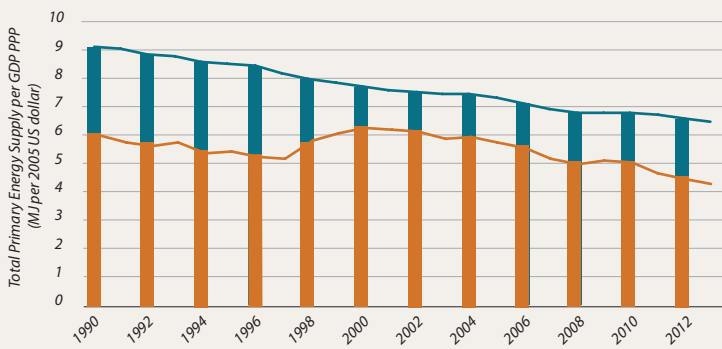
### CCPI evaluation of emissions level and trend



Sources: Past energy related emissions from the Climate Change Performance Index (CCPI); past non-energy and future emissions projections from the Climate Action Tracker (CAT). CCPI calculations are primary based on the most recent IEA data; CAT calculations are based on national policies and country communications.

# DECARBONISATION

## Energy intensity of the economy

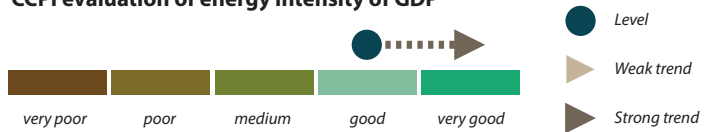


Energy intensity  
Average energy intensity in G20

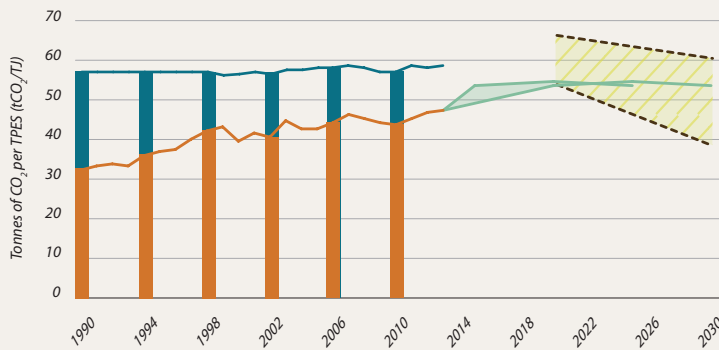
Source: CCPI, 2016

The energy intensity of Indonesia's economy (TPES/GDP) peaked in 2000 and has steadily decreased since then. Compared to other G20 countries, energy intensity remains relatively low. The CCPI ranks Indonesia's energy intensity of the economy as good with a positive trend.

### CCPI evaluation of energy intensity of GDP



## Carbon intensity of the energy sector

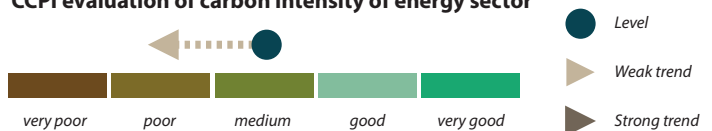


Carbon intensity (past trend) Global benchmark for a 2°C pathway  
Average carbon intensity in G20

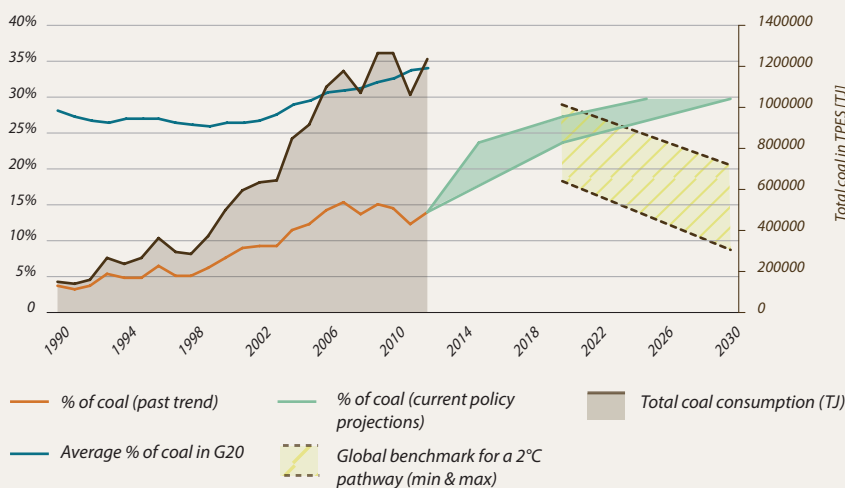
Sources: Past: CCPI; future projections: CAT

Indonesia's carbon dioxide emissions per total primary energy supply ( $\text{CO}_2/\text{TPES}$ ) have steadily increased but remain below the G20 average. It is expected that Indonesia's carbon intensity will remain constant until 2030, at around 54  $\text{tCO}_2$  per TJ. This would exceed the minimal value of the 2°C benchmarks but stay within the corridor. The CCPI evaluates Indonesia's carbon intensity as medium, with a worsening trend.

### CCPI evaluation of carbon intensity of energy sector



## Share of coal Total Primary Energy Supply (TPES)



Source: CAT



The share of coal in Indonesia's total primary energy supply has increased over recent decades, reaching 14% in 2012, still below the G20 average. However, considering the country has about 40 GW of capacity planned in coal power plant, it is expected that the share will further increase in the near future, up to 30% in 2030. This development would be inconsistent with a 2°C compatible pathway.

### Evaluation of coal share in TPES

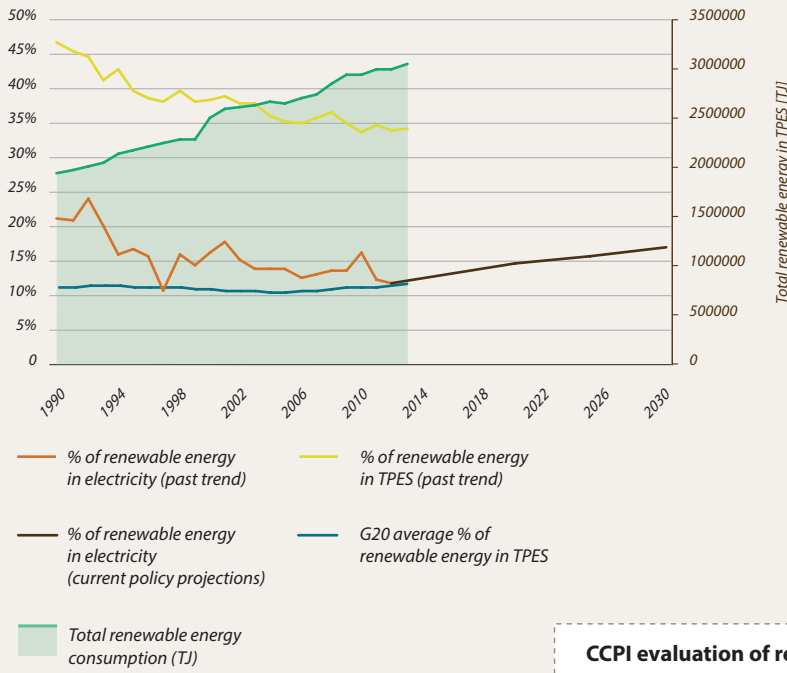


Source: own evaluation

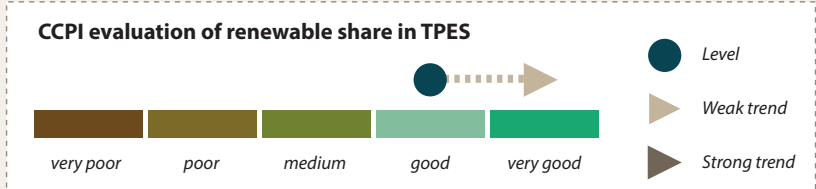
## Renewable energy in TPES and electricity sector



The share of renewable energy in electricity has varied over the years, but has dropped from 21% in 1990 down to 11% in 2012. According to 2030 projections, a new increase can be expected. The share of renewables in the country's total primary energy supply is falling, but is still clearly above the G20 average. The CCPI evaluates Indonesia's level of renewable energy as relatively good compared to other countries, and recognises a positive trend.

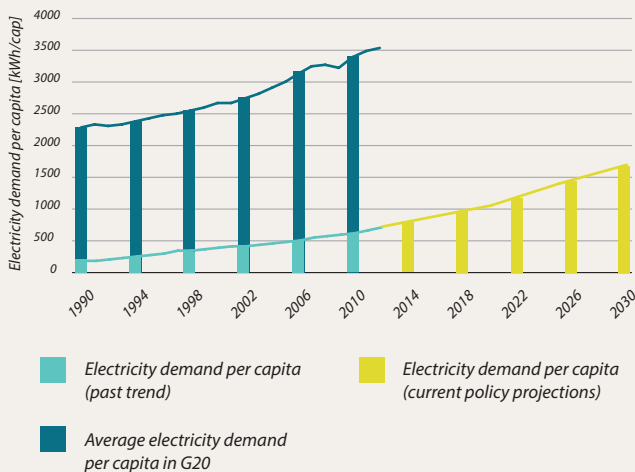


Sources: CCPI and CAT



## Electricity demand per capita

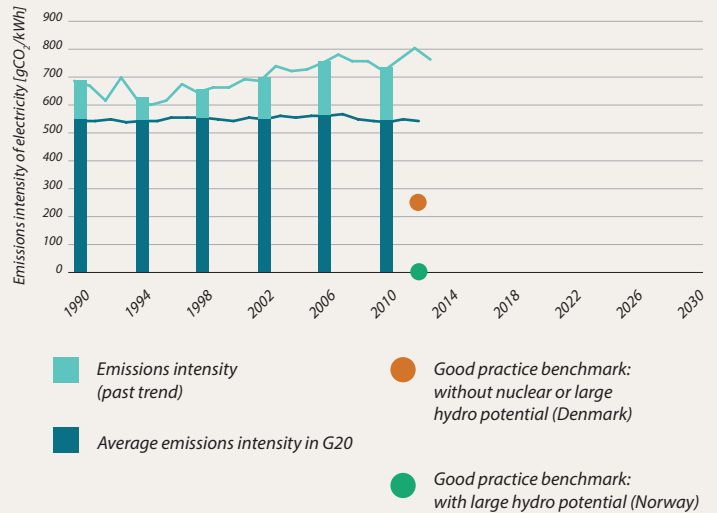
Although Indonesia's electricity demand per capita has increased in the last decades, it still is far below the G20 average. A strong increase is expected, which will lead to an energy demand more than twice as high than current levels.



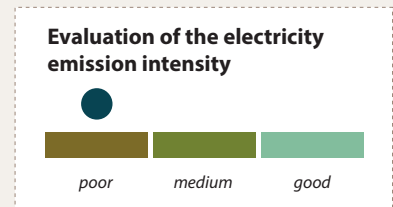
Source: CAT, 2015

## Emissions intensity of the electricity sector

Indonesia's electricity emissions intensity of the electricity sector has continued to increase over the last decades and remains clearly above the G20 average.



Source: CAT, 2015



Source: own evaluation

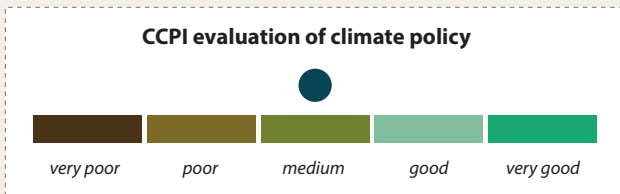
# CLIMATE POLICY PERFORMANCE

## Checklist of the climate policy framework

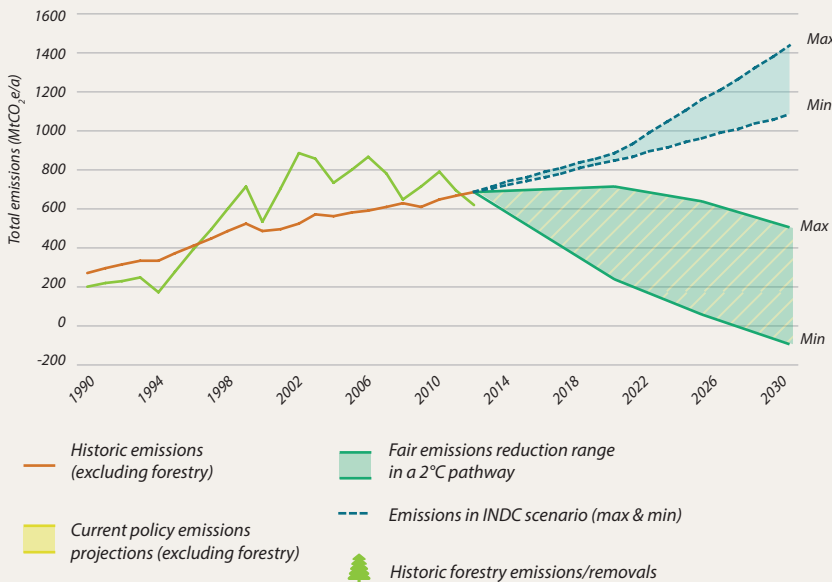
Low emissions development plan for 2050*	✓
2050 GHG emissions target	✗
Building codes, standards and incentives for low-emissions options	✓
Support scheme for renewables in the power sector	✓
Emissions performance standards for cars	✗
Emissions Trading Scheme (ETS)	✗
Carbon tax	✗

\* understood as decarbonisation plans and not specifically as the plans called for in the Paris Agreement

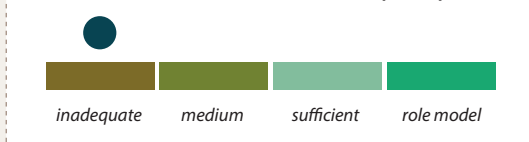
Source: Climate Policy Database, 2016



## Compatibility of national climate targets (INDCs) with a 2°C scenario



## CAT evaluation of Indonesia's Intended National Determined Contributions (INDC)

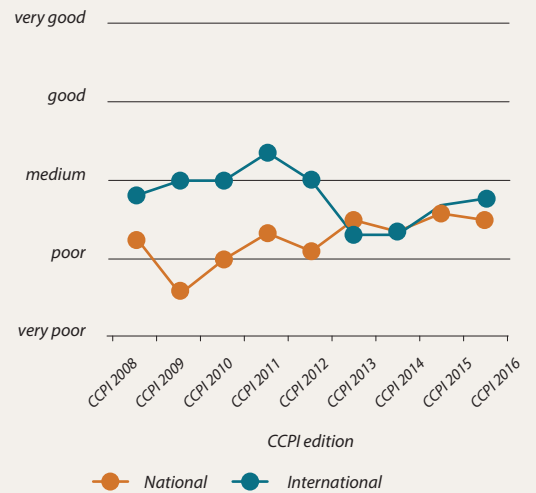


Source: CAT, 2015

## Climate policy evaluation by experts

International climate policy performance has strongly varied since 2008. On the other hand, national climate policy performance has sustainably improved over time. National experts praise Indonesia's moves to accelerate renewable energy development, but criticise poor implementation and claim that existing regulations to stop land conversion would not be sufficient to combat illegal deforestation. The CCPI rates Indonesia's climate policy performance as medium.

The CCPI evaluates a country's performance in national and international climate policy through feedback from national energy and climate experts.



Source: CCPI, 2016

Indonesia's Intended Nationally Determined Contribution (INDC), released on 24 September 2015, includes an unconditional 2030 GHG emissions reduction target (including land-use, land-use change and forestry – LULUCF – emissions) of 29% below BAU, and a conditional 41% reduction below BAU by 2030 (with sufficient international support). The Climate Action Tracker (CAT) rates the INDC "inadequate". Under different assumptions on what level of effort is devoted to deforestation, the INDC could be rated either "medium" or "inadequate". Indonesia would need to quantitatively clarify how it intends to reduce emissions across different sectors before the CAT can revise this "inadequate" rating.

Indonesia's INDC targets include emissions from deforestation and peatland destruction, which account for the largest source of its emissions - an average of 60% of total emissions over the last ten years (based on national data). The effect of the INDC on future deforestation emissions is unclear. With currently implemented policies Indonesia will likely overachieve its 2020 pledge (26% below BAU). However, it is working on the construction of new coal-fired power plants to meet rapidly increasing electricity demand, a development which is likely to bind the country to this carbon-intensive technology for many decades.

## FINANCING THE TRANSITION

### Investment attractiveness



Allianz Energy and Climate Monitor

LOW

RECAI\* (E&Y index) Category (own assessment)

LOW

Trend\*\*



\*Adapted from RECAI and re-classified in 3 categories (low, medium, high) for comparison purposes with Allianz Monitor.

\*\*Taken from RECAI issue of May 2016

Climate Transparency rates Indonesia's investment attractiveness as low, due to the weak implementation of green policies and regulatory barriers that limit capacity addition. Indonesia's national climate and renewables targets are unambitious. Despite a relatively large installed capacity of geothermal power, negligible prior experience with wind and solar installations and poor governance conditions, which limit policy predictability, compound Indonesia's low rating.

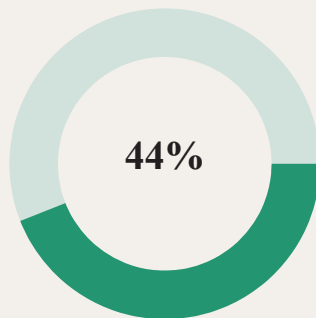
Sources: Allianz Energy and Climate Monitor and RECAI reports

The Allianz Energy & Climate Monitor ranks G20 member states on their relative fitness as potential investment destinations for building low-carbon electricity infrastructure. The investment attractiveness of a country is assessed through four categories: Policy adequacy, Policy reliability of sustained support, Market absorption capacity and the National investment conditions. The Renewable Energy Country Attractiveness Index (RECAI) produces score and rankings for countries' attractiveness based on Macro drivers, Energy market drivers and Technology-specific drivers which together compress a set of 5 drivers, 16 parameters and over 50 datasets.

### Historical investments in renewable energy and investment gap

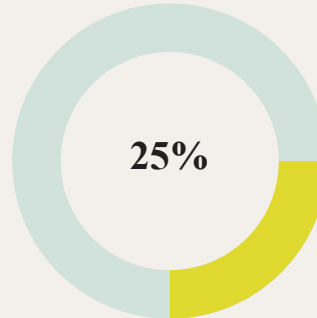
This section shows Indonesia's current investments in the overall power sector (including distribution and transmission) as well as in renewable energy expressed as the share of the total annual investments needed to be in line with a 2°C compatible trajectory.

#### Investments in the power sector



% of current investments in the power sector compared to the investment needs under a 2°C pathway

#### Investments in renewable energy for the power sector



% of current investments for renewable energy in the power sector compared to the investment needs under a 2°C pathway

Source: Adapted from WEIO, 2014<sup>(1)</sup>

<sup>(1)</sup> WEIO (2014) compares annual average investments from 2000 to 2013 with average annual investments needed from 2015 to 2030 under a 2°C scenario

### Carbon pricing mechanisms

#### Emissions Trading Schemes (ETS)

An ETS caps the total level of GHG emissions and allows industries to trade allowances based on their marginal abatement cost. By creating a supply and demand for allowances, an ETS establishes a market price for GHG emissions.

#### Carbon Tax

A Carbon tax directly sets a price on carbon by defining a tax rate on GHG emissions or – more commonly – on the carbon content of fossil fuels. Unlike an ETS, a carbon tax is a price-based instrument that pre-defines the carbon price, but not the emissions reduction outcome of a carbon tax.

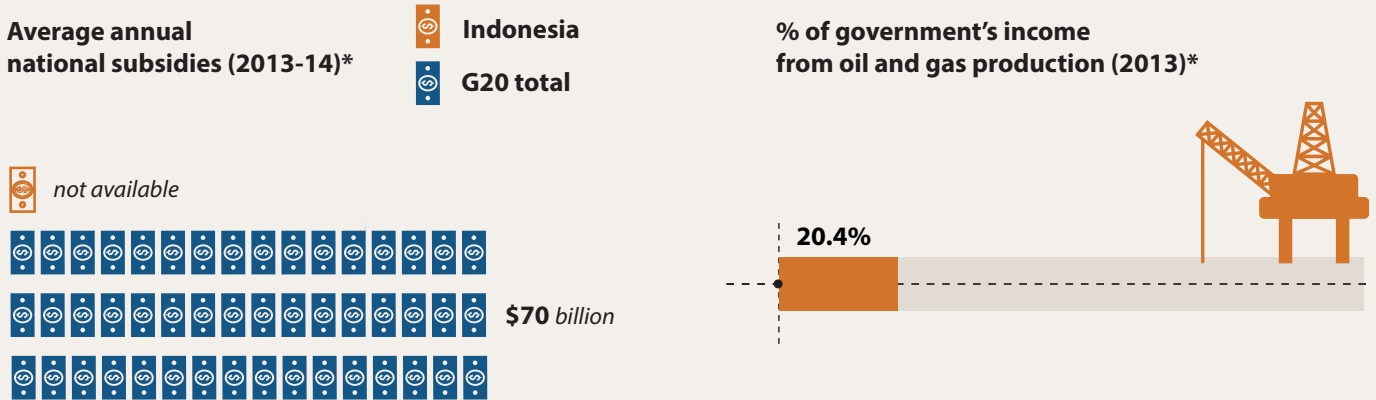
While Indonesia does not yet have carbon-pricing systems in place, it is currently exploring various market-based approaches to achieve its mitigation goals.



Sources: World Bank and Ecofys, 2016; other national sources

## Fossil fuel subsidies

Indonesia's energy and mineral sector accounted for a quarter of state revenue in 2014. While Indonesia has made notable efforts to phase out consumer subsidies, tax subsidies for fossil fuel production continue through exemption from import duty and VAT for goods used in oil and gas exploration, and investment credit allowance for oil and gas. PT Pertamina, the 100% state-owned oil and gas company has a virtual monopoly, and invests substantially in exploration activities. Under the Domestic Market Obligation (DMO), oil producers are required to sell a portion of their supply to domestic consumers below market rates and receive a reimbursement for the difference from purchase cost from the government. In the case of coal producers, the ministry sets the minimum amount of coal that needs to be produced to supply the local market, which has been increasing every year.



Source: ODI, 2015

\*The indicators above refer only to subsidies for fossil fuel production, and include direct spending (e.g. government budget expenditure on infrastructure that specifically benefits fossil fuels), tax expenditure (e.g. tax deductions for investment in drilling and mining equipment) and other support mechanisms (e.g. capacity mechanisms).

## Public climate finance

Indonesia is not obliged to provide climate finance as a developing country. It has nevertheless pledged \$0.3 million to the GCF. Indonesia has also created a national climate change trust fund, and initiated processes to green its budget and regulate financial institutions to support green investment.