



# Phasing-out coal in Indonesia

## Status quo

Indonesia has an installed coal capacity of 37 GW, while the share of coal in the electricity generation amounts to almost 60%. In addition, Indonesia still invests into new coal plants with another 12 GW under construction and 18 GW planned. Indonesia is also the 5<sup>th</sup> largest producer of coal and the largest global exporter of thermal coal.

Indonesia’s energy-related CO<sub>2</sub> emissions quadrupled from 131 MtCO<sub>2</sub>e in 1990 to 543 MtCO<sub>2</sub>e in 2018, with coal accounting for more than 40% of current emissions. Electricity generation has grown from 30 TWh to almost 300 TWh since 1990. Since the year 2000, over 90% of added power capacity has been based on fossil fuels and on coal in particular.

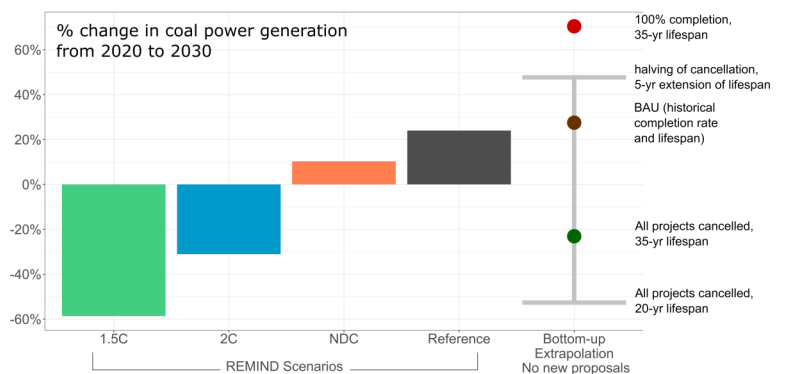
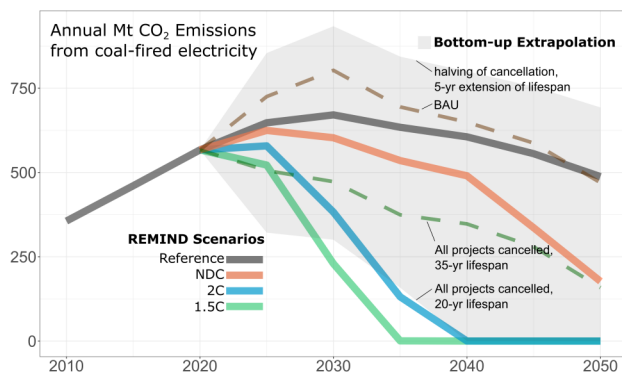
To meet future demand, Indonesia’s national energy plan envisages that more than 30% of the total primary energy supply should be provided by coal by 2025. Although the new RUPTL envisages higher shares of renewables in the power sector, coal will remain the dominant energy source.

## Coal phase-out scenarios

To limit global warming, the Paris Agreement from 2015—signed and ratified by Indonesia—requires keeping the average temperature increase to well below 2°C and possibly 1.5°C above pre-industrial levels.

Scenarios on carbon emission pathways project that emissions from coal-fired electricity generation need to reach net-zero by 2035 to remain below 1.5°C and by 2040 to remain below 2°C (see left figure below). Achieving the 1.5°C target implies that, by 2030, electricity generation from coal in South-East Asia needs to decrease by almost 60% compared to today’s levels. Allowing for 2°C warming would still require the region’s current generation to decrease by 30% by 2030 (see right figure below).

Achieving the 1.5°C target does not allow for any additional coal development, but instead implies even reducing the lifespans of operating plants to 20 years.



### REMIND model results and bottom-up extrapolation for coal in South-East Asia.

**Left:** CO<sub>2</sub> emissions for different scenarios (1.5C, 2C, NDC and Reference). “NDC” represents the first-round Nationally Determined Contributions, “Reference” the currently implemented national policies. The grey area shows bottom-up extrapolation assuming no new coal project proposals. **Right:** coal phase-out in 2030 in percentage of the 2020 generation for different scenarios and bottom-up extrapolation with varying assumptions on completion rates of new coal plant projects and lifetimes of existing plants. Extrapolation is conducted using the Global Coal Plant Tracker January 2021 release and the IEA World Energy Balances 2017 edition.

## Political economy

Analyzing the political economy of coal in Indonesia outlines a number of key challenges for a rapid coal phase-out.

Expanding the electricity infrastructure while sustaining low electricity prices is a key policy objective. Despite the reduction of electricity subsidies in recent years, political levy to increase tariffs remains limited, despite the state owned utility PLN being a loss-making entity.

Providing public infrastructure, including power plants, is a priority of President's Joko Widodo administration. Of 35 GW envisaged power capacity additions, approximately 20 GW have been planned to be coal-fired power plants. In Indonesia, coal electricity is competitive, given that capital-intensive renewable energy projects suffer from high interest rates.

Coal royalties are an important source of fiscal revenues. That is true on the national, as well as on the sub-national level, including resource-rich provinces, such as South and East Kalimantan and South Sumatra. Strong financial incentives exist to sustain coal mining as a key economic activity and source of public revenues.

Oligarchic structures and blurry lines between the political and the economic elite related to coal and natural resources are widespread in Indonesia, with key political functionaries at national and local level owning coal assets. In a context of decreasing coal exports this results in a strong bias of PLN towards continuing and expanding domestic coal use.

Climate and environmental protection is framed as a forestry issue. Politically, the responsibility lies mainly with the Ministry of Forestry and Environment, which has no possibility to address the high growth of carbon emission in the energy sector.

## Solutions

Achieving a coal phase-out requires policies that consider political economy factors. Only recently, Indonesia has started discussing the goal of achieving carbon neutrality by mid-century. We propose **three policy mechanisms to phase-out coal** and foster renewables:

- i) **Improve incentives for renewable energy projects:** The ramp-up of renewable energies requires regulatory certainty for investors. Specifically, it needs an adjusted power market structure that favors renewable energies by reducing regulatory barriers and avoiding frequently changing regulations. This would reduce financing costs by lowering risk premiums, and thus the total costs of renewable electricity deployment. Energy companies in Indonesia would then obtain the opportunity to diversify their business models towards renewable energies, and thereby compensate eventually decreasing coal profits.
- ii) **Consider regional structural change:** A fiscal reform that directs public funds towards affected coal-provinces is crucial. This applies, in particular, for coal-endowed regions such as South- and East Kalimantan, and to a minor extent South Sumatra, whose public revenues currently stem from coal production. Fiscal coal revenues could also be compensated by income from a carbon pricing scheme, which may thereby increase the political support of sub-national governments for a coal phase-out.
- iii) **Reform institutions:** The Ministry of Forestry and Environment needs to become a regulator of PLN, while PLN itself should be reformed to reduce its propensity for political capture. For such reforms to be implemented successfully, they should be part of larger efforts to increase the institutional capacity of regulating bodies that control Indonesia's energy policy and its power sector in general. Furthermore, efforts to curb corruption and mitigating vested interests in the coal sector are pivotal.

### IMPRINT

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