

26 November 2024

President Prabowo's fossil power phase out vision requires more robust clean energy targets and investment

The Centre for Research on Energy and Clean Air (CREA) applauds President Prabowo's initiative of targeting a phase-out of fossil fuels in power generation by 2040 as a significant step forward in Indonesia's ambition on reducing greenhouse gas emissions, tackling air pollution, and attracting investment. A major increase in clean energy investments and targets is needed to make this vision a reality – the target of adding 75 GW of renewable energy by 2040 falls far short of what's needed to replace coal, oil, and gas in power generation over this period.

The inauguration of President Prabowo Subianto on [20 October 2024](#) marks the beginning of a new era for Indonesia, with a focus on realising [8% economic growth](#) for the nation. Within just one month, President Prabowo has made large strides in this effort, with his administration announcing ambitious climate commitments at the recently concluded 29th Conference of the Parties to the UN Framework Convention on Climate Change (COP29) in Baku, Azerbaijan and the G20 summit in Rio de Janeiro, Brazil last week.

On 12 November, at the sidelines of the [COP29](#), Indonesia's Special Envoy for Energy and Climate Change, Hashim Djojohadikusumo, presented a plan to increase power generation capacity by 100 gigawatts (GW) within 15 years, which he said will require USD 235 billion in investment, with 75% of these additions coming from renewables. Also in attendance, the President Director of *PT Perusahaan Listrik Negara* (PLN), Darmawan Prasodjo, further elaborated that the 75 GW renewables additions up to 2040 would come from hydropower (25 GW), solar (27 GW), wind (15 GW), geothermal (7 GW), and bioenergy (1 GW). In the footnotes of the presentation materials, 28 GW of additional thermal baseload is noted, from coal (6 GW) and gas (22 GW).

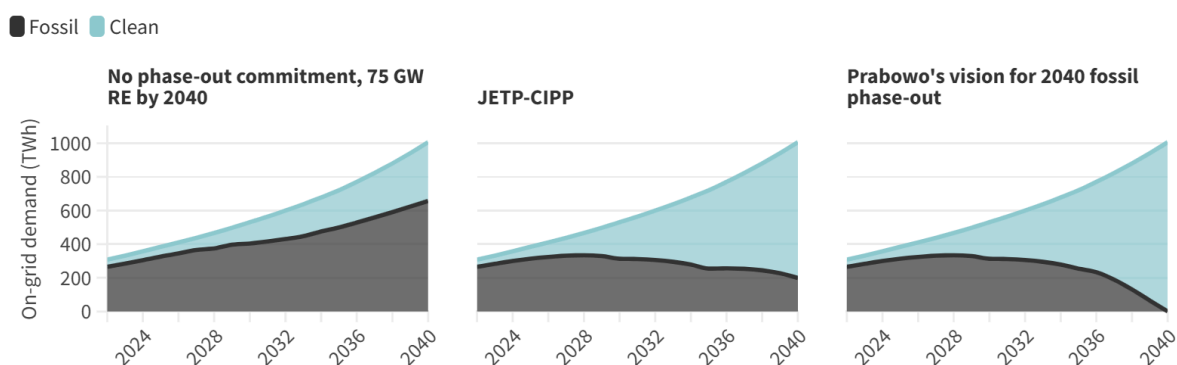
On 19 November 2024, during [the G20 Summit](#), President Prabowo conveyed his grand vision to achieve net zero emissions by 2050, announcing a plan to stop coal-fired power plants and other fossil fuel power generation in the next 15 years and to build more than 75 GW of renewable energy within the same period. This announcement brings a glimmer of hope in the midst of [Indonesia's growing reliance on coal](#). Currently, 62% of the country's on-grid and off-grid electricity comes from coal. Not to mention the fact that coal power capacity has doubled since Indonesia signed the Paris Agreement in 2016.

[The USD 20 billion Just Energy Transition Partnership \(JETP\)](#) launched in November 2022 during Indonesia’s G20 Presidency in Bali is a significant step forward in steering the nation away from coal dependence. The partnership not only showcases Indonesia’s commitment in coal transition, but also its openness to collaborative efforts in mobilising the financing needed to catalyse change.

In light of [the formally announced commitment between Indonesia and the United States](#) to continue collaborating on JETP through the implementation of the Comprehensive Investment and Policy Plan (CIPP) in parallel with domestic policy reform, CREA recognises the opportunity to assess the recently announced 75 GW renewables target by 2040 against the targets outlined in the November 2023 [JETP CIPP](#) document.

The goal to phase-out fossil fuel-based power generation by 2040 is pathbreaking – so much so that Indonesia will have to set much higher ambitions for clean energy deployment to achieve it. The recently announced target of an additional 75 GW of renewables and 5 GW of nuclear by 2040 would only deliver fossil-free electricity at about 35% of the projected national electricity demand. In other words, in order to meet the projected zero fossil electricity demand in 2040, Prabowo’s vision requires about 25% additional clean energy generation beyond what is outlined in JETP CIPP. This means that Indonesia’s clean energy targets must be more than doubled in order to make Prabowo's vision a reality, as illustrated in Figure 1.

Projection of clean and fossil power generation required to meet on-grid demand in different commitments



Source: CREA analysis of JETP CIPP (2023), COP29 announcement of 40 GW addition - hydropower (25 GW), solar (27 GW), wind (15 GW), geothermal (7 GW), and bioenergy (1 GW) • Assuming capacity factor of 41% for wind, 17% solar, 54% hydropower, and 85% for bioenergy, geothermal, and nuclear

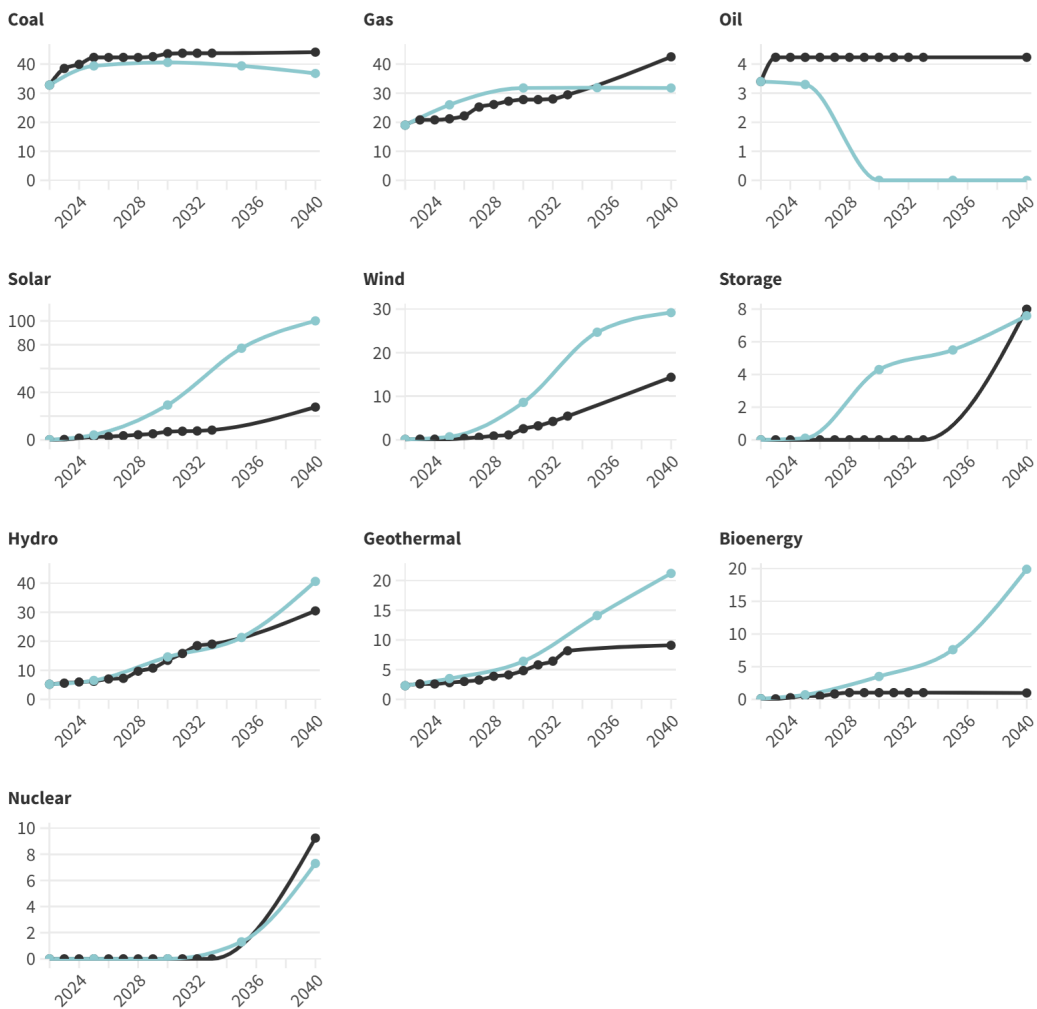
Figure 1. Implication of different commitments on the projection of clean and fossil power generation required to meet on-grid demands

Combined with projected demand growth, implementing the 75 GW target would in fact mean that the need for fossil fuel based power generation would increase by 145% – 267 TWh in 2022 to 657 TWh in 2040. In contrast, the JETP CIPP targets an additional 210 GW of non-fossil power generation in the same period, and achieves 80% renewables share by 2040. Comparison of the projected capacities outlined in the JETP CIPP and the announced 75 GW renewables is summarised in Figure 2.

Capacity projection up to 2040 by energy source

On-grid power generation capacity (GW)

■ 100 GW by 2040 ■ JETP CIPP

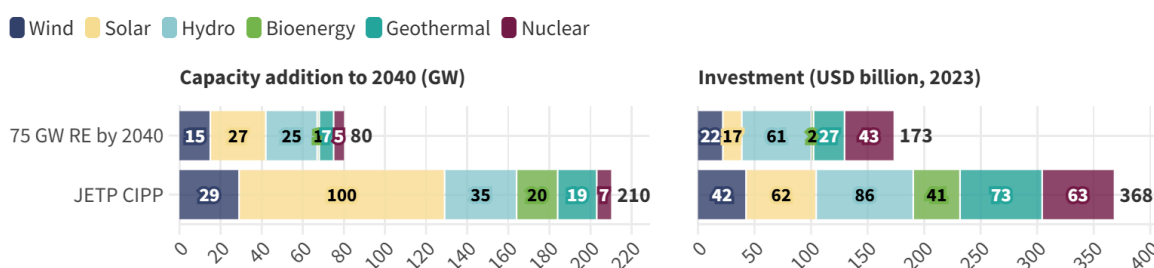


Source: CREA analysis of JETP CIPP (2023), COP29 announcement of 40 GW addition - hydropower (25 GW), solar (27 GW), wind (15 GW), geothermal (7 GW), and bioenergy (1 GW) • Detailed analysis of 100-GW addition by 2040 is complemented by capacity additions summarised in an internally circulated information for ongoing work on the draft of *Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) 2024-2033*, PLN's Electricity Supply Business Plan. Storage and nuclear are not listed in this source up to 2033, hence assumed to gradually increase from 2034.

Figure 2. Capacities by source projected in JETP CIPP and the 100-GW by 2040 planning

Updating clean energy targets to align with Prabowo's vision of a fossil fuel phase-out by 2040 is a potent opportunity to attract clean energy investments in Indonesia. Beyond the USD 235 billion investment outlined by PLN for the 100 GW capacity addition, scaling up ambition to match JETP CIPP clean energy targets would bring in – at minimum – more than an equal amount of clean energy investments (close to USD 200 billion from 130 GW of additional renewables capacities).

Projected investments for the corresponding capacities of clean energy additions up to 2040



Source: CREA analysis of JETP CIPP (2023), COP29 announcement of 40 GW addition - hydropower (25 GW), solar (27 GW), wind (15 GW), geothermal (7 GW), and bioenergy (1 GW) • Assumptions for technology investment costs are as listed in JETP CIPP Nov 2023, interpolated for 2035 and adjusted to 2023 prices)



Figure 3. Projection of clean energy investments from the 75 GW renewables addition as compared to JETP CIPP up to 2040

Last but far from least, from the angle of air quality and health, [Indonesia's current coal power generation](#) is responsible for 10,500 annual deaths and USD 7.4 billion in economic burden. Phasing out coal power would bring huge health benefits, while increasing fossil-based power generation would dramatically worsen air pollution-related impacts.

The Paris Agreement's 1.5 degree-aligned pathway accounts for health benefits as a key consideration factor and firmly sets 30 years as the limit for the operational lifetime of coal-fired power plants. Prabowo's vision – if implemented in line with these requirements – could avoid a cumulative total of 182,000 air pollution-related deaths and health costs of USD 130 billion from 2024 until the end-of-life of all coal-fired power plants in Indonesia. And bearing in mind that these numbers have not included all categories of fossil fuel thermal power plants – such as gas and oil – this push towards the new phase of energy transition would bring even greater health benefits to all Indonesian citizens.

'President Prabowo's vision for a 2040 fossil power phase-out may indicate a turning point for Indonesia. As we enter this pivotal moment for energy transition, nationwide efforts and international support in line with this vision will bring tremendous benefits for all citizens - not only from sizable investments in clean energy development, but also immediate gains from air quality improvements. However, realising this goal will require strong leadership as well as for all stakeholders involved, particularly investors, to see the plan's potential and grasp the vast economic opportunity at hand,' said Katherine Hasan, Analyst at CREA.

'Indonesia's newly announced commitment to retiring all of the country's coal-fired and other fossil fuel power plants within 15 years is a truly admirable goal. However, we strongly advise the Prabowo government to make sure its plan is aligned with the on-grid investment plan set in the JETP CIPP, an approach that would net a greater total of clean energy investments than adhering to the 75 GW target alone. We also ask that the government continue to work on removing the barriers that have heretofore stymied the take-off of low-cost clean power sources in Indonesia, in order to assure that the goals laid out in the plan are fully realised within the proposed timeframe,' said Lauri Myllyvirta, Lead Analyst at CREA.