

POLICY BRIEF

Fossil Fuel Production, Renewable Energy, and Subsidy Reform in Nationally Determined Contributions 3.0

Ambition benchmarks for 1.5 °C alignment

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Summary

Under the Paris Agreement, countries are required to update their nationally determined contributions (NDCs) every 5 years, with the next round due in 2025. The third generation of NDCs must address significant gaps in ambition to achieve the 1.5 °C target, emphasizing benchmarks established during the first global stocktake (GST) at the 28th United Nations Climate Conference (COP 28). We provide an analysis of the critical benchmarks and recommendations necessary for aligning NDCs with the 1.5 °C target under the Paris Agreement.

We focus on three key ambition benchmarks:

- **scaling renewable energy:** Tripling global renewable energy capacity and doubling energy efficiency improvements by 2030 are vital. Regions with low renewables bases, like sub-Saharan Africa, require accelerated growth supported by international finance.
- **transitioning from fossil fuels:** No new coal, oil, or gas projects are compatible with 1.5 °C. Production must decline sharply—coal by 95% and oil and gas by at least 65% by 2050. Current NDCs often fail to address this, widening the “production gap.”
- **reforming fossil fuel subsidies:** Subsidies totalled USD 1.5 trillion in 2022. Their removal could cut global emissions by up to 10% by 2030, yet most NDCs neglect this critical area. Subsidy reform must prioritize socially responsible transitions.



Based on those ambition benchmarks, we provide the following recommendations to align with 1.5 °C:

- commit to no new fossil fuel exploration licences and set phase-out targets in line with common but differentiated responsibilities and respective capabilities (CBDR-RC);
- include targets to scale renewable energy and efficiency to at least triple capacity by 2030;
- commit to eliminating fossil fuel subsidies by 2025 (G7) or 2030 (others), using savings to fund clean energy and support vulnerable groups;
- include information related to equity and international support and cooperation, including statements of how their reduction targets are fair and ambitious with regard to national circumstances;
- for high-income economies, a commitment to provide technical and financial support to emerging and developing economies.

Additionally, we recommend including other elements that do not necessarily reflect 1.5 °C alignment but could considerably close the existing ambition gap and improve the quality of NDCs.

Introduction

Under the Paris Agreement, countries are required to submit their next round of national climate plans (nationally determined contributions, or NDCs) by February 2025. NDCs are key documents through which governments can communicate their climate change plans within the United Nations Framework Convention on Climate Change process, signalling their climate action intentions and priorities internationally. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive NDCs on a 5-year cycle (e.g., by 2025, 2030). These are expected to progressively ratchet up ambition.

The current generation of NDCs typically includes targets for 2030 or 2035, and the next generation of NDCs will provide targets for 2035 or 2040. Some countries have started submitting their NDCs ahead of the deadline, with two of the “troika” of COP Presidencies, UAE and Brazil, submitting self-proclaimed “1.5 °C-aligned” NDCs at COP 29. The question arises: what are the benchmarks for 1.5 °C-aligned NDCs?

Here, we focus on three important ambition benchmarks for individual countries to contribute to global efforts, in a nationally determined manner, to operationalize the historical agreement resulting from the GST at COP 28 in Dubai, which are particularly relevant for fossil fuel-producing countries, such as the troika countries (United Nations Framework Convention on Climate Change, 2023):

- tripling renewable energy capacity globally and doubling the global average annual rate of energy efficiency improvements by 2030 (Art. 28.a of the GST outcome);
- actions supporting “transitioning away from fossil fuels in energy systems in a just, orderly, and equitable manner” (Art. 28.d of the GST outcome);
- phasing out inefficient fossil fuel subsidies that do not address energy poverty or just transitions as soon as possible (Art. 28.h of the GST outcome).



Ambition Gaps and Benchmarks

Regarding transitioning away from fossil fuels, **the science is clear: to keep 1.5 °C alive, there is no room for new coal mines or oil and gas fields.** Research published in *Science*, as well as by the International Energy Agency, shows that in 1.5 °C-aligned scenarios, no new coal mines or oil and gas fields are opened (Green et al., 2024; International Energy Agency, 2023).

In 1.5 °C-aligned scenarios, coal production declines by 95% by 2050, and oil and gas production declines by at least 65% by 2050 and up to 100% in some pathways. Counter to this clear imperative, many major producers are planning to increase their fossil fuel production in the coming decades. This results in the “production gap” between countries’ planned production and that consistent with Paris Agreement goals. Existing NDCs confirm the production gap, with most NDCs of major producers explicitly stating that fossil fuel production will continue or increase. Unless those plans for expansion of fossil fuel production are reversed and national pathways for a national phase-out compatible with global climate targets are set, achieving this transition in a just, orderly, and equitable manner will become impossible.

In addition to phasing down production, fossil fuel consumption will also need to decline, necessitating a scaling up of clean energy at the domestic level to meet energy demand. Countries can also operationalize the COP 28 pledge to triple global renewable energy capacity by 2030 through their third-generation NDCs. Only 14 of the 194 NDCs previously submitted include explicit targets for renewable power capacity for 2030 (International Energy Agency, 2024). Now, they should ensure national targets are aligned with the overall tripling goal. Analyses of 1.5 °C-compatible pathways show that while tripling capacity of renewable energy globally would be sufficient, regions like sub-Saharan Africa and the Middle East that start from a low base would need to increase their renewable energy capacity at a faster rate (Climate Analytics, n.d.). A rapid expansion of renewable capacity in sub-Saharan Africa would require substantial international climate finance.

Regarding fossil fuel subsidies, the Intergovernmental Panel on Climate Change (IPCC) assessment concludes that **removing fossil fuel subsidies would reduce global CO₂ emissions by 1%–4%, and total greenhouse gas emissions by up to 10% by 2030**, with results varying across regions (IPCC, 2022). However, progress on implementation has been slow. Fossil fuel subsidies amounted to USD 1.5 trillion in 2022. In the G20 in 2023, fossil fuel subsidies were more than triple the value of support for renewable energy (Laan et al., 2024).¹ While all UN member states have agreed to eliminate inefficient fossil fuel subsidies by 2030 under the UN Sustainable Development Goals (SDGs), only a few countries have introduced some, often only partial, reforms. Backsliding on fossil fuel subsidies reform is also common.

¹ Perfectly comparable data for different energy types is not available at the international or G20 level: fossil fuel subsidy data includes transport fuels, while IISD’s data for renewables includes only renewable power (not biofuels or electric vehicles). Also, we say renewable “support” because we include some measures like feed-in tariffs where the subsidy component is unclear. However, the comparison shows that governments continue to provide more funding to fossil fuels than renewable capacity despite commitments to the contrary.



Furthermore, the need for fossil fuel subsidy reform is barely reflected in countries' current and past NDCs. Only 29 of 198 parties referenced fossil fuel subsidies in their NDCs, with just 15 currently making an actual commitment to reform. Some countries deny having subsidies despite evidence to the contrary. Others only reference the implementation of past reforms instead of outlining concrete, forward-looking national actions.

Recommendations

Based on the benchmarks resulting from the Intergovernmental Panel on Climate Change work, we conclude that all countries include the following ambition benchmarks for 1.5 °C consistency in new NDCs regarding fossil fuels production, renewable energy capacity, and related public financial support:

- **a commitment to a Paris-aligned transition away from fossil fuels production and use, which is just, orderly, and equitable.** At a minimum:
 - a commitment to no new exploration licences for coal, oil, and gas;
 - a quantitative commitment to reduce or phase out fossil fuel use and production by a target date, with countries with the highest capacity to transition taking the lead in line with CBDR-RC.
 - a commitment to increasing renewable energy capacity and energy efficiency in an amount compatible with tripling global capacity and doubling the global average annual rate of energy efficiency improvements by 2030. Advanced economies should commit to at least tripling their national renewable energy capacity and doubling energy efficiency and public financial support to ensure this occurs, as well as international financing to help lower-income economies do the same.
- **a commitment to a Paris-aligned removal of fossil fuel subsidies**, in line with eliminating all fossil fuel subsidies by 2025 for G7 countries and other advanced economies, and by 2030 or sooner for all other countries, in line with commitments under the SDGs and the CBDR-RC principle.

For public financial support for fossil fuel (subsidies, public finance, and spending on state-owned enterprises), we recommend that NDCs contain the following elements:

- **a commitment to develop a national roadmap that sets clear policy-specific deadlines for phase-out or reform of all public financial support for fossil fuels**, taking into account
 - the broader target date for eliminating all fossil fuel subsidies by 2025 and 2030, respectively. In instances where phase-out by this date is not possible for specific policies, such as subsidies linked to energy access, plans should set out alternative mechanisms and timelines by which reforms can be introduced while incubating clean energy alternatives;
 - the need for energy state-owned enterprises to stop investing in new fossil fuel infrastructure for a 1.5 °C-aligned pathway;



- the need for public financing to support the phase-out of fossil fuels and scale-up of clean energy.
- **a commitment to complementing fossil fuel subsidy phase-out and reforms when developing national roadmaps with appropriate levels of public support for social protection and clean energy.** Such complementary measures can be supported by subsidy revenue savings and should be provided in appropriate, targeted ways that are aligned with broader development goals and objectives to triple clean energy capacity by 2030, ensuring socially responsible and acceptable reforms and supporting the broader 2030 agenda.
- **a commitment to improve transparency on all public financial flows to fossil fuels,** including through clear reporting on public money allocations in government documents, to ensure accountability of implementation fossil fuel subsidy reform and phase-out.
- **a commitment of high-income economies to provide technical and financial support to emerging and developing economies** in planning roadmaps and implementing reforms. Such commitments will only be legitimate if high-income economies are themselves committing to create and implement reform roadmaps.

Additionally, there are other elements that do not necessarily reflect 1.5 °C alignment but could considerably close the existing ambition gap and improve the quality of NDCs. For fossil fuel production, we recommend that to reflect the agreement on transitioning away from fossil fuels and increase transparency about the transition trajectory and support needs, new NDCs should

- **increase transparency around their fossil fuel production plans.** Countries could provide background information on current and future fossil fuel production, reserves, and transition support needs.
- **refer to existing or planned policies and measures to disincentivize or constrain fossil fuel production.** Examples of possible policies include but are not limited to, a moratorium on oil and gas exploration and cancellation of licensing rounds.
- **refer to existing or planned policies and measures for just transition and economic diversification.** Countries could include measures to support workers and communities affected by the shift away from fossil fuel production, along with policies to diversify the economy.
- **include information related to equity and international support and cooperation.** Countries could include a statement of how fossil fuel production reduction targets are fair and ambitious with regard to national circumstances. They could note international support requirements to wind down (or forego the development of) fossil fuel production.



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