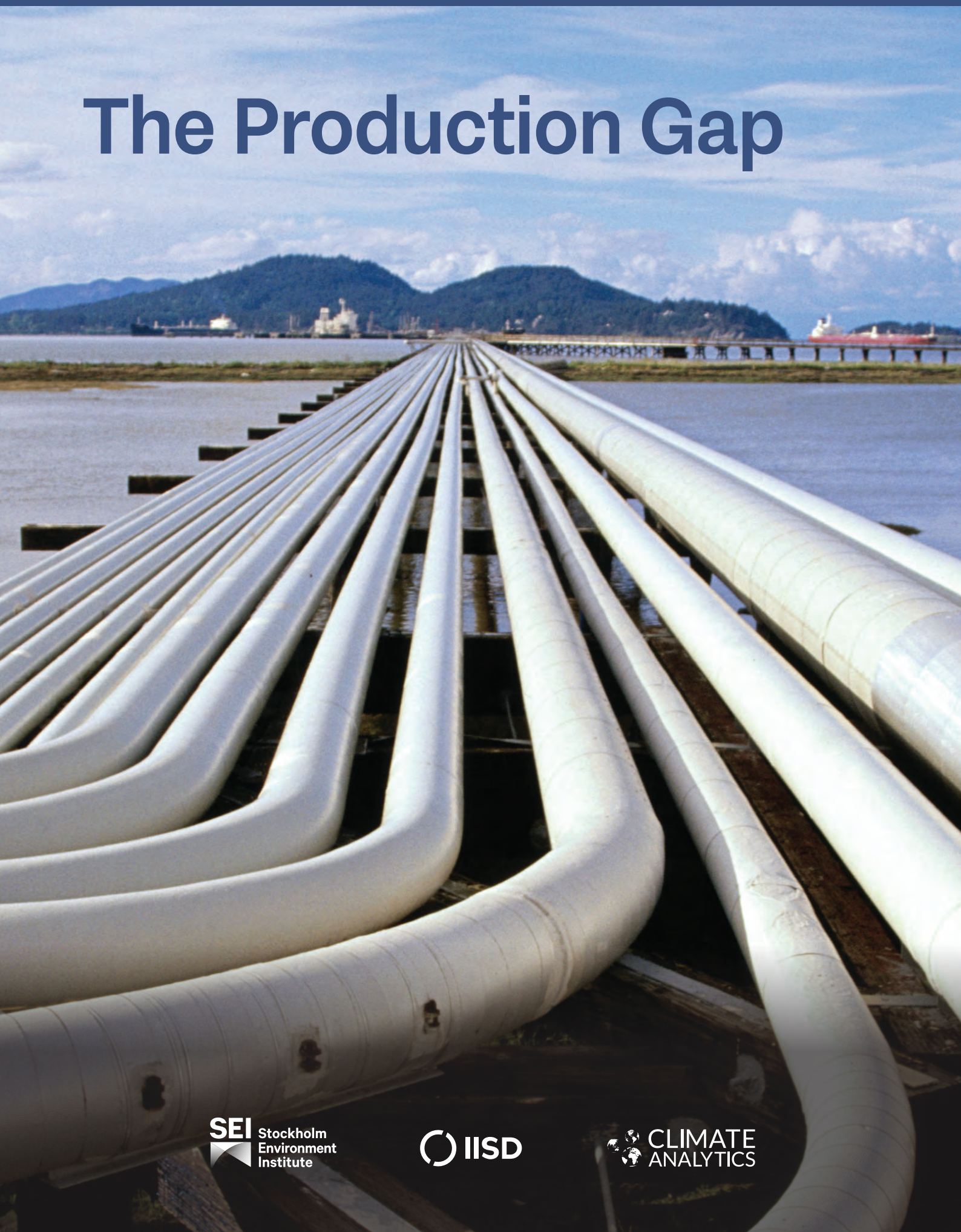
2025 Report

The Production Gap



SEI Stockholm Environment Institute

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CLIMATE ANALYTICS

About This Report

This is the fifth edition of the Production Gap Report, first issued in 2019. The report tracks the misalignment between governments' planned fossil fuel production and global production levels consistent with limiting global warming to 1.5°C or 2°C. The report represents a collaboration of several research and academic institutions, including inputs and reviews from more than 50 experts spanning all parts of the globe. The report is externally peer-reviewed.

This year's report updates the analysis presented in the 2023 Production Gap Report, profiling the plans and projections of 20 major fossil fuel-producing countries, representing a mix of the world's largest producers, large producers with readily available data, and producers with strongly stated climate ambitions.

The assessment follows the same methodology applied in 2023, updating the results based on the latest government plans and projections for fossil fuel production as of August 2025. Other information presented throughout the report, such as details on fossil fuel investments and policies is supported by a mix of government, intergovernmental, peer review, and other research sources listed in the references.

The report and its materials can be accessed online at https://productiongap.org

Citation

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We would like to thank the following contributors for their input:

Asterisk (*) connotes lead author. Parentheses indicate institutional affiliation.

Project Coordination

Derik Broekhoff (Stockholm Environment Institute (SEI)) and Emily Ghosh (SEI) served as coordinating lead authors for this report.

Authors

Chapter 1

Derik Broekhoff* (SEI).

Chapter 2

Derik Broekhoff* (SEI), Neil Grant (Climate Analytics), Alexandra Proepper (Climate Analytics).

Chapter 3

Olivier Bois von Kursk (International Institute for Sustainable Development (IISD)), Derik Broekhoff* (SEI), Paul Chandra Sekar (IISD), Nichole Dusyk (IISD), Emily Ghosh* (SEI), Neil Grant (Climate Analytics), Hannah Grant (Climate Analytics), Adli Azayaka Huda (IISD), Carlos Eduardo Posada-Perlaza (IISD), Alexandra Proepper (Climate Analytics), Godwin Sekar (IISD), Shruti Sharma (IISD), Zoha Shawoo (SEI), Anissa Suharsono (IISD), Indira Urazova (IISD), Bathandwa Vazi (IISD), Paola Andrea Yanguas Parra (IISD).

Reviewers

The following people reviewed the report in its entirety: Joanna Depledge (University of Cambridge), Andrea Guerrero García (Growald Climate Fund), Youba Sokona (UCL), Ploy Pattanun Achakulwisut (independent), Michael Lazarus (SEI emeritus).

The following people reviewed one or more sections of this report: Aisha Al-Sarihi (Arab Gulf States Institute, Middle East Council on Global Affairs), Elisa Arond (SEI), Jonathan Banks (Clean Air Task Force), Michael Burger (Columbia Law School), Jesse Burton (University of Cape Town; E3G), Kristian Coates Ulrichsen (Rice University), Felipe Corral (Polen Transiciones Justas), Mohammed Dahiru Aminu (Clean Air Task Force), Patricia Fuller (IISD), Ivetta Gerasimchuk (IISD), Mariana Gutiérrez (Iniciativa Climática de México), Bill Hare (Climate Analytics), Kathryn Harrison (University of British Columbia), Gang He (City University of New York), Hauke Hermann (Öko-Institut), Bård Lahn (University of Oslo), Yury Melnikov (independent sustainable energy consultant; UNECE Task Force on Hydrogen), Alfredo Miranda-González (Clean Air Task Force), James Ogunleye (Carbon-Limits Nigeria), Serik Orazgaliyev (Nazarbayev University), Sandeep Pai (independent energy expert), Steve Pye (University College London (UCL)), Knut Einer Rosendahl (Norwegian University of Life Sciences), Avelina Ruiz (Iniciativa Climática de México), Alexandre Szklo (UFRJ), Roberto Schaeffer (UFRJ), Tom Swann (The Sunrise Project), Fabby Tumiwa (Institute for Essential Services Reform), Jorge Villarreal (Iniciativa Climática de México).

Editing and Communications

Lynsi Burton (SEI) and Miles Litvinoff (independent) led the report's editing. Lynsi Burton and Ulrika Lamberth (SEI) led the report's outreach and communications. Mia Shu (SEI) designed the visual communication assets and produced the promotional video.

Design and Layout

The report cover and interior were designed by Karen Beck (One Visual Mind). Emily Ghosh (SEI) designed some report figures. Lynsi Burton and Victoria Pang (SEI) managed the website.

Translations

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Glossary

Carbon dioxide equivalent (CO_2eq)
The amount of carbon dioxide (CO_2) emissions that would cause the same warming over a given time horizon as an emitted amount of greenhouse gases.

Fossil fuel production
A collective term used in this report to represent processes along the fossil fuel supply chain, which includes locating, extracting, and processing, and delivering coal, oil, and gas to consumers.

Government plans and projections (GPP)
A global pathway of future fossil fuel production estimated in this report, based on our review and assessment of recent national energy plans, strategy documents, and outlooks published by governments and affiliated institutions.

Greenhouse gases (GHGs)
Atmospheric gases that absorb and emit infrared radiation, trap heat, contribute to the greenhouse effect, and cause global warming. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as well as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

Just transition
In the context of climate policy, this refers to a shift to a low-carbon economy that ensures disruptions are minimized, and benefits maximized, for workers, communities, consumers, and other stakeholders who may be disproportionately affected.

Long-term low-emission development strategies (LT-LEDS)
Under the Paris Agreement and its accompanying decision, all countries are invited to communicate LT-LEDS, taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

Nationally determined contributions (NDCs)
Submissions by Parties to the Paris Agreement that contain their stated ambitions to take climate change action towards achievement of the Agreement's long-term goal of limiting global temperature increase to well below 2°C, while pursuing efforts to limit the increase to 1.5°C. Parties are requested to communicate new or updated NDCs every five years. The third round of submissions, expected to specify mitigation targets for 2035, is due in 2025.

Production gap
The discrepancy between governments' planned or projected fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C.

Stranded assets
Assets that suffer from unanticipated or premature write-offs or downward revaluations, or that are converted to liabilities, as the result of a low-carbon transition or other environment-related action.

Subsidy
A financial benefit accorded to a specific interest (e.g. an individual, organization, company, or sector) by a government or public body.

Abbreviations

APS	The International Energy Agency's Announced Pledges Scenario
Bcf	Billion cubic feet
Bcm	Billion cubic meters
CCS	Carbon capture and storage
CDR	Carbon dioxide removal
CO_2	Carbon dioxide
CO_2eq	Carbon dioxide equivalent
COP	Conference of the Parties (to the UNFCCC)
°C	Degrees Celsius
EIA	US Energy Information Administration
EJ	Exajoule
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
GPP	Government plans and projections
Gt	Gigatonne (billion tonnes)
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
JETP	Just Energy Transition Partnership
LNG	Liquefied natural gas
LT-LEDS	Long-term, low-emission development strategies
Mb/d	Million barrels per day
Mt	Million tonnes
NDC	Nationally determined contribution
OPEC	Organization of the Petroleum Exporting Countries
PGR	Production Gap Report
STEPS	The International Energy Agency's Stated Policies Scenario
UAE	United Arab Emirates
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UK	United Kingdom
US	United States

Foreword

The Production Gap Report has long served as a mirror held up to the world, revealing the stark gap between fossil fuel production plans and international climate goals.

This year's findings are especially alarming. Despite record climate impacts, a winning economic case for renewables, and strong societal appetite for action, governments continue to expand fossil fuel production beyond what the climate can withstand. Scientists warn that the remaining carbon budget for 1.5°C may run out in just over three years at current emissions levels.

But the ground is shifting. In a historic advisory opinion, the International Court of Justice confirmed what scientists, economists, and legal, medical, and human rights experts have long warned: failing to rein in fossil fuel production and subsidies is harming billions of people and may constitute an internationally wrongful act.

The highest court in the world made clear that states' failure to reduce fossil fuel emissions — including through production, consumption, exploration licences, or subsidies — could violate international law.

This marks a legal, ethical, and moral turning point.

As we move towards COP30, this clarity must translate into action. Countries have a legal obligation to align fossil fuel decisions with climate commitments, and to submit nationally determined contributions that are a substantial improvement over their previous submission and collectively keep us below the 1.5°C threshold. This demands a just and deliberate transition away from all fossil fuels everywhere, but most urgently in industrialized nations.

That transition is not only possible — it is already underway. Per capita emissions have largely flattened or even slightly decreased in some regions, despite global GDP per capita growth of almost 2%. We are starting to de-link economic growth from carbon emissions. Clean energy attracted USD 2 trillion in investment last year — USD 800 billion more than fossil fuels, and a 70% increase since the Paris Agreement. In 2024, 92% of new global power capacity came from renewables, which undercut fossil fuels on price, efficiency, and emissions — even with subsidies artificially keeping fossil fuel prices down and misguided attempts to push volatile liquefied natural gas as a low-carbon solution, which it is not.

Fossil fuels are on their last legs and the industry knows it. Despite trillions in public subsidies, and aggressive deal making designed to benefit shareholders in the near term, oil and gas has underperformed every other sector over the last 15 years. The industry is clinging to outdated, polluting products and lacks the expertise or intent to lead the transition to the cheaper, cleaner, and faster electrified system that is now taking shape.

So let this report be both a warning and a guide. Renewables will inevitably crowd out fossil fuels completely, but we need deliberate action now to close the gap on time. We have the technology. We have the economics. And we have the legal clarity. What we need now is courage and solidarity to move forward at great speed with the just transition.

Christiana Figueres
Founding Partner
Global Optimism

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Key Findings

Governments, in aggregate, still plan to produce far more fossil fuels than would be consistent with limiting global warming to between 1.5°C and 2°C. Countries are now collectively planning even more fossil fuel production than two years ago, with projected 2030 production exceeding levels consistent with limiting warming to 1.5°C by more than 120%.

Taken together, governments now plan even higher levels of coal production to 2035, and gas production to 2050, than they did in 2023. Planned oil production continues to increase to 2050. These plans undermine countries' Paris Agreement commitments, and go against expectations that under current policies global demand for coal, oil, and gas will peak before 2030.

The continued collective failure of governments to curb fossil fuel production and lower global emissions means that future production will need to decline more steeply to compensate. Reaching net zero greenhouse gas emissions in the second half of the century, as the Paris Agreement calls for, will require cutting fossil fuel production and use to the very lowest levels possible.

Achieving these reductions will require deliberate, coordinated policies to ensure a just transition away from fossil fuels. While a few major fossil-fuel-producing countries have begun to align production plans with national and international climate goals, most still have not.

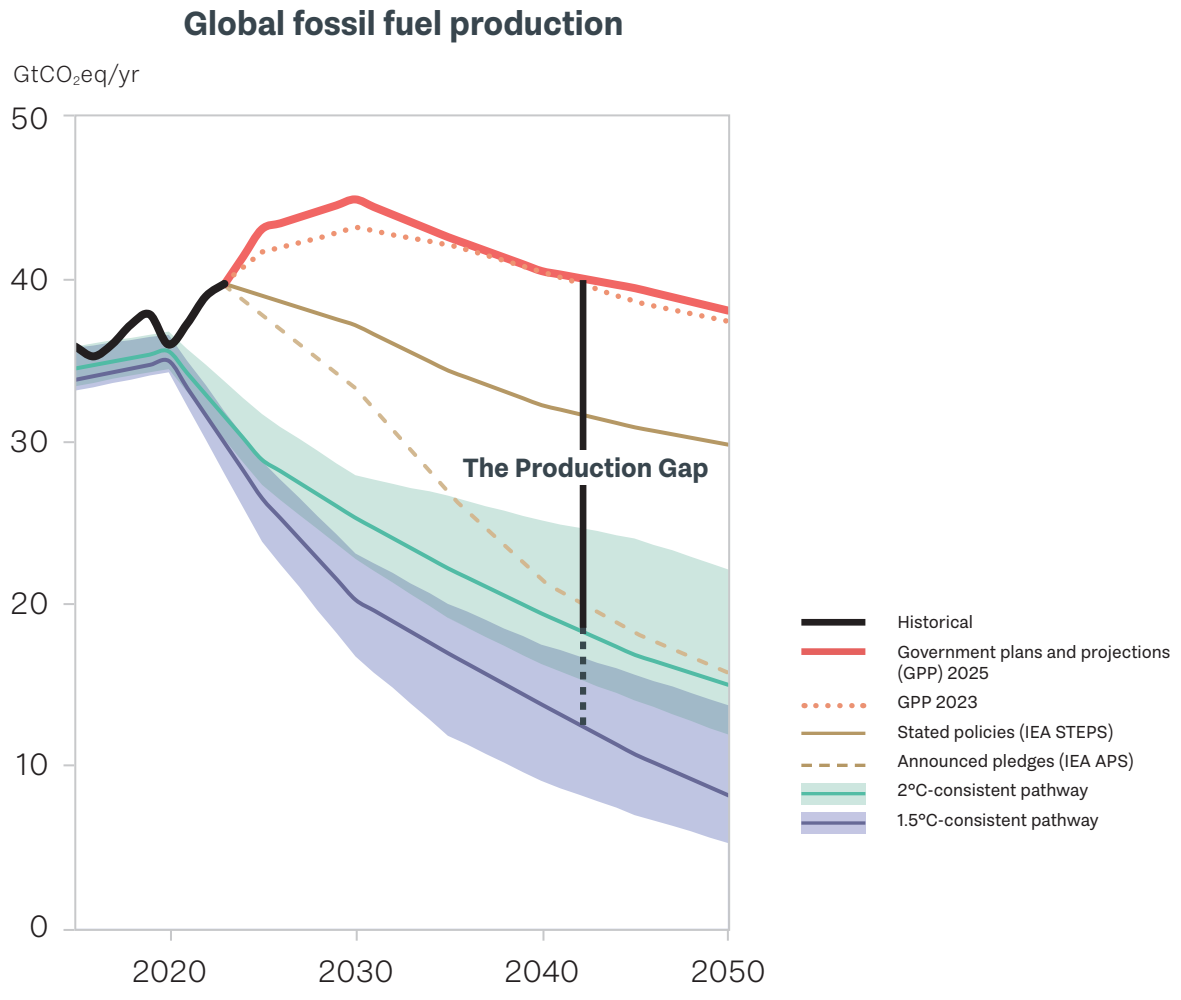
As governments submit their third round of nationally determined contributions under the Paris Agreement, they must commit to reversing the continued expansion of global fossil fuel production, explicitly integrate plans for reducing production within wider energy transition efforts, and redouble cooperative efforts to ensure a just transition globally.

Executive Summary

Since 2019, the Production Gap Report (PGR) has examined how governments' collective production plans for coal, oil, and gas diverge from the Paris Agreement's goal of limiting global warming by "holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels". Governments have explicitly acknowledged the need to transition away from fossil fuels to achieve this goal, a conclusion now reinforced by an opinion of the International Court of Justice. Yet 10 years on from the Paris Agreement, the situation remains stark: countries are in aggregate planning even more fossil fuel production than before, putting global climate ambitions at increasing risk.

Figure ES.1

Global fossil fuel production under six pathways from 2015 to 2050, denominated in units of billion tonnes of carbon dioxide equivalent per year ($GtCO_2eq/yr$) — the amount of greenhouse gas (GHG) emissions expected to be released from the production and combustion of extracted coal, oil, and gas. For the 1.5°C- and 2°C-consistent pathways, the figure shows the median and 25th–75th percentile range (shaded) of all selected scenarios. The dotted red line indicates the pathway implied by government plans and projections (GPP) estimated in the 2023 Production Gap Report. The black trend line shows historical 2015–2023 annual production; all other pathways are plotted at five-year resolution.



Governments, in aggregate, still plan to produce far more fossil fuels than would be consistent with achieving the goals of the Paris Agreement. Projected 2030 production exceeds levels aligned with limiting warming to 1.5°C by more than 120%.

The production gap is the difference between governments' planned fossil fuel production and global production levels consistent with limiting global warming to 1.5°C or 2°C. This assessment updates the one conducted in the 2023 PGR, which profiled the plans and projections of 20 major fossil-fuel-producing countries, representing a mix of the world's largest producers. The assessment compares the global production these countries' latest plans imply to the same Paris-aligned climate mitigation scenarios used in PGR2023.

The resulting analysis, summarized in Chapter 2, finds that governments still plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with the median 1.5°C pathway, as Figure ES.1 shows. The 2030 gap has increased, to more than 120% above the median 1.5°C pathway and 77% above the median 2°C pathway (compared to 110% and 69%, respectively, in the 2023 PGR).

As Figure ES.1 shows, governments' fossil fuel production plans also remain well above global levels implied by their stated climate mitigation policies and announced pledges as of September 2024, as modelled by the International Energy Agency.

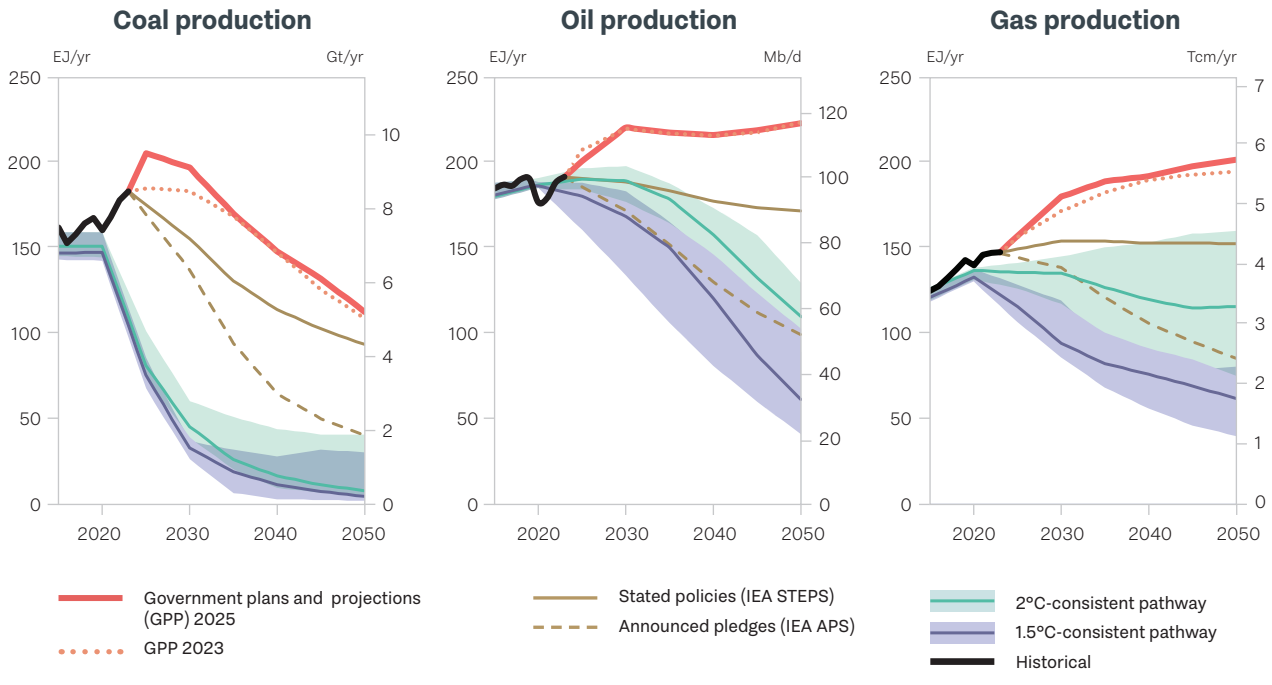
Taken together, governments now plan even higher levels of coal production to 2035, and gas production to 2050, than they did in 2023. Planned oil production continues to increase to 2050. These plans undermine countries' Paris Agreement commitments, and go against expectations that under current policies global demand for coal, oil, and gas will peak before 2030.

The near-term gap increase is the result of government plans for expanded coal and gas production. As Figure ES.2 shows, aggregate planned coal production for 2030 is 7% higher than estimated in the 2023 PGR analysis; planned gas production is 5% higher.

To be consistent with limiting warming to 1.5°C, global coal, oil, and gas supply and demand must decline rapidly and substantially between now and mid-century. However, the increases estimated under the government plans

Figure ES.2

Global coal, oil, and gas production under six pathways from 2015 to 2050, denominated in exajoules (EJ) per year. Physical units for each fossil fuel show as secondary axes: billion tonnes per year (Gt/yr) for coal, million barrels per day (Mb/d) for oil, and trillion cubic meters per year (Tcm/yr) for gas. For the 1.5°C- and 2°C-consistent pathways, the figure represents the median and 25th–75th percentile range (shaded) of selected mitigation scenarios. The black trend lines show historical 2015–2023 annual production; all other pathways are plotted at five-year resolution.



and projections pathways would lead to global production levels in 2030 that are 500%, 31%, and 92% higher for coal, oil, and gas, respectively, than the median 1.5°C-consistent pathway, and 330%, 16%, and 33% higher than the median 2°C-consistent pathway.

The continued collective failure of governments to curb fossil fuel production and lower global emissions means that future production will need to decline more steeply to compensate. Reaching net zero greenhouse gas emissions in the second half of the century, as the Paris Agreement calls for, will require cutting fossil fuel production and use to the very lowest levels possible.

Every year that countries fail to make progress in curbing fossil fuel production and use, it becomes harder for the world to achieve its climate goals. In the first half of the 2020s, rather than peaking and falling rapidly, fossil fuel production has continued to grow. The time lost has two implications. The first is that cumulative fossil fuel production over the 2020s is likely to be substantially higher than in the 1.5°C- and 2°C-aligned pathways used to assess the production gap. Thus, even if the world reduces fossil fuel production in 2030 to the levels seen in these pathways, the total coal, oil, and gas extracted over this decade will still be higher than is consistent with these pathways.

Second, these deeper reductions will be harder and more expensive to achieve, as the result of further lock-in of fossil fuel infrastructure added in the 2020s, and the increased pace of reductions required from now on. Even with rapid and concerted efforts starting today, fossil fuel production in 2030 will likely exceed the levels in the 1.5°C-compatible scenarios presented in this report.

At the same time, the last two years have also shown the importance of keeping the 1.5°C target in sight. Governments at COP28 agreed to "keep the 1.5°C goal within reach" and called for countries to submit mitigation targets "aligned with limiting global warming to 1.5°C". The 1.5°C limit has been further reinforced by the International Court of Justice, which found that 1.5°C is the "primary temperature goal" of the Paris Agreement, and that global and national responses must work towards this goal. Doing so will require reaching net zero greenhouse gas emissions in the second half of this century, as called for in the Paris Agreement. This will require fossil fuel production and use to be cut to the very lowest levels possible.

Analysis in the 2023 PGR indicated that countries should aim for a near total phase-out of coal production and use by 2040 and a combined reduction in oil and gas production and use by three-quarters by 2050 from 2020 levels, at a minimum. Growing evidence supports both the necessity and feasibility of such deep reductions.

Table ES.1

Net zero commitments and relative changes in planned/projected fossil fuel production for the 20 countries profiled in this report.

Country	Status of national net zero commitment	Net zero target year	Planned change in national fossil fuel production in 2030 relative to 2023 (EJ)		
			Coal	Oil	Gas
Australia	In law	2050	▲ 0.7	▼ 0.1	▼ 0.2
Brazil	In policy document	2050	No data	▲ 4.1	▲ 0.9[c]
Canada	In law	2050	No data	▲ 2.3	■ 0.0
China	NDC objective	2060	▼ 4.1	▲ 0.2	▲ 2.4
Colombia	In law	2050	▲ 1.8	▼ 0.1	▲ 0.1
Germany	In law	2050	▼ 0.9	No data	▲ 0.1
India	In law	2070	▲ 7.3[d]	No data	No data
Indonesia	NDC objective	2060	▼ 2.1	▲ 0.8	▲ 1.7
Kazakhstan	In law	2060	▼ 0.2	▲ 0.5	▲ 0.2[c]
Kuwait	Political pledge	2050 (oil and gas sector) 2060 (rest of economy)	No production	▲ 0.6	▲ 0.2
Mexico	Political pledge	2050	No data	▲ 1.0	■ 0.0
Nigeria	In law	2060	No data	▲ 3.1	▲ 1.8[c]
Norway	No commitment[a]	–	No data	▼ 0.7	▼ 0.5
Qatar	No commitment	–	No production	No data	▲ 4.3
Russian Federation	In strategy document	2060	▲ 2.2	▲ 0.4	▲ 7.4
Saudi Arabia	Political pledge	2060	No production	▲ 4.2	▲ 1.9
South Africa	Political pledge	2050	No data	No data	No data
United Arab Emirates	In policy document	2050	N/A	▲ 0.6	▲ 0.7
United Kingdom	In law	2050	No data	▼ 0.6	▼ 0.7
United States	No commitment[b]	–	▼ 5.4	▲ 3.3	▲ 3.5

[a] Norway has committed to a "low-emission society" by 2050 in its 2018 Climate Change Act, with 90–95% emission reduction targets.
[b] In early 2025, the US government revoked Executive Orders 14008 and 14057, both of which had net zero targets.
[c] Excluding gas that is reinjected, used by producers, or flared.
[d] Planned change for 2029, furthest year for which data is available.

Sources: Net Zero Tracker (2025) and authors' analyses (see country profiles in Chapter 3).

Achieving these reductions will require deliberate, coordinated policies to ensure a just transition away from fossil fuels. While a few major fossil-fuel-producing countries have begun to align production plans with national and international climate goals, most still have not.

Cutting fossil fuel production will require deliberate strategies to phase fossil fuel production down and out by the second half of the century. Such strategies would help countries fulfil their Paris Agreement pledges and net zero targets. Chapter 3 of this report summarizes recent developments related to the climate ambitions and the plans, perspectives, and policies for fossil fuel production of 20 major producer countries: Australia, Brazil, Canada, China, Colombia, Germany, India, Indonesia, Kazakhstan, Kuwait, Mexico, Nigeria, Norway, Qatar, the Russian Federation, Saudi Arabia, South Africa, the United Arab Emirates, the United Kingdom, and the United States. Most of these countries continue to plan fossil fuel production at levels inconsistent with their net zero climate ambitions.

As Table ES.1 indicates, 17 of the 20 profiled countries still plan to increase production of at least one fossil fuel to 2030; 13 profiled countries plan significant increases in gas production. Moreover, as the country profiles in Chapter 3 indicate, 11 countries now expect higher production of at least one fuel in 2030 than they were planning in 2023, when we last undertook this assessment.

Despite an internationally agreed commitment to phase out "inefficient fossil fuel subsidies" — reiterated as part of the Global Stocktake agreed at the COP28 climate conference — many governments continue to provide substantial direct and indirect financial support for fossil fuels. The countries profiled here support production in multiple ways, including direct investment in infrastructure (Canada), streamlining of contracting procedures (Brazil), direct subsidies or investments for state-owned enterprises (China, India, Mexico), tax incentives for exploration and extraction (Kazakhstan, the Russian Federation), and opening up new areas for exploration and development (US, Norway). The fiscal cost of government support for fossil fuels remains near an all-time high.

As governments submit their third round of nationally determined contributions under the Paris Agreement, they must commit to reversing the continued expansion of global fossil fuel production, explicitly integrate plans for reducing production within wider energy transition efforts, and redouble cooperative efforts to ensure a just transition globally.

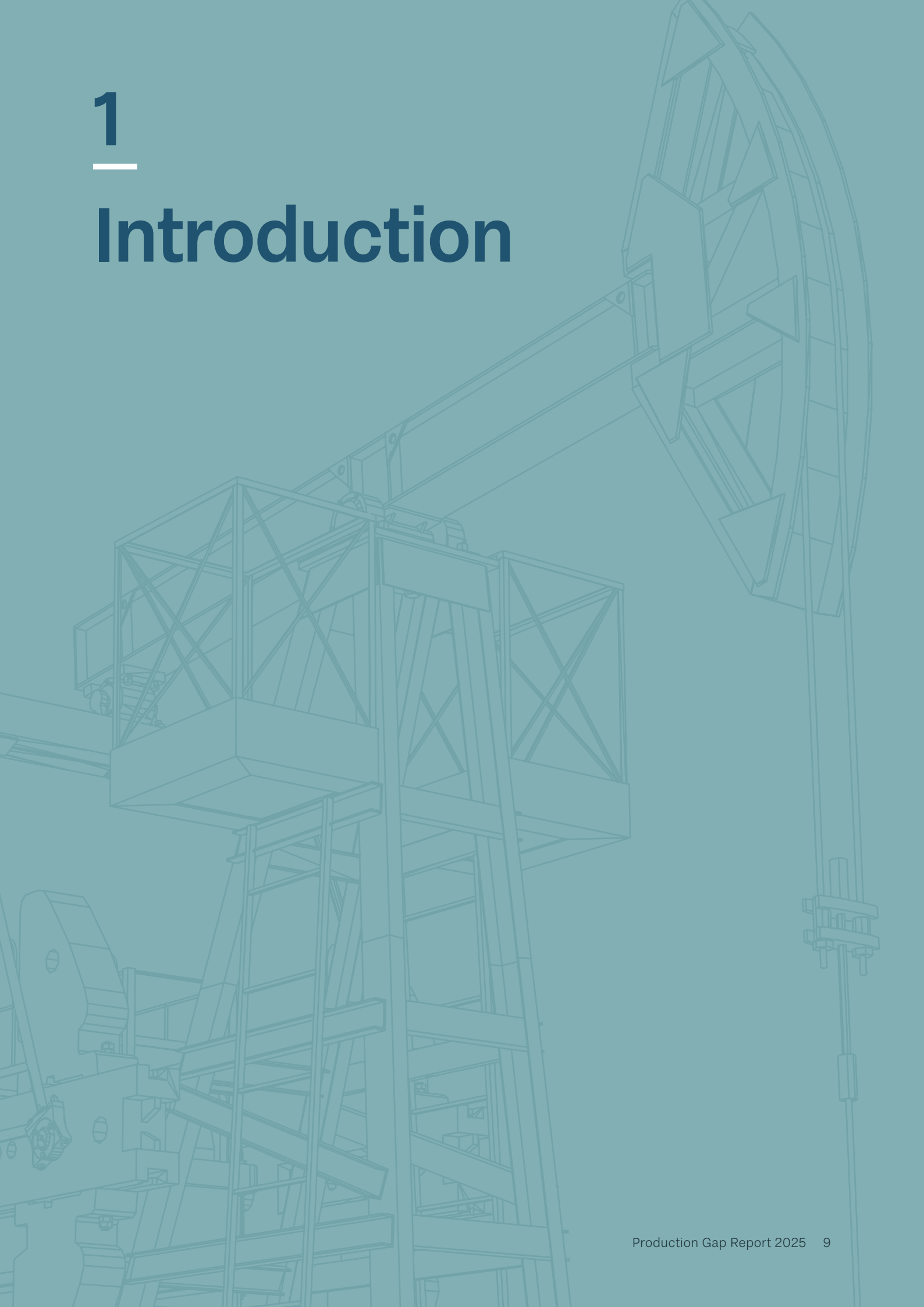
Not all the indicators reviewed in this report are negative. Six of the 20 profiled countries are now developing scenarios for domestic fossil fuel production aligned with national and global net zero targets, up from four in 2023. And several governments are actively pursuing clean energy transitions. For example, Colombia has adopted a Just Energy Transition roadmap and announced an investment plan to support it; Germany projects an even faster phase-out of coal production than in prior years; Brazil has launched an Energy Transition Acceleration Program; and China continues to deploy renewables at an unprecedented rate, hitting its 2030 target for solar and wind capacity six years ahead of schedule and lowering carbon dioxide emissions despite growing power demand.

Moreover, multiple countries profiled here remain committed to international cooperation on energy transitions. Although Just Energy Transition Partnerships — launched in 2021 to support a shift away from fossil fuels in emerging and developing countries — have faced implementation challenges, donor countries (except for the US) remain committed to supporting those already underway, and are exploring other types of innovative financing and cooperation mechanisms.

But much more is needed. As this report makes clear, most major fossil-fuel-producing countries have yet to embrace policies for deliberately phasing out fossil fuels and ensuring just transitions (or, in the case of the US, have abandoned them). Widely adopting and implementing such policies will be essential for successfully transitioning to a net zero world at the pace now required.

1

Introduction



1. Introduction

Until the 2020s, international negotiations on climate change suffered from a glaring omission. None of the negotiated texts and treaties — including the UN Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement — mentioned the primary driver of human-caused global warming: the production and consumption of fossil fuels. Only in 2021 did an internationally agreed text first call for the "phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies" (UNFCCC, 2021). Two years later in Dubai, governments reached a historic agreement calling for "transitioning away from fossil fuels in energy systems … so as to achieve net zero by 2050" (UNFCCC, 2024).

Moving away from fossil fuels is thus now an officially acknowledged cornerstone of global efforts to mitigate climate change. But a key question looms as governments reconvene at the 30th Conference of Parties to the UNFCCC (COP30) in Brazil: To what extent have they begun to implement this transition and reflect it in their commitments to climate action?

Since 2019, the Production Gap Report (PGR) series has examined how governments' collective production plans for coal, oil, and gas diverge from the Paris Agreement's goal of limiting global warming by "holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (Paris Agreement, 2015, Article 2.1).

This year's report updates the assessment last conducted in the 2023 PGR, which profiled the plans and projections of 20 major fossil-fuel-producing countries (representing a mix of the world's largest producers, large producers with readily available data, and producers with strongly stated climate ambitions). The assessment compares the global production implied by these plans to Paris-aligned scenarios. As Chapter 2 of this report makes clear, countries are now collectively planning even more fossil fuel production than they were in 2023, with projected 2030 production levels exceeding Paris-aligned levels by more than 120% — far surpassing levels implied by governments' own stated climate ambitions. This is the production gap.

The widening of this gap is deeply troubling, but its causes are not mysterious. Current events can distract from long-term objectives, and the world in 2025 faces increasing political tension, economic uncertainty, and a growing embrace of populist forms of government (Wike et al., 2024). The six years since the publication of the first PGR have seen a series of global disruptions, from COVID-19-induced shocks to the energy crisis spurred by Russia's invasion of Ukraine, and heightened geopolitical conflicts. While many countries have committed to a clean energy transition (IEA, 2024c), many others appear to be turning back to an outdated fossil-fuel-dependent playbook, reluctant to challenge — or actively supporting — incumbent industries whose business models are threatened by clean alternatives.

The United States offers the starkest case of a country recommitting to fossil fuels, with plans to scale up its oil and gas production, arrest the decline of coal, slow clean energy development and electrification, and turn away from international cooperation on energy and climate change (The White House, 2025a, 2025b; Volcovici, 2025;

Volcovici & Gardner, 2025). Other countries may be less outspoken about their continued embrace of fossil fuels, but many still plan to increase production.

Though China plans to phase down coal production through 2050, for example, near-term production plans have increased, driven by a mix of industry-led demand for new power plants, local economic development priorities, and concerns about the reliability of electricity supply (IEA, 2025; Qin & Shearer, 2025; The Economist, 2025). India, Mexico, and the Russian Federation plan to increase fossil fuel production at least to 2030, citing economic security as a rationale. More broadly, governments around the world seeking to expand market share or increase energy security are contributing to an excess of planned liquefied natural gas (LNG) and oil production capacity, leading to a likely oversupply of LNG to 2040 and excess oil production capacity of 8 million barrels per day (Mb/d) by 2030 (IEA, 2024c). Whatever the specific motivations, this expansion of LNG supply is likely to increase demand for gas and lock in future consumption (Brauers, 2022; Dargin, 2022; Kemfert et al., 2022; Seto et al., 2016).

Other futures are possible. Clean energy technologies, particularly solar, batteries, and electric vehicles, continue to break records with accelerating deployment and rapid cost reductions (Lombardo et al., 2025; Rangelova & Jones, 2025). Renewables are now the cheapest form of new electricity generation in almost all the world (IEA, 2024b), and the vast acceleration in renewables deployment seen in 2023–2025 demonstrates that rapid change is possible (United Nations, 2025). Renewables also offer greater resilience and reduced exposure to volatile fossil fuel markets (Sahadevan et al., 2025; United Nations, 2025). While supply chains for clean energy manufacturing and critical minerals pose their own challenges, overall, renewables offer important advantages over fossil fuels with respect to energy security and to social and environmental outcomes (Ashford, 2024; Bond et al., 2025; Saadaoui et al., 2025).

The case for the transition away from fossil fuels is stronger than ever. Prior reports in this series have made clear the impacts that the fossil fuel supply chain — from extraction to end-use — have on public health, local communities, ecosystems, and biodiversity, as well as the climate. Evidence of the social, economic, and environmental benefits of phasing out fossil fuels continues to accumulate (Earth Insight et al., 2025; Lelieveld et al., 2023; United Nations, 2025; Vohra et al., 2025).

Some governments profiled in this report are actively pursuing clean energy transitions. Colombia has adopted a Just Energy Transition roadmap and announced a USD 40 billion investment plan, USD 14.5 billion of which would go to fund the country's energy transition (MME, 2025; Rodriguez, 2024). Germany projects an even faster phase-out of coal production than in prior years, and is on track to achieve an 80% share of electricity generation from renewables by 2030 (BMWK, 2024; Schauenberg, 2024). Brazil has launched an Energy Transition Acceleration Program, aiming to promote renewable energy deployment

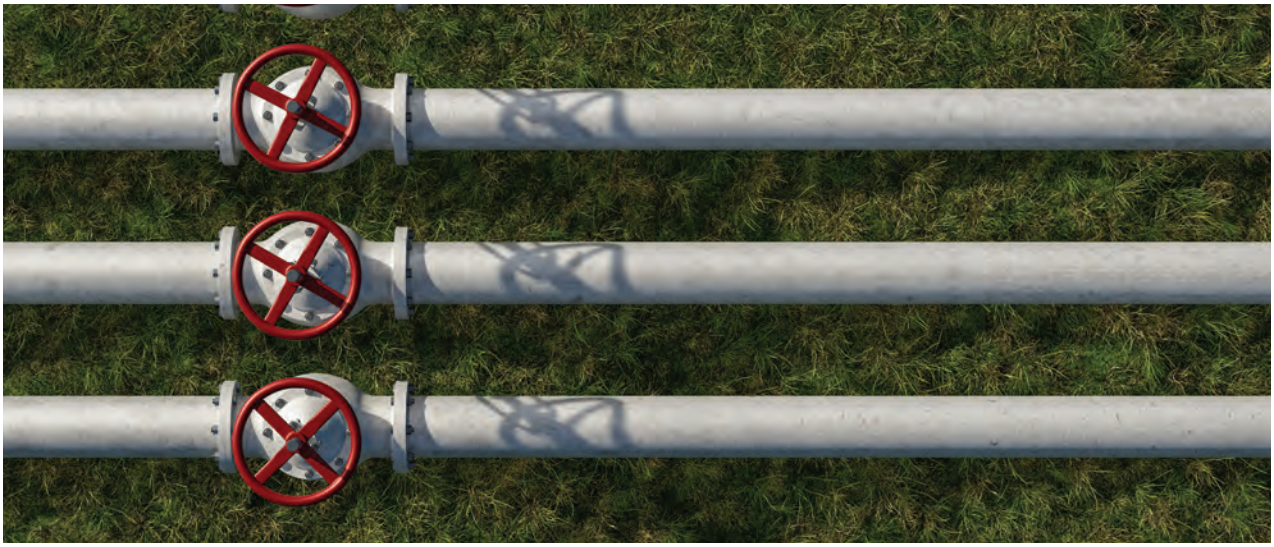
and support energy transitions in coal-mining regions (Presidency of the Republic, 2025). And China continues to deploy renewables at an unprecedented rate, hitting its 2030 target for solar and wind capacity six years ahead of schedule (Yang et al., 2025) and driving a decline in carbon dioxide emissions amid growing power demand (Myllyvirta, 2025).

While these are welcome developments, success will also require international cooperation. Here, there is also cause for hope. The environment minister of Brazil, the host country for this year's climate negotiations, is calling for an internationally agreed roadmap for a "planned and just transition to end fossil fuels" (Rodriguez & Civillini, 2025). Governments are now discussing the contours of a just transition work programme that could facilitate international cooperation and information-sharing, though it is not yet clear whether it will directly address the fossil fuel phase-out (Lo & Rodriguez, 2025; UNFCCC, 2025). And although Just Energy Transition Partnerships (JETPs) — launched in 2021 to support a shift away from fossil fuels in emerging and developing countries — have faced implementation challenges, donor countries (apart from the US) remain committed to the JETPs already underway, and are exploring other innovative country platform mechanisms (Jain & Bustami, 2025; TF-CLIMA, 2024; Wettengel, 2025).

Despite these efforts, much more is required. The global acceleration of renewable energy deployment over the past decade has added to global energy supply, but has yet to significantly reduce overall fossil fuel production and use. Since 2015, fossil fuels have continued to provide a nearly steady 80% of total energy supply (IEA, 2024c; United Nations, 2025). A deliberate, coordinated, and well-managed decline in both fossil fuel production and consumption remains essential for an effective and equitable energy transition (SEI et al., 2023, 2021, 2020, 2019). This requires complementary policy approaches to address fossil fuel supply — such as restricting development of new fields and mines, reforming subsidies, adopting targets for reducing production, and supporting just economic transitions for fossil-fuel-dependent communities (CSO Equity Review, 2023; IEA, 2024a; Lazarus & van Asselt, 2018; Piggot et al., 2020).

This report makes clear that most major fossil-fuel-producing countries have yet to embrace policies for deliberately phasing out fossil fuels and ensuring just transitions — or, in the case of the US, have abandoned them. Chapter 2 reveals the growing disconnect between governments' climate commitments and their fossil fuel production plans. Chapter 3 describes the mix of progress and backsliding on energy transitions that has occurred among major fossil-fuel-producing countries since the 2023 PGR, while highlighting positive developments.

There is no more time to waste. As the International Court of Justice has now made clear: "Failure of a State to take appropriate action to protect the climate system from greenhouse gas emissions — including through fossil fuel production, fossil fuel consumption, the granting of fossil fuel exploration licences or the provision of fossil fuel subsidies — may constitute an internationally wrongful act which is attributable to that State" (*Obligations of States in respect of Climate Change,* 2025, para. 427). In 2025, as governments submit their third round of nationally determined contributions under the Paris Agreement, they must commit to reversing the continued expansion of global fossil fuel production, explicitly integrate plans for reducing fossil fuel production within wider energy transition efforts, and redouble cooperative efforts to ensure a just and equitable transition globally.



2

The Production Gap

Key Messages

Governments still plan to produce far more fossil fuels than would be consistent with holding warming to well below 2°C and pursuing efforts to limit this to 1.5°C. The near-term gap has widened. By 2030, governments now plan to produce over 120% more fossil fuels than would be consistent with limiting warming to 1.5°C (up from 110% more in the 2023 Production Gap Report analysis), and 77% more than would be consistent with limiting warming to 2°C (up from 69%).

The increase in the near-term gap results from government plans for expanded coal and gas production. Aggregate planned coal production for 2030 is 7% higher than was estimated in the 2023 PGR analysis; planned gas production is 5% higher.

While projected coal production declines after 2030, planned oil and gas production continues to increase to 2050. As in the 2023 PGR analysis, projected total fossil fuel production in 2050 remains more than 4.5 times higher than levels consistent with limiting warming to 1.5°C, and 2.5 times higher than levels consistent with a 2°C limit.

The long-term gap is even larger than these figures suggest. Because fossil fuel production and use in recent years have exceeded the 1.5°C- and 2°C-aligned trajectories used in this analysis, future production will need to decline even more steeply to compensate.

Reaching net zero greenhouse gas emissions in the second half of the century, as called for by the Paris Agreement, will require cutting fossil fuel production and use to the very lowest levels possible.

2. The Production Gap

This chapter provides an update on the collective implications of governments' national outlooks for fossil fuel production between now and 2050 at a global level. The assessment follows the same methodology we applied in the 2023 Production Gap Report (PGR2023), updating the results based on the latest government plans and projections for fossil fuel production as of August 2025, and comparing these to the same subset of mitigation scenar-ios assembled in the Working Group III contribution to the Intergovernmental Panel on Cli-mate Change (IPCC)'s Sixth Assessment Report (AR6) (IPCC, 2022).

Section 2.1 quantifies the fossil fuel production gap, highlighting the ongoing discrepancy in global levels of fossil fuel production implied by government plans and projections and the levels consistent with limiting global warming to 1.5°C or 2°C. Section 2.2 disaggregates the production gap by major fossil-fuel-producer countries and by fuel (coal, oil, and gas) and investigates how the gap has changed compared to the 2023 assessment. Section 2.3 discusses why the actual production gap is now in fact larger than what our new analysis implies, given that global greenhouse gas (GHG) emissions have already diverged from Paris-aligned scenarios. Section 2.4 addresses prospects for staying within the Paris Agreement's temperature limit, and why an accelerated phase-out of fossil fuels is more urgent than ever.

2.1 The fossil fuel production gap

Quantification of the global production gap rests on two elements. The first is the pathway of fossil fuel production implied by the plans and projections of national governments. The second is a pathway of fossil fuel production consistent with the Paris Agreement's goal of "holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C" (Paris Agreement, 2015, art. 2.1).

The first element relies on a compilation of the most recent national outlooks from 19 out of the 20 major fossil-fuel-producing countries profiled in Chapter 3.[1] In aggregate, these 19 countries continue to account for over

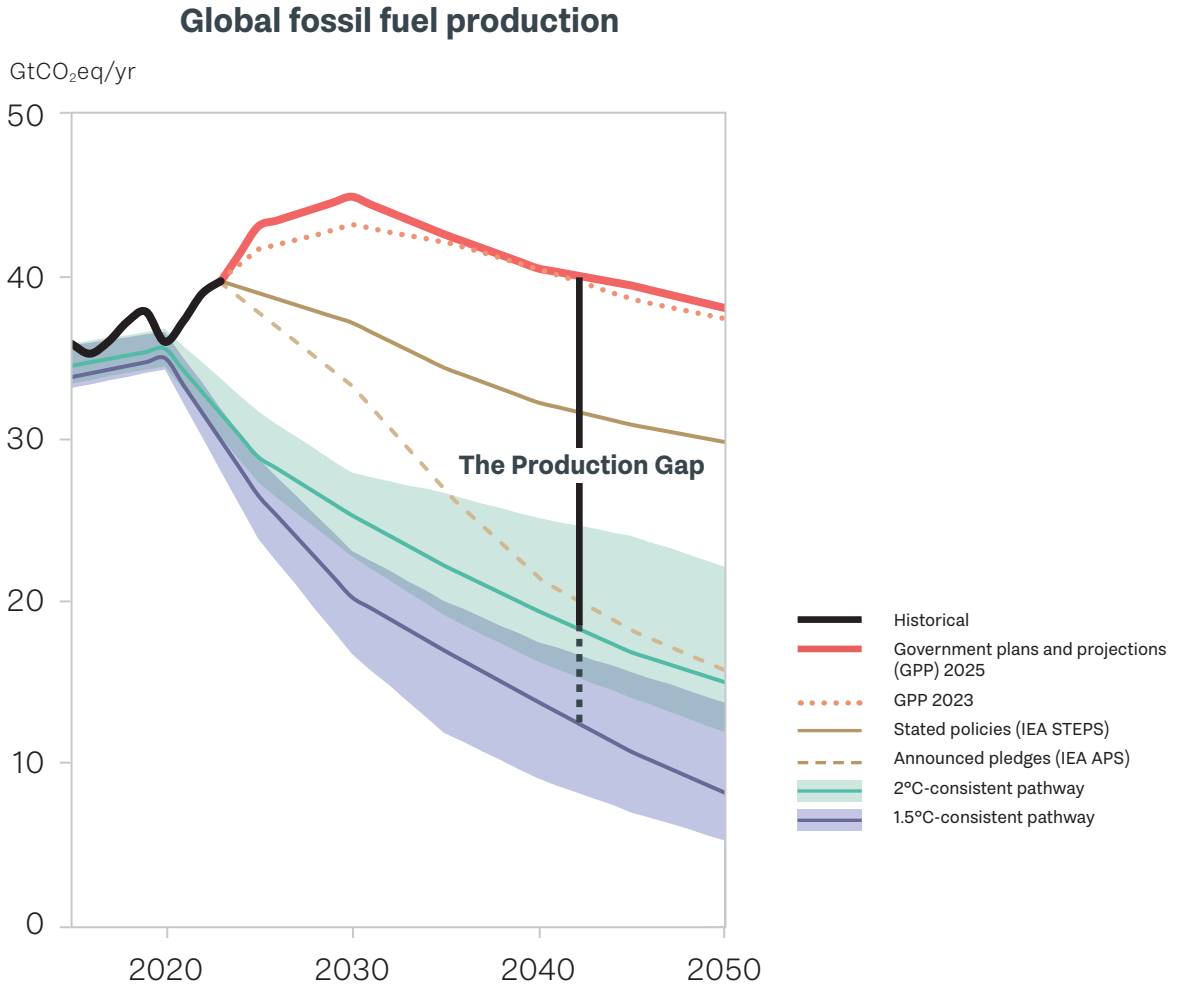
80% of global fossil fuel production on a primary energy basis. As before, we have scaled up their planned production trajectories to a global estimate, based on their expected future shares of global production. The scaled-up result is the most current "government plans and projections" (GPP) pathway, reflecting what governments collectively expect to produce in line with their national priorities and the evolving global energy landscape.

[1] We identified no official plans or projections for South Africa. We have updated outlooks for the remaining 19 countries to reflect current information. Government (or state-owned affiliate) fossil fuel production targets may be informed by a range of considerations and priorities, including existing fossil fuel reserves, expected extraction costs, the presence of subsidies and regulations, expected demand, energy security risks, and national and international climate change ambitions. In some cases, projections from 2023 remain current. For others, older plans and projections are obsolete and new projections are either unavailable or cover different time periods. Detailed assumptions underlying a given country's updated projections are described in the country profile updates featured in Chapter 3.

To estimate the production gap, we compare the GPP to scenarios that limit warming to 1.5°C in 2100 with a likelihood greater than 50% with no or limited overshoot during the 21st century, and to scenarios that limit peak warming throughout the 21st century to 2°C with a likelihood greater than 67% (Byers et al., 2022; IPCC, 2022).[2] These are the same two sets of global climate mitigation scenarios we used in PGR2023, as the IPCC has yet to compile a new ensemble of scenarios. As described in PGR2023, we screened these scenarios to exclude those we considered relied on unrealistic or unsustainable levels of both carbon dioxide removal (CDR) and carbon capture and storage associated with fossil fuel use (fossil-CCS) (Achakulwisut et al., 2023; SEI et al., 2023). We also excluded scenarios that do not feature immediate cost-effective action to reduce emissions (so-called "delayed action"

Figure 2.1

Global fossil fuel production under six pathways from 2015 to 2050, denominated in units of billion tonnes of carbon dioxide equivalent per year ($GtCO_2eq/yr$) — the amount of greenhouse gas (GHG) emissions expected to be released from the production and combustion of extracted coal, oil, and gas.[3] For the 1.5°C- and 2°C-consistent pathways, the figure shows the median and 25th–75th percentile range (shaded) of all selected scenarios. The dotted red line indicates the pathway implied by government plans and projections (GPP) estimated in the 2023 Production Gap Report.[4] The black trend line shows historical 2015–2023 annual production; all other pathways are plotted at five-year resolution.



[2] See PGR2023 (SEI et al., 2023) for a full explanation of how we selected scenarios.

[3] The emission factors used for each fuel are identical to the ones we derived for the PGR2023 analysis and account for total GHG emissions from fuel combustion plus carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emissions from production processes (SEI et al., 2023).

[4] The current production gap assessment applies a slightly different methodology than the one PGR2023 used to impute global production levels under the GPP pathway (see online Appendix). This same modification was applied to the 2023 assessment to ensure comparability. As such, the 2023 GPP pathway displayed here may not precisely match that in the corresponding figure in PGR2023.

scenarios). New findings since 2023 related to CDR and fossil-CCS potential suggest these exclusions continue to be justified (Fuhrman et al., 2025; Deprez et al., 2024; The State of Carbon Dioxide Removal 2024 — 2nd Edition, 2024). Note that because the 2°C-consistent scenarios provide only a 67% likelihood of keeping temperatures below 2°C, the 1.5°C set of scenarios are more closely aligned with the Paris Agreement's objective of holding global average temperature "well below 2°C".

The production gap is the difference between global levels of fossil fuel production under the GPP pathway and those under the median 1.5°C- or 2°C-consistent pathways. Figures 2.1 (for all fuels) and 2.2 (broken down into component fuels) illustrate the gap, and Table 2.1 summarizes it. Figures 2.1 and 2.2 also indicate how the current GPP differs from the GPP determined in PGR2023.

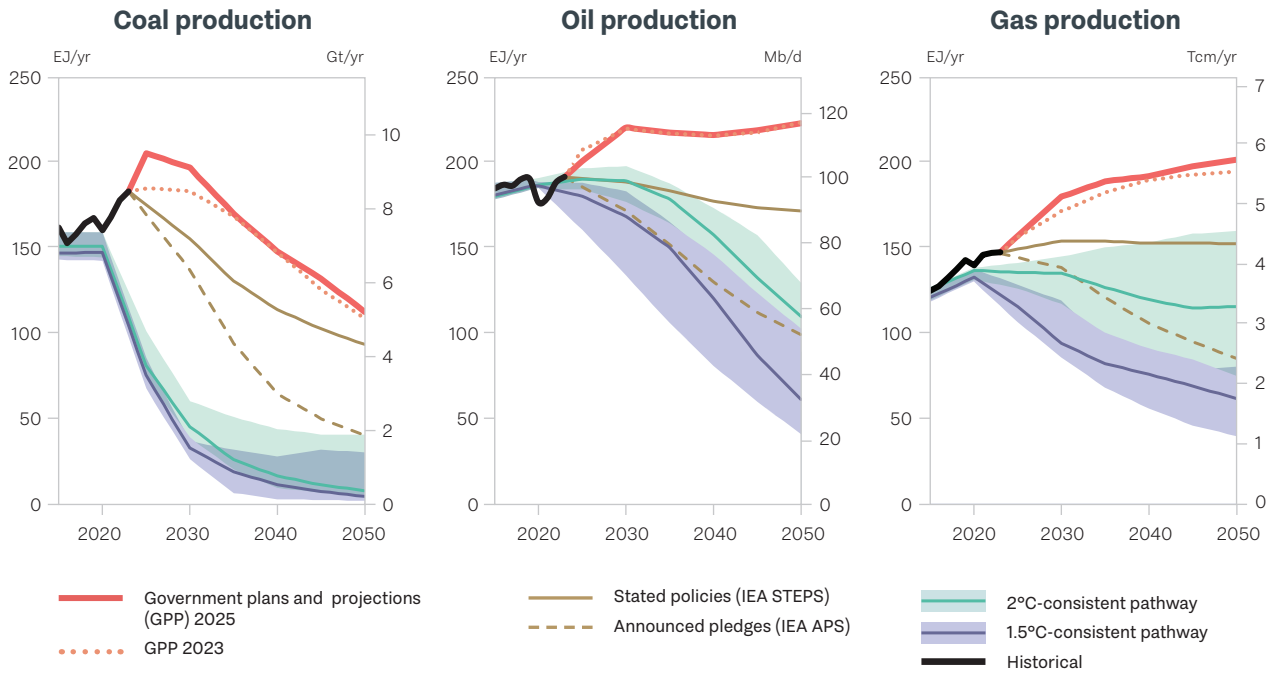
These figures show two other global production pathways, derived from the International Energy Agency (IEA)'s modelling: a pathway associated with governments' stated climate mitigation policies, and a pathway defined by governments' announced climate pledges.[5] We have updated both these pathways to reflect the IEA's most recent modelling (IEA, 2024b).

Assessment of the production gap reveals the following:

- Governments' aggregate fossil fuel production plans and projections continue to diverge substantially from 1.5°C- and 2°C-aligned pathways. Under the current GPP pathway, governments still plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with the median 1.5° C pathway. Compared to the PGR2023 analysis, the 2030 gap has increased, to more than 120% above the median 1.5°C pathway (up from 110% in PGR2023) and 77% above the median 2°C pathway (up from 69%). Total projected 2030 production (denominated in $GtCO_2eq/yr$) is 4% higher than in

Figure 2.2

Global coal, oil, and gas production under six pathways from 2015 to 2050, denominated in exajoules (EJ) per year. Physical units for each fossil fuel show as secondary axes: billion tonnes per year (Gt/yr) for coal, million barrels per day (Mb/d) for oil, and trillion cubic meters per year (Tcm/yr) for gas. For the 1.5°C- and 2°C-consistent pathways, the figure represents the median and 25th–75th percentile range (shaded) of selected mitigation scenarios. The black trend lines show historical 2015–2023 annual production; all other pathways are plotted at five-year resolution.



[5] The IEA's Stated Policies Scenario (STEPS) "provides a sense of the energy sector's direction, based on the latest market data, technology costs and in-depth analysis of the prevailing policy settings in countries around the world". The Announced Pledges Scenario (APS) "examines what would happen if all national energy and climate targets made by governments, including net zero goals, are met in full and on time" (IEA, 2024b).

the PGR2023 assessment. The post-2030 production gap is similar to what we reported in PGR2023.

- Governments' fossil fuel production plans also remain well above global levels implied by their stated climate mitigation policies and announced pledges (the solid and dotted gold lines respectively in Figure 2.1). In 2030, the GPP pathway exceeds production in the stated-climate-policies pathway by 21% (up from 18% in PGR2023), and exceeds production in the announced pledges pathway by 35% (up from 30% in PGR2023). In 2050, the GPP exceeds the stated-climate-policies pathway by 28% (up from 14% in PGR2023) and the announced pledges pathway by 141% (up from 114% in PGR2023). Figure 2.2 shows that governments' planned production levels exceed levels implied by their stated climate policies and announced pledges for each fuel.
- For coal, the GPP pathway in Figure 2.2 reveals a near-term increase in planned production, followed by a decline after 2030. However, near-term production increases more rapidly, and declines more slowly, than in the GPP pathway in PGR2023. The result is a 7% increase in aggregate planned 2030 coal production compared to PGR2023. This difference is largely due to updates in the baseline coal production forecast from China's state-owned National Petroleum Company (CNPC), which now projects a slower decline in production until 2030. (As Figure 2.3 shows, China currently accounts for around 54% of global coal production.) The global production gap for coal remains the largest of all — around 500% higher than the median 1.5°C-consistent pathway in 2030, and 2500% higher in 2050. (These figures are 330% and 1400% higher respectively compared to the median 2°C-consistent pathway.)
- Governments still plan to increase oil and gas production to 2050, leading to growing divergences from 1.5°C- and 2°C-aligned pathways. As Figure 2.2 shows, the gap for oil remains largely unchanged from that in PGR2023, with planned production levels exceeding levels under the median 1.5°C-consistent pathway by 31% in 2030 and 260% in 2050 (equal to 16% and 100% respectively above the median 2°C-consistent pathway). Expanded plans for gas production have widened the gap since the PGR2023 analysis, with planned levels exceeding the median 1.5°C-consistent pathway by 92% in 2030 and 230% in 2050 (33% and 75% respectively above the median 2°C-consistent pathway). Planned gas production for 2030 is 5% higher than in the PGR2023 assessment.

Table 2.1

The fossil fuel production gaps in 2030, 2040, and 2050. Shown values represent the differences between global production levels under the current GPP pathway and the median (and interquartile range, IQR, shown in brackets) levels under the selected 1.5°C- and 2°C-consistent pathways. Values are rounded to two significant figures.

Year	Coal		Oil		Gas		Total	
	EJ/yr	%	EJ/yr	%	EJ/yr	%	$GtCO_2eq/yr$	%
Production gap relative to 1.5°C-consistent pathways								
2030	160 (160–170)	500 (440–650)	52 (37–86)	31 (20–65)	86 (61–94)	92 (51–110)	25 (22–28)	120 (94–170)
2040	140 (120–150)	1220 (430–5100)	96 (73–140)	80 (51–170)	120 (110–140)	150 (130–250)	27 (23–31)	190 (130–350)
2050	110 (82–110)	2500 (270–6100)	160 (130–180)	260 (150–440)	140 (120–160)	230 (150–410)	30 (24–33)	360 (180–620)
Production gap relative to 2°C-consistent pathways								
2030	150 (140–160)	330 (230–410)	31 (23–43)	16 (11–24)	63 (35–180)	33 (24–54)	20 (17–22)	77 (61–97)
2040	130 (100–140)	800 (240–1500)	58 (43–70)	37 (25–48)	101 (39–190)	61 (25–110)	21 (15–24)	110 (61–150)
2050	100 (72–110)	1400 (180–2000)	110 (94–120)	100 (72–120)	130 (41–200)	75 (26–170)	23 (16–26)	150 (72–220)

The implications of the latest production gap analysis remain unchanged. At the 28th Conference of the Parties to the UNFCCC (COP28), governments agreed to a call for "transitioning away from fossil fuels in energy systems" (UNFCCC, 2024, para. 28(d)). But as this assessment suggests, although a few major fossil-fuel-producing countries have begun to align production plans with national and international climate goals (see Chapter 3), most still have not. Most current plans and projections continue to encourage investment in fossil fuel infrastructure at odds with governments' own climate commitments. Such investment undermines those commitments by locking in production capacity, perpetuating fossil fuel demand, and making it more difficult to transition away from fossil fuels without risking stranded assets (IEA, 2024b; SEI et al., 2023; Mercure et al., 2018).

2.2 Breakdown of the government plans and projections (GPP) pathway

This section provides further detail on the plans and projections of major fossil-fuel-producer countries, disaggregated by fuel, and how the production gap has changed since the 2023 assessment.

For this assessment, we derived the GPP from the updated plans and projections of the same set of 19 major producer countries that we assessed in 2023: Australia, Brazil, Canada, China, Colombia, Germany, India, Indonesia, Kazakhstan, Kuwait, Mexico, Nigeria, Norway, Qatar, the Russian Federation, Saudi Arabia, the United Arab Emirates (UAE), the United Kingdom (UK), and the United States (US). We profile a 20th country — South Africa — in Chapter 3, but as before, no data were available related to its fossil fuel plans and projections. Government plans and projections were available for 9 producer countries for coal (accounting for 89% of current global production), 16 countries for oil (accounting for 75% of current global production),[6] and 18 countries for gas (accounting for 72% of current global production).

The nature and extent of updates to these countries' plans and projections vary considerably. For several countries (e.g. Australia, China, Mexico, Norway, the Russian Federation, the UK, and the US) updated plans and projections were available for all relevant fuels. For other countries, revised near-term projections were available, but long-term forecasts were either unavailable or remained officially unchanged.[7,8] The lack of countries' regular standardized reporting of fossil fuel production projections continues to be a significant obstacle to assessing their consistency with climate policy objectives.

Figure 2.3 shows the individual contributions of each reviewed country to the global coal, oil, and gas GPP pathways. The global values indicated by the red lines are equivalent to the GPP pathways shown in Figure 2.2 and sum up across fuels to the total GPP pathway shown in Figure 2.1. We estimated the global GPP pathways by scaling up the aggregated production levels of the 19 countries shown, based on their future shares of global coal, oil, and gas production as modelled in the IEA's latest STEPS scenario (IEA, 2024b).[9] Production of each fuel in the GPP pathways continues to be dominated by two to five major producer countries, which account for around half of global production to 2050.

Figure 2.4 breaks down how individual countries' fossil fuel production plans and projections for a single year, 2030, have changed since PGR2023. It also shows the change, relative to PGR2023, in the GPP pathway for all other countries in 2030.

Coal production in the GPP pathway

As Figure 2.2 shows, coal production under the updated GPP peaks in 2025 at a level that is nearly 11% higher than PGR2023 projected for the same year. It declines slowly through 2030 and more rapidly thereafter, but still falls to only 35% below 2020 levels by 2050. Coal production in the updated GPP is 14% higher in 2030 than in 2020, and remains above the GPP pathway determined in the PGR2023 assessment in nearly all years to 2050.

Projected coal production under the GPP declines between 2025 and 2030, tracking expected declines in global coal demand (IEA, 2024b). The global production trend, however, masks significant planned increases in two major producer countries: India and the Russian Federation. The Indian Ministry of Coal continues to

[6] For Germany, production plans for oil are no longer available. Germany released a final National Energy and Climate Plan in 2024 that contained substantial updates to projected production for all fuels. However, this update implied zero future oil production (despite ongoing domestic production to the end of 2023). Because of this, we revised the GPP to treat the oil forecast for Germany as unavailable.

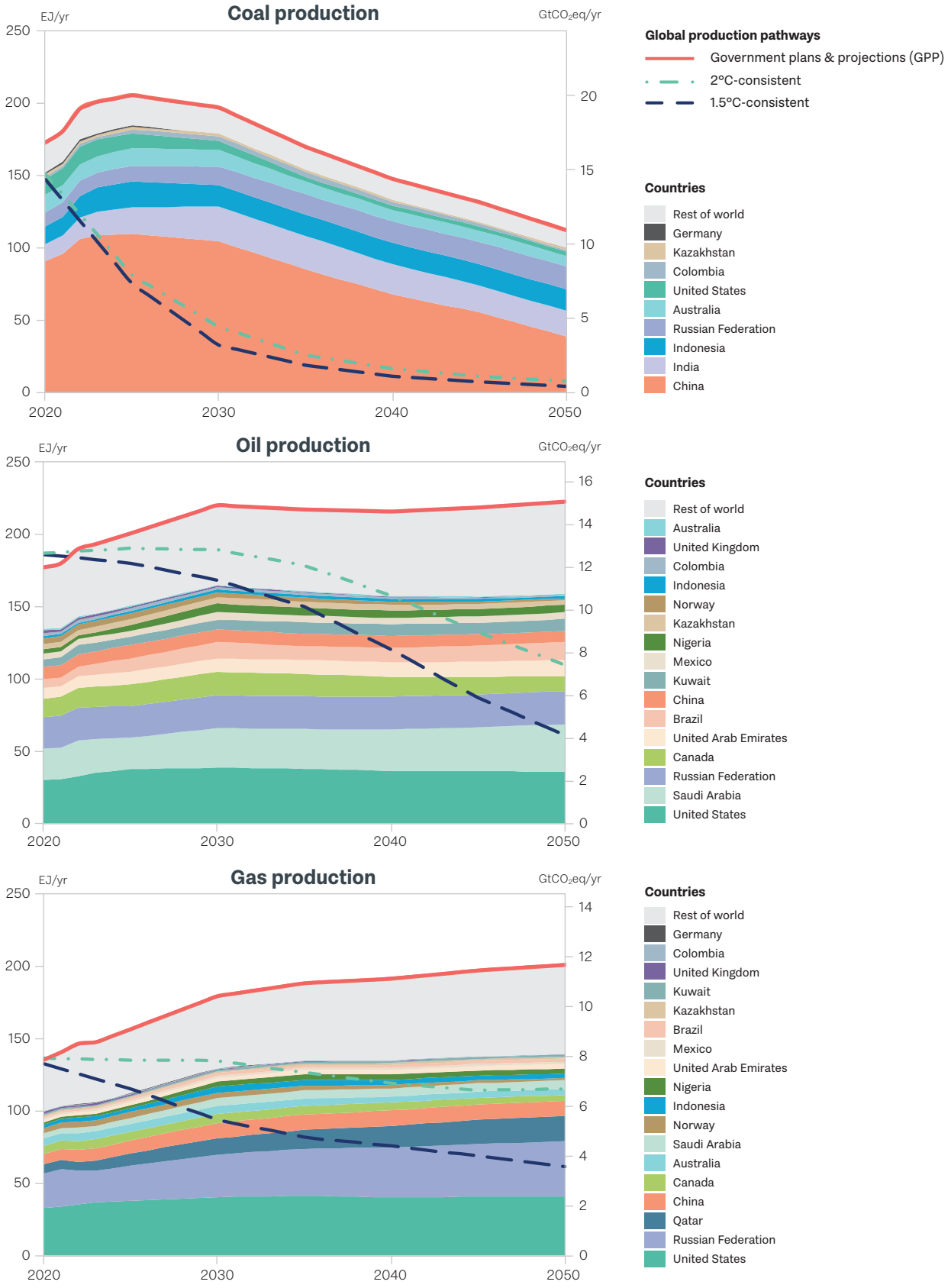
[7] For Canada, a 2025 edition of the Canada's Energy Futures report series was still pending at the time of this assessment, so projections remain unchanged from the PGR2023 assessment.

[8] Where updated near-term plans differed markedly from prior long-term projections (e.g. oil and gas for Indonesia, gas for Saudi Arabia, and oil for Nigeria), we used only the revised near-term plans to impute production levels to 2050. In these cases, we extrapolated values to 2050 from the last year of the near-term forecast using the country- and fuel-specific trajectory modelled by the IEA's 2024 Stated Policies Scenario (STEPS).

[9] See online Appendix for a full description of the methodology

Figure 2.3

Individual countries' contributions (stacked area charts) to global production estimated under the GPP pathways (red lines). For each fuel, countries are plotted in order of decreasing cumulative 2020–2050 production, from bottom to top. The median 1.5°C- and 2°C-consistent global production pathways are overlaid (dashed blue and green lines). Annual coal, oil, and gas production is shown in energy units (exajoules, or EJ) on the primary axes, and in units of extraction-based CO_2-equivalent emissions on the secondary axes ($GtCO_2eq/yr$). Throughout this report, we apply globally averaged emission factors for each fuel in all countries. See the online Appendix for details.



project growing domestic coal demand to the mid-2040s, and has set a 2029 hard coal production target of 1533 million tonnes per year (Mt/yr), 42% above production levels in 2024 (Ministry of Coal, 2025). The Russian Federation plans to increase coal production to 2050, with the aim of exporting to markets in Asia (Pisarev, 2025), including a 19% increase from 2024 to 2030 (Ministry of Energy, 2025).

As Figure 2.4 shows, near-term coal production targets in India and the Russian Federation have changed only slightly since the PGR2023 assessment. The most notable development since 2023 is in China, which accounts for 54% of global coal production. Chinese coal production in 2024 was approximately 17% higher than in the official projections used in PGR2023. In addition, the latest projections from China's state-owned petroleum company, CNPC, show a significantly slower decline in coal production to 2030 compared to prior projections (CNPC ETRI, 2025). The result is projected 2030 coal production 17% (15 EJ) higher than PGR2023 reported. Globally, this leads to a 7% increase in the 2030 production gap for coal.

Oil production in the GPP pathway

As Figure 2.2 shows, oil production under the updated GPP peaks in 2030 at 24% above 2020 levels and remains relatively flat thereafter. Compared to PGR2023, the GPP pathway for oil is slightly lower in the near term, but is largely unchanged from 2030 onwards.

Saudi Arabia, Brazil, and the US continue to account for much of the projected growth in global oil production to 2030. Between 2024 and 2030, Saudi Arabia expects an increase in oil production of around 32% (3.3 Mb/d);[10] Brazil projects an increase of 47% (1.7 Mb/d); and the US plans to increase production by 5.5% (1.1 Mb/d). Nigeria has joined these countries by recently announcing a new production target of 3 Mb/d for 2030 (The State House, 2025), an increase of 92% (1.4 Mb/d) over 2024 levels. These planned production increases are at odds with the IEA's demand projections, which show a peak in global oil demand before 2030 (IEA, 2024b).

As Figure 2.4 shows, compared to prior projections in PGR2023, the US has increased its projected 2030 oil production more than any other country (up 3.1 EJ, or 9%). These projections may be understated, given that they were developed prior to the new US administration's efforts to promote new leasing and drilling, as described in Chapter 3. Nigeria's latest target is 2 EJ (50%) higher than in its prior projection. Indonesia, China, and Kazakhstan have higher planned production as well, equal to 76%, 6%, and 7% above the 2030 levels PGR2023 reported, respectively. Other major producers, however, are projecting lower oil production levels in 2030 than PGR2023 reported, including Kuwait (0.9 EJ, or 12%, lower); the UAE (2.1 EJ, or 19%, lower); and the Russian Federation (2.3 EJ, or 9%, lower).

The net result of these changes compared to the PGR2023 analysis is a very slight increase (less than 1%) in aggregate 2030 oil production levels in the updated GPP pathway. The fact that the production gap for oil remains similar to that estimated two years ago suggests that producer countries have yet to take steps to align their energy plans with their climate commitments.

Gas production in the GPP pathway

Figure 2.2 shows gas production under the updated GPP increasing to 2050, reaching 33% above 2020 levels in 2030, and 49% above 2020 levels in 2050. Compared to PGR2023, the GPP pathway for gas production is now higher in all years, and markedly so before 2040.

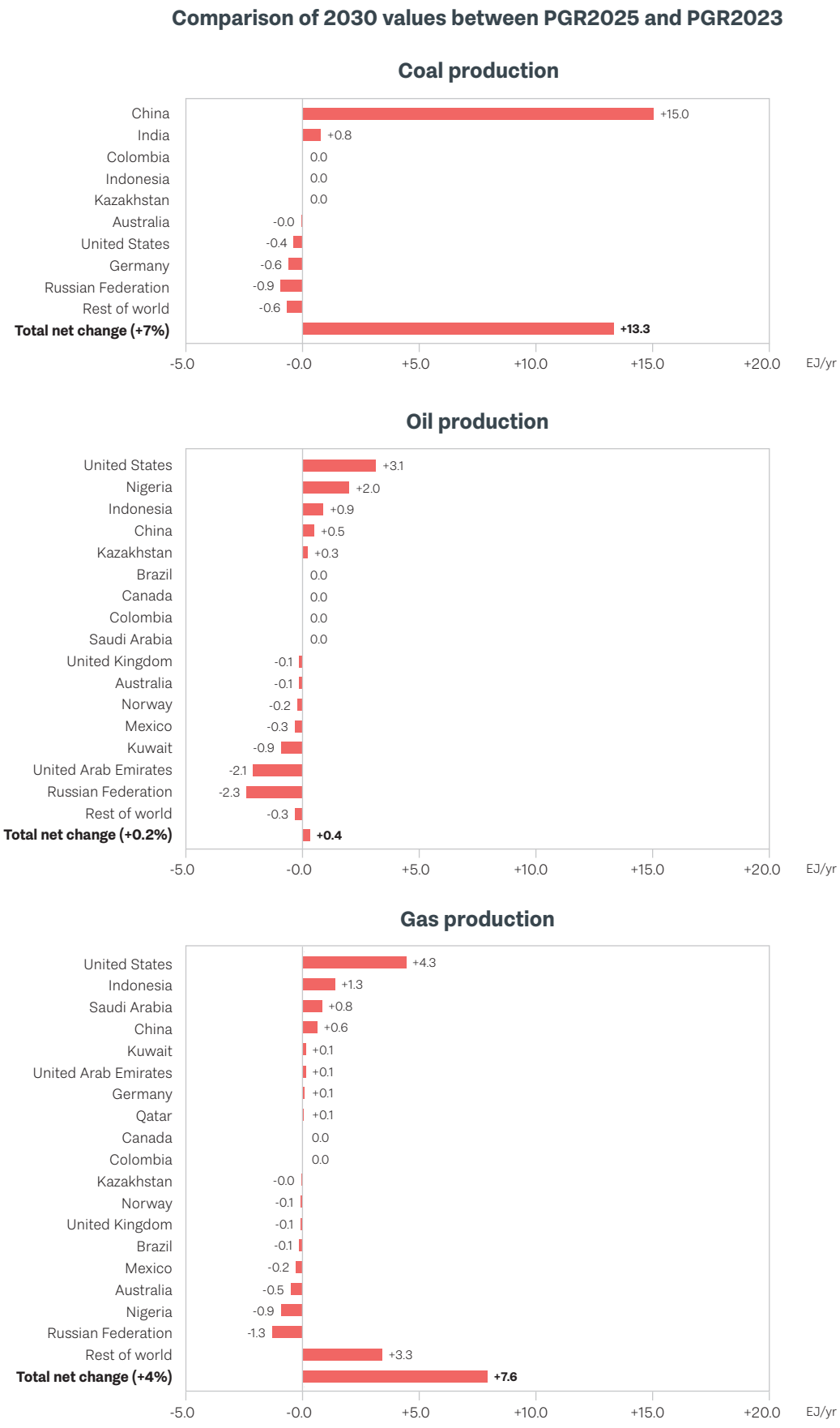
As Figure 2.3 shows, the four largest gas producer countries are the US, the Russian Federation, Qatar, and China. These countries are responsible for more than half of the growth in gas production under the GPP pathway from 2024 to 2030. The Russian Federation is targeting an increase in production of 25% (168 billion cubic meters per year (Bcm/yr)) over this period, as part of a strategy to serve export markets in the Asia-Pacific region (Novak, 2025). Qatar is planning to increase its liquefied natural gas (LNG) production capacity to 142 Mt/yr by 2030 (Boufarah et al., 2024; Rashad, 2024), leading to an estimated increase in production of over 80% compared to 2022. The US, according to its most recent projections, will expand gas production by over 10% (100 Bcm/yr) over this period. China plans to increase gas production by over 21% (50 Bcm/y).

As Figure 2.4 shows, the largest change since PGR2023 is in US projections, which now show 2030 gas production nearly 12% (4.3 EJ) higher than before. However, the second largest change is in countries other than the 18 producers assessed here (the "rest of world" category). This

[10] This figure is based on an average of 2030 production in Saudi Aramco's "levelling of demand" and "accelerated transition" scenarios. See the Saudia Arabia profile in Chapter 3 for further detail.

Figure 2.4

Changes since PGR2023 (in last two years) in projected fossil fuel production levels for 2030, by major producer and rest of world. All units are in exajoules (EJ). Numbers may not sum to total due to rounding. The total net change percentage indicates the percent change in global planned production compared to PGR2023.



reflects a general planned expansion of gas production capacity, particularly of LNG, around the world, including in Africa and Asia (IEA, 2024b, 2024a).

Among other profiled countries, Saudia Arabia is projecting 17% more gas production in 2030 compared to PGR2023 (an increase of 0.8 EJ), China is now projecting slightly higher 2030 gas production (up by 6.5%, or 0.6 EJ), and Russian Federation projections are now lower by 4% (1.3 EJ), reflecting the effects of ongoing sanctions. The net result is a nearly 4% increase in the 2030 production gap for gas — an outcome once again at odds with an expected peaking of global gas demand before 2030 (IEA, 2024b), and contrary to countries' stated energy policies and climate commitments.

2.3 The implications of lost time in addressing the production gap

Every year that countries fail to make progress in curbing fossil fuel production and use, it becomes harder for the world to achieve its climate goals. The consequences of delayed action are well-recognized in the scientific literature, and underscored in perennial reports from both the IPCC and the United Nations Environment Programme (UNEP) (IPCC, 2022; UNEP, 2024). Because the production gap findings in this chapter rely on 1.5°C- and 2°C-aligned scenarios that are already several years old, however, they do not fully reflect this delay and its implications.

When developed, these scenarios assumed that major mitigation action would commence in 2020. To align with the median 1.5°C-consistent pathway we use in this report, fossil fuel production and use would have had to fall by 24% between 2019 and 2025. As Figure 2.1 makes clear, however, fossil fuel production has instead continued to rise after the COVID-19-induced dip in 2020, and has exceeded levels in both 1.5°C- and 2°C-aligned pathways for several years.

The time lost to inadequate progress over the first half of this decade has two implications. The first is that cumulative fossil fuel production over the 2020s is likely to be substantially higher than in the 1.5°C- and 2°C-aligned pathways used to assess the production gap. Thus, even if the world reduces fossil fuel production in 2030 to the levels seen in these pathways, the total cumulative coal, oil, and gas extracted over this decade would still be higher than is consistent with these pathways. Even deeper reductions in production and consumption would be needed in the 2030s and beyond to bring cumulative production back to what the scenarios assume.

Second, these deeper reductions will be harder and more expensive to achieve. This is the result of both further lock-in of fossil fuel infrastructure added in the 2020s and the increased pace of reductions required from now on. A recent study found that, given the delay in action between 2020 and 2023, it may no longer be feasible to achieve 1.5°C-consistent emission reductions by 2030 (Bertram et al., 2024). Even with rapid and concerted efforts starting today, fossil fuel production in 2030 will likely exceed the levels in the 1.5°C-compatible scenarios presented in this report.

The analysis in this report therefore understates the level to which long-term fossil fuel production and use need to decline to align with the Paris Agreement's temperature targets. Future assessments will need to incorporate updated scenario modelling that accounts for the consequences of delayed action and lack of near-term emissions reductions. Further work is underway to produce new global energy and emissions scenarios that fully account for the failure to curb fossil fuel use over the past five years and still align with the Paris Agreement's temperature goals (van Vuuren et al., 2025). Future Production Gap Reports will incorporate these scenarios.

2.4 The need for a fossil fuel phase-out to keep 1.5°C within reach

The two years since the publication of PGR2023 have seen repeated and increasingly stark warnings that the Paris Agreement's most ambitious long-term temperature ceiling of 1.5°C is under threat. Both 2023 and 2024 saw record heat around the world, with the best estimate of 2024 globally averaged temperatures at 1.52°C above pre-industrial levels (Forster et al., 2025). Scientists measure average temperature over decades, not single years. As such, breaching 1.5°C in any single year does not mean that the Paris Agreement's more ambitious goal is broken. However, it remains a clear sign that we are rapidly approaching this threshold (Bevacqua et al., 2025; Cannon, 2025; WMO, 2025b, 2025a). Recent analyses suggest that the world will almost certainly enter a period of overshoot above 1.5°C, even if global emissions start to decline rapidly from 2025 onwards (Reisinger et al., 2025; C. Smith et al., 2025).[11]

[11] So-called "overshoot" scenarios involve temporarily exceeding a temperature target, like 1.5°C, before bringing temperatures back down to safer levels (Schleussner et al., 2024).

At the same time, the last two years have also shown the importance, from a climate stabilization perspective and to limit the worst impacts of climate change, of returning to below 1.5°C as soon as possible and minimizing the extent and duration of overshoot. The world has already experienced rapidly escalating climate impacts across all regions, ecosystems, and geographies (WWA, 2024). Bringing global temperatures back down below 1.5°C above pre-industrial levels is essential if we are to avoid long-term slow-onset catastrophic impacts such as multi-meter sea level rise in the coming centuries (IPCC, 2023; Stokes et al., 2025) and irreversible loss of glaciers (Schuster et al., 2025), and to significantly reduce the risks of breaching climate tipping points (Möller et al., 2024).

For these reasons, the international community has focused on the Paris Agreement's 1.5°C target as a legal and ethical imperative (Rogelj & Rajamani, 2025). Governments at COP28 agreed to "keep the 1.5°C goal within reach" and called for countries to submit new 2035 mitigation targets "aligned with limiting global warming to 1.5°C" (UNFCCC, 2024, paras. 5 and 39). The International Court of Justice has reinforced this objective, finding that 1.5°C is "the parties' agreed primary temperature goal for limiting the global average temperature increase under the Paris Agreement" (Obligations of States in respect of Climate Change, 2025).

Reaching net zero GHG emissions in the second half of this century, as the world committed to in Article 4.1 of the Paris Agreement, is essential for limiting the overshoot of 1.5°C and returning to safer temperatures by 2100 (Future Earth et al., 2023; Möller et al., 2024; Schleussner et al., 2024). This will require fossil fuel production and use — which are currently responsible for around 90% of global, human-caused CO_2 emissions (Friedlingstein et al., 2025) — to be cut to the very lowest levels possible. This is because achieving net zero emissions will require any continued fossil fuel production and use after 2050 to be compensated by CCS or CDR technologies to ensure that fossil CO_2 is either not emitted or is removed from the atmosphere. However, substantial technical, financial, and institutional constraints are likely to restrict the large-scale deployment of these technologies, and thus limit the potential for ongoing fossil fuel use in the latter half of the century (Achakulwisut et al., 2023). Phasing out fossil fuels will reduce pressure on CDR, allowing any removals achieved to be used to drive temperature declines rather than merely offsetting continued fossil fuel use.

PGR2023 assessed global 1.5°C-aligned pathways for fossil fuel production and, based on multiple lines of evidence, showed that it was both possible and necessary for fossil fuel production to reduce more deeply by 2050 than the median level suggested in these pathways (SEI et al., 2023). Our analysis indicated that countries should aim for a near-total phase-out of coal production and use by 2040 and a combined reduction in oil and gas production and use by three-quarters by 2050 from 2020 levels, at a minimum.

Growing evidence supports both the necessity and feasibility of such deep reductions. Edelenbosch et al. (2024), for example, show that demand shifts and technological interventions in hard-to-abate sectors (heavy industry, international transport, agriculture, and buildings) could yield substantially deeper reductions in fossil fuel demand than the majority of IPCC AR6 1.5°C pathways reflect. Such measures could help accelerate the transition away from fossil fuels and limit the degree and duration of any temperature overshoot. To do so, however, also requires deliberate strategies to phase fossil fuel production down and out by the second half of the century (Achakulwisut et al., 2023). Such strategies would help countries fulfil their Paris Agreement pledges and net zero targets, which, as the next chapter shows, the energy plans of major fossil fuel producers currently continue to undermine.

3

Government plans and policies for fossil fuel production

Key Messages

Most of the 20 countries profiled in this report continue to plan fossil fuel production at levels inconsistent with their net zero climate ambitions.

Eleven out of the 20 profiled countries have increased near-term production plans for at least one fuel, relative to what they projected in 2023.

More than half the profiled countries plan significant increases in gas production to 2030. Multiple governments continue to promote gas as a "transition fuel", but without explicit future plans to transition away from it.

All profiled countries continue to provide substantial financial and policy support for fossil fuel production. The fiscal cost of government support for fossil fuels remains near an all-time high.

On a positive note, six countries are now developing scenarios for domestic fossil fuel production aligned with national and global net zero targets, up from four in 2023.

Except for the United States, multiple countries remain committed to cooperating on Just Energy Transition Partnerships and exploring additional platforms and models for supporting energy transitions, and more countries are now actively planning for such transitions.

3. Government plans and policies for fossil fuel production

This chapter summarizes recent developments relating to the climate ambitions and the plans, perspectives, and policies for fossil fuel production of 20 major producer countries: Australia, Brazil, Canada, China, Colombia, Germany, India, Indonesia, Kazakhstan, Kuwait, Mexico, Nigeria, Norway, Qatar, the Russian Federation, Saudi Arabia, South Africa, the United Arab Emirates (UAE), the United Kingdom, and the United States. These updates draw upon national energy plans and forecasts released by government and affiliated institutions, as well as a variety of other sources.

The countries included in this report are the same as those featured in the 2023 Production Gap Report (PGR2023). We selected these countries based on their ranking among the world's top producers of coal, oil, or gas, their stated climate commitments, and the availability of data for analysis. Altogether, these countries account for over 82% of production and 70% of consumption of the world's primary supply of fossil fuels (UNSD, 2025).[12]

Under an approach that allocates greenhouse gas (GHG) emissions from fossil fuel production and combustion processes to producer countries, these countries accounted for 84% of global extraction-based emissions in 2022. As Figure 3.1 shows, there are large variations in the individual contributions of these 20 countries in total and across different fossil fuels. Just three countries — China, the US, and the Russian Federation — are responsible for more than half of global extraction-based emissions from all 2022 fossil fuel production.

Tables 3.1, 3.2, and 3.3 further illustrate the relative contribution of these countries to global fossil fuel production, along with their status as fossil fuel importers and exporters. China continues to produce and consume around half the world's coal supply. The US and the Russian Federation continue to dominate global gas production and — together with Saudi Arabia — global oil production (IEA, 2025b; UNSD, 2025).

Current climate change commitments

This year marks the 10th anniversary of the Paris Agreement, a major milestone in countries' collective efforts to address climate change. Governments are expected to submit a new round of nationally determined contributions (NDCs), detailing their plans for mitigating climate change and reducing GHG emissions through 2035. As of August 2025, only 6 of the 20 countries reviewed here had submitted their 2035 NDCs:[13] Brazil, Canada, Norway, the UAE, the UK, and the US. However, all countries plan to submit NDCs before COP30.

Although the US submitted a 2035 NDC in December 2024, after a change in government, it has now initiated its withdrawal from the Paris Agreement and stepped

[12] Primary fuels refer to the amount of fuels produced prior to any energy conversion or transformation processes.

[13] Under the Paris Agreement, countries are asked to submit new NDCs every five years. The first round of NDCs was submitted in conjunction with the ratification and entry into force of the Paris Agreement in 2016. Most second NDCs were submitted in 2020 and 2021, with mitigation targets in most cases specified for 2030. The third round of submissions, expected to specify mitigation targets for 2035, is due in 2025. Since 2020, many countries have also revised or updated their second NDCs. This report uses the term "2035 NDC" to refer to the latest round of new submissions, also referred to as "NDCs 3.0" (UNFCCC, 2025).

away from its climate goals, and is seeking to reverse federal-level climate policies. The remaining countries profiled here have all maintained their climate change mitigation commitments. As Table 3.4 shows, for most countries this includes net zero targets. Since 2023, Mexico has announced a new net zero pledge (Dlouhy, 2024); Qatar still has no commitment; and Norway maintains a target of reducing domestic emissions by 90–95% by 2050.

As Table 3.4 makes clear, however, 17 out of the 20 profiled countries still plan to increase production of at least one fossil fuel through 2030, revealing an ongoing disconnect between their climate commitments and their outlooks for fossil fuel production. Eleven countries — China, Germany, India, Indonesia, Kazakhstan, Kuwait, Nigeria, Qatar, Saudi Arabia, the UAE, and the US — now expect higher production of at least one fuel in 2030 than they were planning in 2023, when the production gap assessment was last conducted.

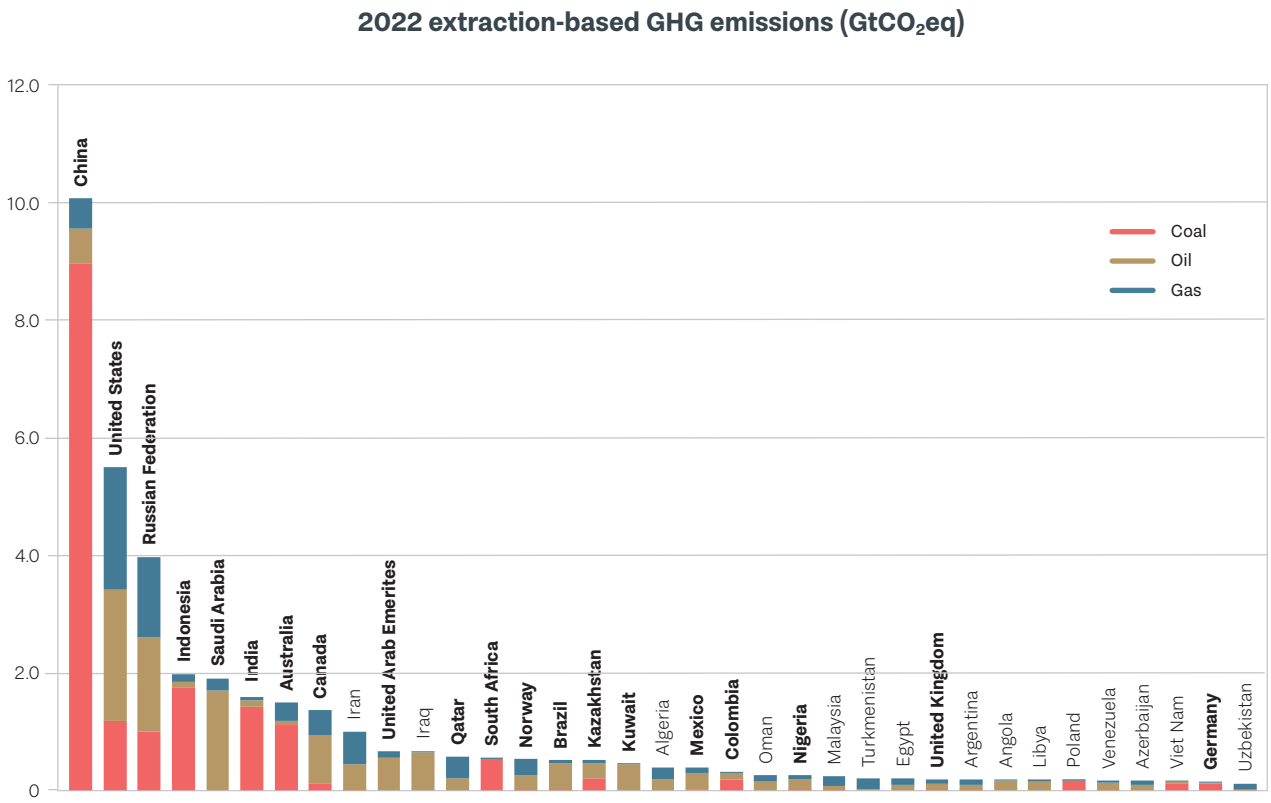
Coal production plans and projections

As Table 3.4 shows, India and the Russian Federation plan significant increases in coal production to 2030. India is on track to achieve its targets for renewable electricity generation but continues to view coal-fired power as integral to economic development; in 2024, negotiations on a Just Energy Transition Partnership (JETP) for India foundered over questions about its potential impact in coal-dependent communities (Wettengel & Srivastava, 2024). As a significant exporter of coal, the Russian Federation plans higher production to serve markets in Asia.

Although Colombia's total coal production is low compared to other countries, it nevertheless projects a 125% increase in production between 2023 and 2030 in its central planning scenario.

Figure 3.1

Top 35 countries in terms of extraction-based GHG emissions (billion tonnes of CO_2 equivalent, $GtCO_2eq$) in 2022. The top 10 accounted for 76% of the global total, while the top 35 accounted for 95%. Countries in bold are profiled in this chapter. See the online Appendix for sources and methods.



Among other large coal producers, the current US government has announced its intention to boost coal power production (Renshaw et al., 2025). This is not reflected in its latest projection (prepared under the previous administration) of a substantial 45% decline in coal production from 2023 to 2030.

The world's largest exporter of coal, Indonesia, has not officially updated its coal projections since 2021. However, recent coal production in Indonesia was higher than previously projected, and the country continues to view coal production as important for energy "self-sufficiency" and economic development (Ministry of State Secretariat, 2024). At the same time, Indonesia's President has vowed to phase out all coal power by 2040 (Government of Indonesia, 2025).

Australia, the world's second largest coal exporter, plans 2030 coal production 6% higher than in 2023, declining gradually thereafter.

South Africa has delayed decommissioning of three coal-fired power plants over energy security concerns (Department of Mineral Resources and Energy, 2023; UK Government, 2024b).

Table 3.1

Coal production, imports, exports, and net trade status by country in 2022, ranked by production volume; values are rounded to one decimal place.

Coal

Country	Coal production (EJ)	% share of global total	Imports (EJ)	Exports (EJ)	Net status
China	91.3	51.2%	5.5	<0.1	Importer
Indonesia	17.8	10.0%	0.3	12.1	Exporter
India	14.6	8.2%	6.4	<0.1	Importer
US	12.1	6.8%	0.1	2.1	Exporter
Australia	11.4	6.4%	<0.1	9.7	Exporter
Russian Federation	10.2	5.7%	0.5	4.9	Exporter
South Africa	5.4	3.0%	<0.1	1.5	Exporter
Kazakhstan	2.1	1.2%	<0.1	0.6	Exporter
Colombia	1.9	1.0%	<0.1	1.6	Exporter
Germany	1.2	0.7%	1.2	<0.1	Importer
Canada	1.1	0.6%	0.1	0.9	Exporter
Mexico	0.1	<0.5%	0.2	<0.1	Importer
Brazil	0.1	<0.5%	0.5	No data	Importer
Nigeria	<0.1	<0.5%	No data	No data	N/A
UK	<0.1	<0.5%	0.2	<0.1	Importer
Norway	<0.1	<0.5%	<0.1	<0.1	Importer
Saudi Arabia	No production	–	<0.1	<0.1	Importer
UAE	No production	–	<0.1	<0.1	Importer
Kuwait	No production	–	No data	No data	N/A
Qatar	No production	–	No data	No data	N/A
Profile total	169.3	95%			
Global total	178.5	100%			

Source: UNSD (2025).

China still aims to phase down coal but intends to do so more gradually than previously planned, due to a mixture of industry pressure and concerns about grid reliability (IEA, 2025a; Qin & Shearer, 2025; The Economist, 2025). Chinese coal production reached record highs in 2022 and 2023, and is now projected to rise further in the next two years before returning to 2022 levels in 2030.

Oil production plans and projections

As Table 3.4 shows, the top seven oil producers in our sample — the US, Saudia Arabia, the Russian Federation, Canada, China, the UAE, and Brazil (Table 3.2) — project increases in oil production by 2030. Saudi Arabia leads this group in terms of sheer volume increase, with expected 2030 output 18% (4.2 exajoules per year, EJ/yr) higher than in 2023. Of the top seven producers, Brazil projects the largest percentage increase, with oil production in 2030 reaching 56% (4.1 EJ/yr) above production levels in 2023. However, Brazil expects oil production to peak in 2030 and decline thereafter. Under current projections, the US expects an increase in production of 9% (3.3 EJ/yr) by 2030 over 2023 levels; however, as with coal, this does not reflect recent changes in US policy aimed at boosting production.

Other major producer countries also plan to increase production to 2030, including Kuwait, Mexico, and Kazakhstan. Nigeria plans a doubling of oil production by 2030, with the government asserting that this is central to the country's economic development and diversification (NUPRC, 2024; The State House, 2025).

In 2023, Australia, Colombia, Indonesia, Norway, and the UK all projected declining oil production to 2030 (SEI et al., 2023). Except for Indonesia, these countries now expect 2030 oil production to drop even further (i.e. current projections are lower than projections in 2023). In 2024, however, Indonesia's government declared its intention to achieve energy self-sufficiency, citing global tensions and political conflict (Ministry of State Secretariat, 2024), and it is now targeting a nearly 65% increase in domestic oil production in 2030 compared to 2023 levels.

Table 3.2

Oil production, imports, exports, and net trade status by country in 2022, ranked by production volume; values are rounded to one decimal place.

Oil

Country	Oil production (EJ)	% share of global total	Imports (EJ)	Exports (EJ)	Net status
US	32.3	17.3%	13.6	7.8	Importer
Saudi Arabia	24.6	13.1%	<0.1	15.0	Exporter
Russian Federation	23.1	12.3%	<0.1	11.0	Exporter
Canada	12.1	6.5%	1.4	8.8	Exporter
China	8.6	4.6%	21.3	<0.1	Importer
UAE	8.1	4.3%	0.6	5.7	Exporter
Brazil	6.6	3.5%	0.5	2.9	Exporter
Kuwait	6.3	3.4%	No data	4.0	Exporter
Mexico	4.2	2.2%	<0.1	2.2	Exporter
Norway	3.9	2.1%	<0.1	3.3	Exporter
Kazakhstan	3.7	2.0%	<0.1	2.8	Exporter
Qatar	3.0	1.6%	No data	1.8	Exporter
Nigeria	2.5	1.4%	No data	2.4	Exporter
Colombia	1.7	0.9%	No data	0.9	Exporter
UK	1.6	0.9%	1.9	1.2	Importer
Indonesia	1.4	0.8%	0.6	<0.1	Importer
India	1.4	0.7%	9.8	No data	Importer
Australia	0.8	<0.5%	0.4	0.6	Exporter
Germany	0.1	<0.5%	3.8	<0.1	Importer
South Africa	<0.1	<0.5%	0.3	No data	Importer
Profile total	146.1	78%			
Global total	187.4	100%			

Source: UNSD (2025).

Gas production plans and projections

The disruption of gas supplies resulting from the war in Ukraine spurred increased investment around the world in liquefied natural gas (LNG) infrastructure (IEA, 2024b; SEI et al., 2023). This new "rush to gas" has continued, with multiple countries increasing planned gas production.

As Table 3.4 indicates, 13 countries profiled in this report project higher levels of gas production in 2030 than they produced in 2023. The US, the Russian Federation, and Qatar lead this group in terms of volume increases, with projected increases of 3.5 EJ (10%), 7.4 EJ (34%), and 4.3 EJ (61%) respectively. As with coal and oil, US projections do not reflect recent policy changes supporting higher production.

Other countries are targeting significant production increases in percentage terms. Indonesia has set a target of increasing domestic gas production by 60% between 2023 and 2030, citing a need to reduce dependence on imports (MEMR, 2024c).

Table 3.3

Gas production, imports, exports, and net trade status by country in 2022, ranked by production volume; values are rounded to one decimal place..

Gas

Country	Gas production (EJ)	% share of global total	Imports (EJ)	Exports (EJ)	Net status
US	35.8	24.1%	2.9	6.7	Exporter
Russian Federation	23.7	16.0%	0.3	5.8	Exporter
China	8.9	6.0%	5.3	0.2	Importer
Canada	7.2	4.9%	0.9	3.0	Exporter
Qatar	6.3	4.3%	No data	4.7	Exporter
Australia	5.5	3.7%	0.1	4.2	Exporter
Norway	4.6	3.1%	<0.1	4.4	Exporter
Saudi Arabia	3.6	2.4%	No data	No data	N/A
Indonesia	2.1	1.5%	No data	0.6	Exporter
UAE	2.0	1.3%	0.8	0.3	Importer
Mexico	1.4	0.9%	1.5	<0.1	Importer
UK	1.4	0.9%	2.0	0.8	Importer
Nigeria	1.4	0.9%	No data	0.7	Exporter
India	1.2	0.8%	1.0	No data	Importer
Kazakhstan	1.0	0.7%	<0.1	0.2	Exporter
Brazil	0.8	0.6%	0.3	No data	Importer
Kuwait	0.6	<0.5%	0.3	No data	Importer
Colombia	0.4	<0.5%	<0.1	No data	Importer
Germany	0.2	<0.5%	3.0	No data	Importer
South Africa	<0.1	<0.5%	0.1	No data	Importer
Profile total	107.9	73%			
Global total	148.2	100%			

Sources: UNSD (2025).

The Nigerian government has endorsed a plan to boost gas production by more than 120% over this period, highlighting its importance for economic development (NUPRC, 2024).

Brazil plans a 110% increase in gas production between 2023 and 2030, and has introduced regulatory changes aimed at increasing market activity accordingly (EPE, 2024b).

Saudi Arabia's state-owned oil and gas company, Saudi Aramco, is now targeting 2030 production levels equivalent to a 53% increase over 2023 (Saudi Aramco, 2025).

In the UAE, the state-owned Abu Dhabi National Oil Company (ADNOC) is expanding LNG capacity and projects growth in gas production by 2030 amounting to a 35% increase over 2023.

Three profiled countries — Australia, Norway, and the UK — project declines in gas production from 2023 to 2030. The UK projects the largest decline, around 57% (0.7 EJ). Norway projects a 12% decline (0.5 EJ). Australia projects a small decline of around 4% (0.2 EJ).

As noted in the country profiles that follow, multiple governments continue to view gas as a transition fuel, including Australia, Colombia, Indonesia, Kazakhstan, and Nigeria.

Government support for fossil fuel production

Despite a commitment to phase out "inefficient fossil fuel subsidies" agreed by all state parties in Glasgow in 2021, then reiterated as part of the Global Stocktake agreed at the COP28 climate conference (UNFCCC, 2023), many governments continue to provide substantial direct and indirect financial support for fossil fuels, including through subsidies for consumption. The fiscal cost of government support, including consumer subsidies, fell between 2022 and 2023. But consumer subsidies in 2022 were anomalously high due to elevated gas costs resulting from the Ukraine war (OECD, 2024c).

Producer and consumer subsidy levels in 2023 (the latest year for which data are available) remained significantly above levels in prior years (OECD, 2024c; OECD and IISD, 2025). As the profiles in this chapter indicate, governments of major fossil-fuel-producing countries continue to support production in multiple ways, including through direct investment in infrastructure (Canada), streamlining of contracting procedures (Brazil), direct subsidies or investments for state-owned enterprises (China, India, Mexico), tax incentives for exploration and extraction (Kazakhstan, the Russian Federation), and opening up new areas for exploration and development (the US, Norway).

Table 3.4

Net zero commitments and relative changes in planned/projected fossil fuel production for the 20 countries profiled in this report.

Country	Status of national net zero commitment	Net zero target year	Planned change in national fossil fuel production in 2030 relative to 2023 (EJ)		
			Coal	Oil	Gas
Australia	In law	2050	▲ 0.7	▼ 0.1	▼ 0.2
Brazil	In policy document	2050	No data	▲ 4.1	▲ 0.9[c]
Canada	In law	2050	No data	▲ 2.3	■ 0.0
China	NDC objective	2060	▼ 4.1	▲ 0.2	▲ 2.4
Colombia	In law	2050	▲ 1.8	▼ 0.1	▲ 0.1
Germany	In law	2050	▼ 0.9	No data	▲ 0.1
India	In law	2070	▲ 7.3[d]	No data	No data
Indonesia	NDC objective	2060	▼ 2.1	▲ 0.8	▲ 1.7
Kazakhstan	In law	2060	▼ 0.2	▲ 0.5	▲ 0.2[c]
Kuwait	Political pledge	2050 (oil and gas sector) 2060 (rest of economy)	No production	▲ 0.6	▲ 0.2
Mexico	Political pledge	2050	No data	▲ 1.0	■ 0.0
Nigeria	In law	2060	No data	▲ 3.1	▲ 1.8[c]
Norway	No commitment[a]	–	No data	▼ 0.7	▼ 0.5
Qatar	No commitment	–	No production	No data	▲ 4.3
Russian Federation	In strategy document	2060	▲ 2.2	▲ 0.4	▲ 7.4
Saudi Arabia	Political pledge	2060	No production	▲ 4.2	▲ 1.9
South Africa	Political pledge	2050	No data	No data	No data
United Arab Emirates	In policy document	2050	N/A	▲ 0.6	▲ 0.7
United Kingdom	In law	2050	No data	▼ 0.6	▼ 0.7
United States	No commitment[b]	–	▼ 5.4	▲ 3.3	▲ 3.5

[a] Norway has committed to a "low-emission society" by 2050 in its 2018 Climate Change Act, with 90–95% emission reduction targets.
[b] In early 2025, the US government revoked Executive Orders 14008 and 14057, both of which had net zero targets.
[c] Excluding gas that is reinjected, used by producers, or flared.
[d] Planned change for 2029, furthest year for which data is available.

Sources: Net Zero Tracker (2025) and authors' analyses (see country profiles)

Despite global trends, however, governments in some countries profiled here have moved to reduce fossil fuel support. The UK government, for example, has committed to ending licensing for new oil and gas exploration and coal development, increased levies on oil and gas profits, and removed tax relief for oil and gas investments (Department for Energy Security and Net Zero, 2024. Coleman, 2024; UK Government, 2024a).

In May 2023, the government of Nigeria removed consumer fuel subsidies. The economic and political repercussions of their sudden withdrawal, however, exemplify the policy challenges of subsidy reform (Okoroafor et al., 2025; Olawin, 2024; Onyeiwu, 2024).

International cooperation and support for energy transitions

Progress on international cooperation related to curbing fossil fuel production is similarly mixed. Efforts to reduce fossil-fuel-related emissions focus largely on cutting operational emissions — especially methane from leaks, venting, and flaring during extraction, processing, and transport — rather than production itself.

Membership in the Global Methane Pledge (GMP) has grown to 160 countries, up from 100 two years ago (Global Methane Pledge, 2025). At the COP28 climate conference, a coalition of major oil and gas companies announced an Oil and Gas Decarbonization Charter, targeting reductions in all operational greenhouse gas emissions and aiming for net zero upstream methane emissions by 2030 (OGDC, 2023). And at COP29, the European Union launched a Methane Abatement Partnership Roadmap, focused on building implementation capacity for achieving the aims of the GMP (Directorate-General for Energy, 2024).

Of the countries profiled here, new GMP signatories include Kazakhstan and Qatar. China, India, the Russian Federation, and South Africa are all still notably absent from the list, however, and the new US government is now weakening its own methane regulations for fossil fuel producers (H.J.Res.35, 2025).

International cooperation in support of energy transitions has proceeded unevenly in the past two years. The US has now withdrawn support for JETP programmes (Jain & Bustami, 2025), which provide government and private investment support for the transition away from fossil fuels

in certain developing and emerging economies. All other donor countries have affirmed their support for existing JETP programmes (Directorate-General for Climate Action, 2025b). JETPs have achieved some successes but faced implementation challenges in the four countries where they launched — Indonesia, Senegal, South Africa, and Viet Nam (Daley & Lawrie, 2025). These difficulties have prompted leading donor countries to consider course corrections and alternative approaches (Chime, 2024).

Although new JETPs are unlikely in the near term, multiple countries are exploring similar models for cooperation, including energy transition "country platforms" (Chime, 2024; Sguazzin, 2024; Wettengel, 2025).

Planning for a just transition

In 2023, of the 20 countries profiled in this report, only four — Canada, China, Germany, and Indonesia — had published explicit scenarios for fossil fuel production consistent with national and global net zero targets. Colombia may soon be added to this list, as it plans to release a new National Energy Plan with a scenario for fossil fuel production aligned with achieving its 2050 carbon neutrality goal (UPME, 2025). Brazil is likewise working on new oil and gas production scenarios, which may include scenarios aligned with its 2050 net zero target (EPE, 2025b).

Colombia also recently launched its Roadmap for a Just Energy Transition, which makes explicit the country's intention to phase out fossil fuel production and includes measures for democratizing the energy sector and fostering new job creation (MME, 2025). These efforts are being bolstered by a USD 40 billion investment plan, modelled after JETPs, USD 14.5 billion of which would explicitly target energy transition measures (Darby et al., 2024; Rodriguez, 2024).

Brazil has launched its own Energy Transition Acceleration Program, which aims to promote renewable energy deployment and foster energy transition activities in coal-mining regions (Presidency of the Republic, 2025).

In 2024, Canada passed a Sustainable Jobs Act establishing principles and governance structures to support "sustainable jobs for workers and economic growth in a net-zero economy" (Canadian Sustainable Jobs Act, 2024).

As before, however, most of the countries profiled in this report have not yet committed to, or prepared for, an active transition away from coal, oil, and gas production consistent with their own stated climate goals. Colombia stands out as the only major fossil-fuel-producing country to formally support the Beyond Oil and Gas Alliance of governments and other stakeholders working to facilitate the managed phase-out of oil and gas production, as well as the government- and civil-society-led Fossil Fuel Non-Proliferation Treaty Initiative, which seeks to accelerate a global transition to renewable energy (FFNPT, 2023).

As other producer countries consider how to raise the ambition of their climate commitments under the Paris Agreement, and specify targets for 2035, they should align their fossil fuel production plans with their ambitions and actively pursue energy transition policies needed to realize them.

The following country profiles examine how a set of the world's largest fossil fuel producers are currently navigating this critical alignment between climate goals and fossil fuel production realities. We present the profiles in order of their contribution to global fossil fuel emissions in 2022 following Figure 3.1, and provide relevant updates for each country since PGR2023.

China

Updated climate ambitions

- As of August 2025, China has not submitted a 2035 NDC. Its current NDC from 2021 commits to peaking CO_2 emissions before 2030, achieving carbon neutrality before 2060, deploying wind and solar capacity of over 1.2 billion kilowatts (kW) by 2030, and other objectives (People's Republic of China, 2021a).
- The Chinese government reports that it is on track to meet its NDC targets, and in October 2024 hit its 2030 target for solar and wind capacity six years early (Ministry of Ecology and Environment, 2024a; National Energy Administration, 2024; Yang et al., 2025). This drove a decline in CO_2 emissions from 2024 to 2025 despite growing power demand (Myllyvirta, 2025).

Policy updates

- China's National People's Congress approved the Energy Law in November 2024 to promote renewable energy development and carbon neutrality (Energy Law of the People's Republic of China, 2024). The law also aims to "optimize" coal development and promotes exploration and development of oil and gas resources, with specific emphasis on large-scale unconventional sources (Energy Law of the People's Republic of China, 2024).
- China's Methane Action Plan, released in November 2023, aims to improve methane monitoring and abatement in the energy (coal, oil, and gas), agriculture, and waste sectors (Ministry of Ecology and Environment, 2023). The government has also developed guidelines for reducing coal mine methane emissions (Ministry of Ecology and Environment, 2024b).
- In August 2024, the Chinese government established a series of national standards to prepare, implement, and monitor the land reclamation and ecological restoration of closed coal mines and oil and gas sites (Ministry of Natural Resources, 2024).

Updates to fossil fuel production plans and projections

- China is by far the world's largest coal producer and consumer. China's coal, oil, and gas production is at, or near, an all-time high (National Energy Administration, 2025), exceeding production targets the government set in its 14th Five-Year Plan (People's Republic of China, 2021b; The State Council, 2022).
- China is developing its 15th Five-Year Plan (2026–2030) and has not yet announced new energy sector production targets. The projections we use in this analysis are from the China National Petroleum Corporation (CNPC) Economics and Technology Research Institute's (ETRI) latest Energy Statistical Review. CNPC projects a steep decline in coal production after 2030, a gradual decrease in oil production, and an increase to 2040 followed by a slight decline in gas production in its latest baseline projections (CNPC ETRI, 2025a) — see Figure 3.2.
- In these projections, the post-2030 decline in coal production progresses significantly less rapidly than both CNPC and China's state-owned petroleum and chemical corporation, Sinopec, previously reported (CNPC ETRI, 2022; Xinhua News Agency, 2022). CNPC's new projections for 2030 coal production are 16% higher than in 2023, and 12% higher for 2040.

Updates on government support for domestic fossil fuel production

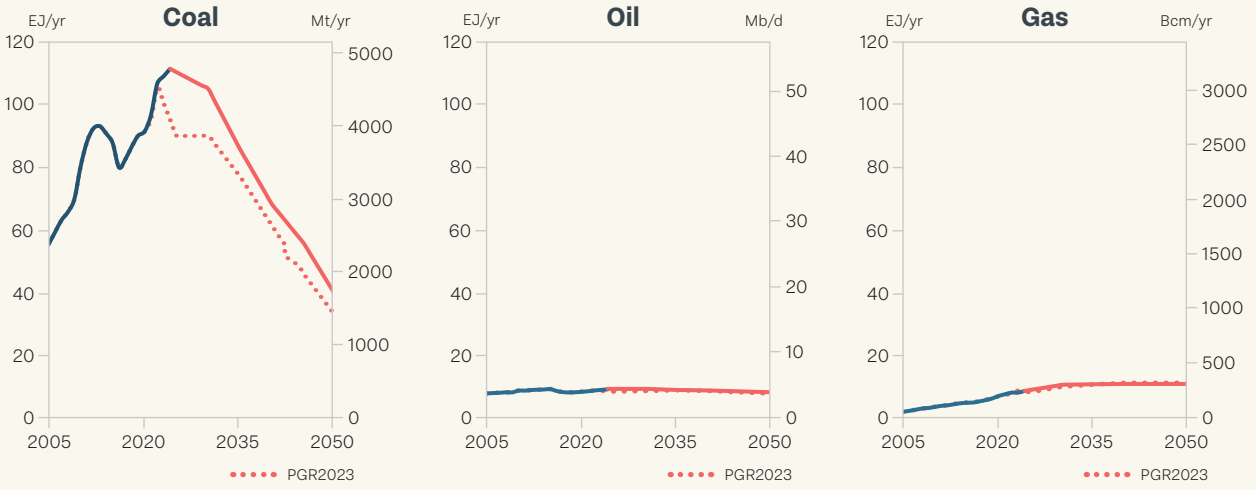
- The Chinese government continues to invest heavily in oil and gas exploration, spending nearly CNY 93.75 billion (USD 13.3 billion) in 2023, the highest amount in over a decade (Ministry of Natural Resources, 2024).
- While projections show declining coal production after 2030, around 1350 Mt/yr of coal-mining capacity is under development, of which 447 Mt/yr is currently being constructed and 189 Mt/yr has received government approval to begin construction (Mei et al., 2025).

Other developments

Special climate envoy Xie Zhenhua, who represented China at COP28, said that "it is unrealistic to completely phase out fossil fuel energy" (Stanway, 2023). CNPC sees the oil and gas industry as providing "stability in change" for meeting energy security and development goals alongside a green energy transition (CNPC ETRI, 2025b; Zheng, 2025).

Figure 3.2

Historical (2005–2024) and projected coal, oil, and gas production for China. Sources: Projections are from the baseline scenario in CNPC's 2025 Energy Statistical Review (CNPC ETRI, 2025a). Historical data are from China's National Bureau of Statistics (2024).



United States

Updated climate ambitions

The previous US government submitted an updated NDC in December 2024, committing to reduce net GHG emissions by 61–66% below 2005 levels by 2035 (US Government, 2024). In January 2025, however, the new US government formally initiated its withdrawal from the Paris Agreement, leaving the status of its NDC in limbo. Additionally, the new US administration revoked Executive Orders 14008 ("Tackling the Climate Crisis at Home and Abroad") and 14057 ("Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability"), both of which included net zero targets (The White House, 2025a).

Policy updates

- Since January 2025, the new US government has announced multiple rollbacks of domestic policies and regulations that address climate change, including rules that limit CO_2 emissions from power plants and GHG emissions standards for light- and heavy-duty vehicles. The US Environmental Protection Agency (EPA) also proposes to challenge its legal obligation under a 2009 Supreme Court ruling, the "Endangerment Finding", to regulate GHG emissions (US EPA, 2025b).
- The government has also announced its intention to boost coal-fired power production by delaying planned plant closures and reconsidering multiple environmental regulations that affect coal operations (US EIA, 2025c). So far, at least three coal plants will continue operating past their planned retirement date. Additionally, the One Big Beautiful Bill Act passed in July 2025 provides new subsidies for metallurgical coal production (One Big Beautiful Bill Act, 2025).
- The US EPA extended compliance deadlines for existing oil and gas facilities to meet new limits on emissions of methane and volatile organic compounds (US EPA, 2025a).

Updates to fossil fuel production plans and projections

As Tables 3.2 and 3.3 indicate, the US is the world's largest producer of both oil and gas. The US Energy Information Administration (EIA) (2025a) forecasts a rise in oil production to 21.3 Mb/d in 2029 with a gradual decline by 2050 (Figure 3.3). Gas production is projected to grow by 13% between 2025 and 2032 and stabilize around 1200 Bcm/yr. The US EIA projects a decline in coal production to 133 Mt/yr by 2050. This is significantly less than the 244 Mt/yr projected in 2050 in the US EIA's previous forecast. These forecasts, however, do not reflect recent government executive orders and policy announcements designed to spur even greater production.

Updates on government support for domestic fossil fuel production

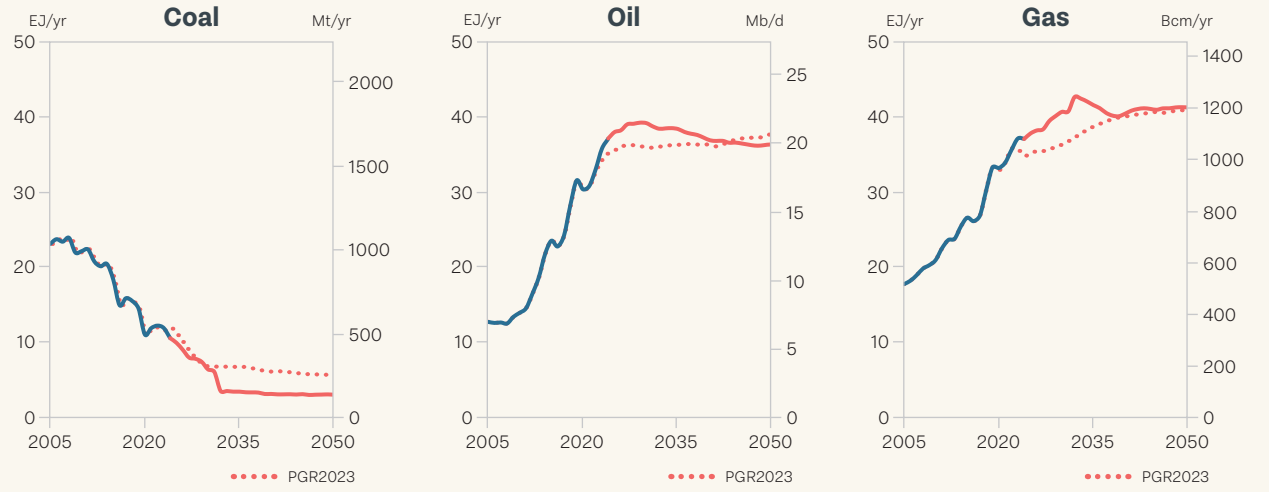
- In January 2025, the new US government declared a national energy emergency (The White House, 2025c) and issued Executive Order 14154 ("Unleashing American Energy") to encourage oil and gas leasing on federal lands and in offshore waters, streamline permitting of domestic energy resources, and lift a pause on reviewing LNG export project applications to countries without a free trade agreement with the US (The White House, 2025e).
- The related Executive Order 14153 seeks to expand fossil fuel development in Alaska, especially LNG production (The White House, 2025d), reversing the previous US administration's initiative to restrict future oil and gas leasing in this state (The White House, 2023; US DOI, 2023).
- In February 2025, the US Congress voted to repeal a fee imposed on oil and gas producers that exceed targeted levels of methane emissions (H.J.Res.35, 2025).

Other developments

- Internationally, the US government announced that it would withdraw its support for JETP initiatives in South Africa, Indonesia, and Viet Nam (The White House, 2025b). Additionally, the government appears to have abandoned its pledge to halt direct public financing of overseas fossil fuel projects (EXIM, 2025).
- The US State Department has closed its office that represented the US in international climate negotiations (Volcovici & Gardner, 2025).

Figure 3.3

Historical (2005–2024) and projected coal, oil, and gas production for the US. Sources: Projections are from the reference scenario in the US EIA's Annual Energy Outlook 2025 (2025a). Historical data are from the US EIA's Monthly Energy Review (2025b).



Russian Federation

Updated climate ambitions

As of August 2025, the Russian Federation has not submitted its 2035 NDC. However, in August 2025, the government announced its ambition to reduce GHG emissions by 65–67% relative to 1990 levels by 2035 (President of the Russian Federation, 2025). This is an increase in ambition from the country's current NDC from 2022 that targets net reductions in GHG emissions to 30% below 1990 levels by 2030 (Government of the Russian Federation, 2022).

Policy updates

The Russian Federation's latest Climate Doctrine (2023) reiterates the country's goal of achieving net zero emissions by 2060 (Government of the Russian Federation, 2023a). This latest Climate Doctrine removes all references to fossil fuels from the previous 2009 version, including the statement that emissions are "primarily associated" with fossil fuels. Prior to COP28, the Russian government declared its opposition to a fossil fuel phase-out (Government of the Russian Federation, 2023b).

Updates to fossil fuel production plans and projections

- The Russian Federation was ranked the world's third largest oil producer and second largest gas producer in 2022 (see Tables 3.2 and 3.3). As Figure 3.4 shows, the "Target" scenario in the government's latest Energy Strategy shows lower near-term production for all fossil fuels compared to the prior forecast (Government of the Russian Federation, 2025). Production then rebounds to previously projected levels after 2035. Between 2024 and 2030, the scenario projects 20% growth in coal pro- duction, 5% growth in oil production, and 25% growth in gas production.
- The projected growth in coal production under the "Target" scenario is in line with the government's plans to boost supplies to Asian markets, following completion of the port of Elga and its connection to the Elga coal deposit via the Pacific Railway (Pisarev, 2025).
- The Energy Strategy outlines several other scenarios, from a "Stress" scenario with lower production due to ongoing sanctions and accelerated global decarbonization, to a "Technological potential" scenario with maximum output.

Updates on government support for domestic fossil fuel production

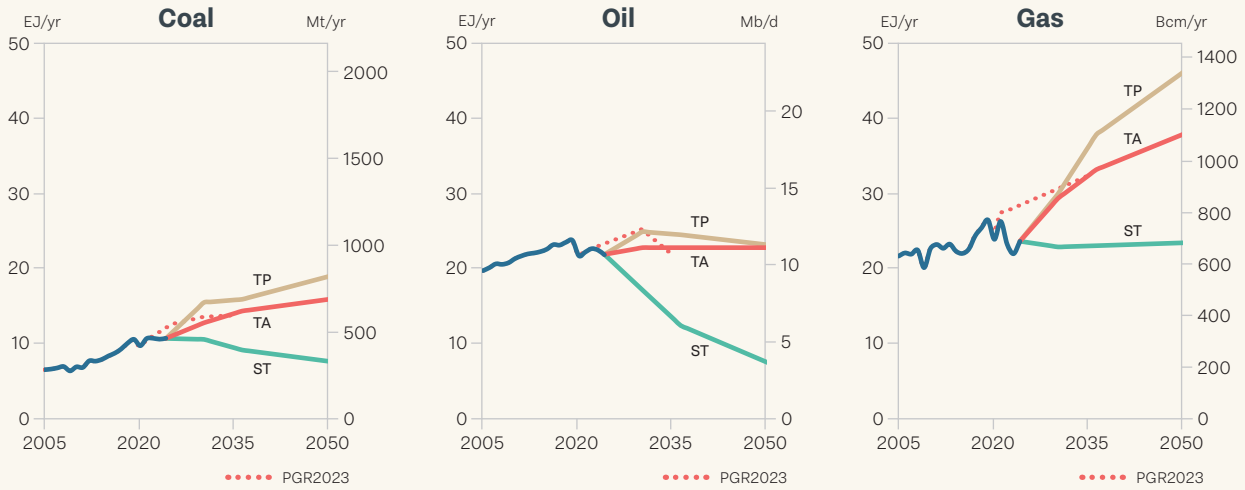
- The Russian Federation's oil and gas industry reportedly received tax breaks worth RUB 1.7 trillion (USD 19.9 billion) in 2023 (Salova, 2025). The government also invests RUB 11–12 billion (USD 119–129 billion) annually in oil and gas exploration, in addition to investments through state-owned enterprises (Press Service of the Ministry of Natural Resources of Russia, 2025).
- As traditional oil fields decline, the Russian government is encouraging companies to develop new reserves through enhanced recovery from mature fields, exploit "hard-to-recover" reserves, and pursue Arctic exploration, all with the aim of serving Asia-Pacific demand (Novak, 2025b). Starting in 2024, the government provided tax incentives specifically for "hard-to-recover" fields — representing about 25% of the country's recoverable oil resources (Dou et al., 2024; Federal Law of 31.07.2023 No. 389-FZ, 2023). The government expects this measure to boost annual oil production by 50 million tonnes by 2035 (Novak, 2024).
- In 2023, the government increased the mineral extraction tax that Gazprom, a majority state-owned energy company, pays on its gas production by RUB 550 billion (USD 6.4 billion) per year. This tax was removed from 2025 onwards due to Gazprom's ongoing losses and greatly reduced investment in new fields (Federal Law of 30.11.2024 No. 419-FZ, 2024).

Other developments

No other developments identified.

Figure 3.4

Historical (2005–2024) and projected coal, oil, and gas production for Russia. Sources: Projections are from Russia's Energy Strategy (Government of the Russian Federation, 2025). To illustrate the range of projections, we show only high, low, and target scenarios here: "Stress" scenario, ST, "Technological potential" scenario, TP, and "Target" scenario, TA; two additional medium production scenarios from the Energy Strategy are omitted: an "Accelerated energy transition" scenario and an "Inertial" scenario. Historical data sources include the IEA (2025b) for 2005–2019, Russia's Energy Strategy for 2020–2023 (Government of the Russian Federation, 2025), and 2024 data reported by the Deputy Chairman of the Government (Novak, 2025a).



Indonesia

Updated climate ambitions

As of August 2025, Indonesia has not yet submitted its 2035 NDC. Its current NDC, last updated in 2022, aims to reduce emissions to 32% below a stated business-as-usual trajectory in 2030, or to 43% below with international assistance (Government of Indonesia, 2022).

Policy updates

- The President of Indonesia, elected in 2024, emphasized the country's need for energy "self-sufficiency", amid global tensions and political conflict, by developing domestic energy resources including coal, geothermal energy, large-scale hydropower, and biofuels (Ministry of State Secretariat, 2024).
- The Indonesian Parliament approved a revision to the country's National Energy Policy in February 2025. A draft of the policy shows continued support for the exploration and development of coal, oil, and gas, citing the need to meet domestic energy demand, provide energy security, and generate export revenues for the Energy Security and Decarbonization Fund, which finances actions to achieve net zero emissions by 2060 (MEMR, 2024b). The updated policy awaits presidential signature and has yet to be enacted (MEMR, 2025b).

Updates to fossil fuel production plans and projections

- Since PGR2023, there has been no official update to coal production projections, therefore we use projections from Indonesia's Energy Outlook 2021 (PPIPE & BPPT, 2021) again. As Figure 3.5 indicates, Indonesia's coal production reached 836 Mt in 2024, the highest level in a decade and 17% above the government's 2024 production target (MEMR, 2025c), with the country overtaking India as the world's second largest coal producer. Of this total, 555 Mt was exported, making Indonesia the world's largest coal exporter, representing 30–35% of globally traded coal supply (MEMR, 2025c).
- Oil and gas production has gradually decreased over the last decade. Oil production declined 30% from its peak of 0.83 Mb/d in 2016 to 0.58 Mb/d in 2024 (MEMR, 2024a, 2025c). Gas production declined by 37% between 2014 and 2024, from 8.7 Bcf/d (90 Bcm/yr) to 5.5 Bcf/d (57 Bcm/yr). In 2024, however, the government announced new production targets of 1 Mb/d for oil and 12 Bcf/d for gas by 2030 (MEMR, 2024c) — a significant increase over the business-as-usual scenario in Indonesia's Energy Outlook 2021 (PPIPE & BPPT, 2021).

Updates on government support for domestic fossil fuel production

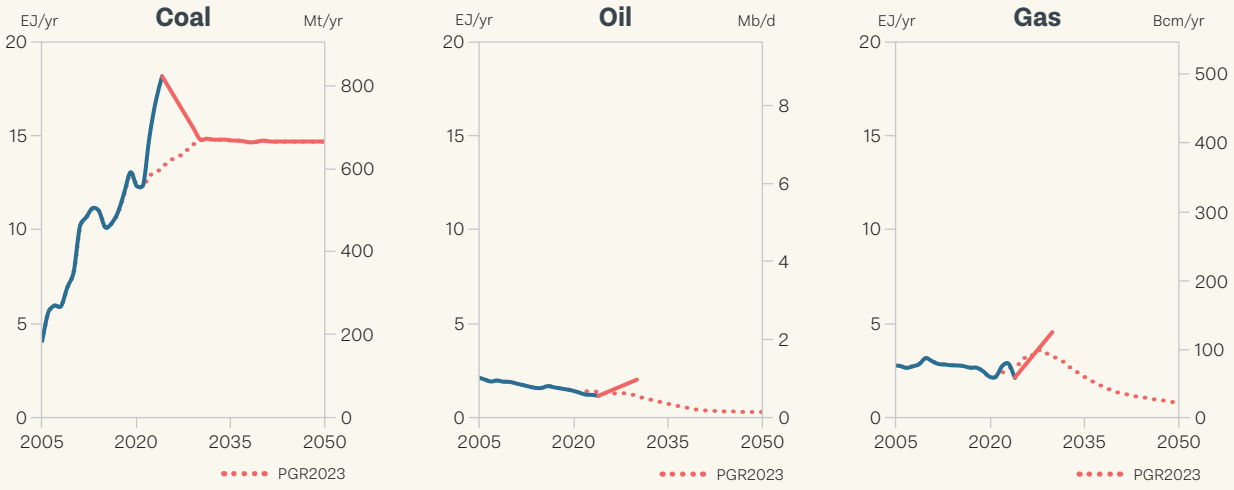
The Ministry of Energy and Mineral Resources (MEMR) announced plans to invest IDR 180 trillion (USD 11 billion) in a previously suspended coal gasification project in South Sumatra using the government's newly established sovereign wealth fund, Danantara (Setiawan, 2025).

Other developments

- Although fossil fuels currently generate 87% of Indonesia's electricity (MEMR, 2024a), in July 2025, the President asserted that the country could achieve 100% of its electricity production from renewable energy by 2035 — five years ahead of its 2040 target (Government of Indonesia, 2025). However, this timeline is significantly more aggressive than existing commitments and planning documents. Even more conservatively, Indonesia's latest 10-year electricity supply plan projects just 21% of renewable energy in power generation by 2030 and net zero power sector emissions by 2059 (MEMR, 2025a).
- While the US's withdrawal from chairing Indonesia's JETP temporarily created institutional uncertainty, Germany has now agreed to co-lead the Indonesian JETP with Japan (Chime, 2025; Embassy of the Federal Republic of Germany Jakarta, 2025).

Figure 3.5

Historical (2005–2024) and projected coal, oil, and gas production for Indonesia. Sources: Coal projections from 2030 onwards are from the business-as-usual scenario of Indonesia Energy Outlook 2021, published by the government's Research Center for Industrial Processing and Energy and Agency for the Assessment and Application of Technology (PPIPE & BPPT, 2021). Coal projections are imputed for 2025–2030 due to recent production increases that are significantly higher than projections in Indonesia Energy Outlook 2021. 2030 oil and gas projections are based on targets announced by MEMR (2024c). Historical data are from MEMR (2014, 2024a, 2025c).



Saudi Arabia

Updated climate ambitions

- As of August 2025, Saudi Arabia has not submitted its 2035 NDC. Saudi Arabia's current NDC from 2021 aims to reduce, avoid, and remove GHG emissions of 278 $MtCO_2eq/yr$ by 2030 relative to an unspecified "dynamic" baseline (Kingdom of Saudi Arabia, 2021).
- Saudi Arabia announced a 2060 net zero target in 2021, although it has yet to enshrine this in law or policy (Saudi & Middle East Green Initiatives, 2021).

Policy updates

No policy updates identified.

Updates to fossil fuel production plans and projections

- As Table 3.2 shows, Saudi Arabia is the world's largest oil exporter and second largest oil producer. The country has sustained this position despite temporary production cuts during and following the COVID-19 pandemic (HCOB, 2024; OPEC, 2025a).
- Saudi Aramco, a state-owned company, has not announced updated oil production targets since 2021. Saudi Aramco's 2021 Base Prospectus (Saudi Aramco, 2021) provides the long-term liquids (including crude oil and natural gas liquids, NGLs) production targets shown in Figure 3.6, which PGR2023 assessment also used. Actual production and a recently announced near-term capacity goal of 12.3 Mb/d for 2027 (Saba & Dahan, 2024) fall below what the company forecast in its 2021 Base Prospectus.
- Saudi Aramco's 2024 Annual Report provides a target to increase gas production capacity by 60% from 2021 to 2030 (Saudi Aramco, 2025). As Figure 3.6 shows, this new target deviates from the 2021 Base Prospectus forecast for gas used in the 2023 PGR assessment. The growth will largely come from the Jafurah unconventional gas field, which the company expects to reach a production rate of 20 Bcm/yr (2.0 Bcf/d) by 2030 (Saudi Aramco, 2025).

Updates on government support for domestic fossil fuel production

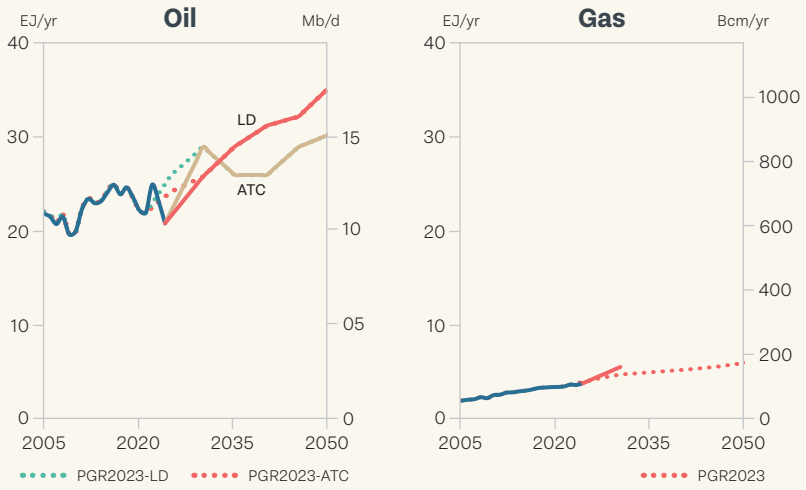
Saudi Aramco continues to implement a large capital investment programme to meet its oil and gas production capacity targets, spending SAR 189 billion (USD 50.4 billion) in 2024, an increase of 19.3% from the preceding year (Saudi Aramco, 2025). In addition to the Jafurah development, projects in Marjan, Berri, and Damman fields will add oil production capacity (including built-in spare capacity) of 300, 250, and 75 kilobarrels a day respectively by 2027 (Saudi Aramco, 2025).

Other developments

- Saudi Arabia has maintained its Vision 2030 targets, which do not include specific production targets for oil and gas, but rather express intentions to strengthen domestic supply chains (e.g. construction materials, equipment, and skilled labour) in the oil and gas industry and increase non-oil gross domestic product (GDP) and non-oil exports (Kingdom of Saudi Arabia, 2016, 2024).
- Saudi Arabia launched a Greenhouse Gas Crediting and Offsetting Mechanism (GCOM) in 2024 to drive progress towards achieving net zero emissions (CDM DNA, 2023). The GCOM is part of the Saudi Green Initiative, established in 2021 to pursue the country's climate goals through implementation of the Saudi Arabia Circular Carbon Economy programme and framework (Saudi & Middle East Green Initiatives, 2024).

Figure 3.6

Historical (2005–2024) and projected oil and gas production for Saudi Arabia, which does not produce coal. Sources: Oil projections are from Saudi Aramco's Base Prospectus 2021 (Saudi Aramco, 2021); two scenarios — "Levelling of demand" (LD) and "Accelerated transition case" (ATC) — are provided. Gas projections are estimated from Saudi Aramco's 2024 Annual Report (Saudi Aramco, 2025), which provides a target for gas production capacity in 2030: we assume gas production scales at the same rate as production capacity. Historical data for 2005–2023 are from the IEA (2023, 2024b) and for 2024 from Saudi Aramco's Annual Report (2025).



India

Updated climate ambitions

- As of August 2025, India has not submitted its 2035 NDC. India's most recent NDC, submitted in August 2022, commits to reducing the "emissions intensity of its GDP" by 45% below 2005 levels by 2030 and increasing non-fossil-fuel power capacity to 50% by 2030 (Government of India, 2022).
- In July 2025, India reached its target of having 50% of its installed electricity capacity from non-fossil-fuel sources, five years ahead of schedule (Press Information Bureau, 2025b).

Policy updates

In 2023, India launched a National Electricity Plan to guide power sector planning to 2032. In addition to significant renewable energy expansion, the plan includes 50 GW of coal plant capacity additions between 2022 and 2032, with 97% of expected coal power plant demand to be met using domestic coal supplies (Central Electricity Authority, 2023).

Updates to fossil fuel production plans and projections

- India is the world's third largest coal producer, as Table 3.1 shows. The Ministry of Coal projects coal demand in India to rise from 998 Mt/yr in 2024 to 1462 Mt/yr by 2030 (a 46% increase) and 1755 Mt/yr by 2047 (a 76% increase from 2024) (Ministry of Coal, 2025d). To meet this demand, the Ministry of Coal has set a short-term hard coal (anthracite) production target of 1533 Mt/yr in 2029 (Ministry of Coal, 2025e). As Figure 3.7 shows, this is only a slight increase from projections used in PGR2023.
- As in PGR2023, government projections are not available for oil and gas production.

Updates on government support for domestic fossil fuel production

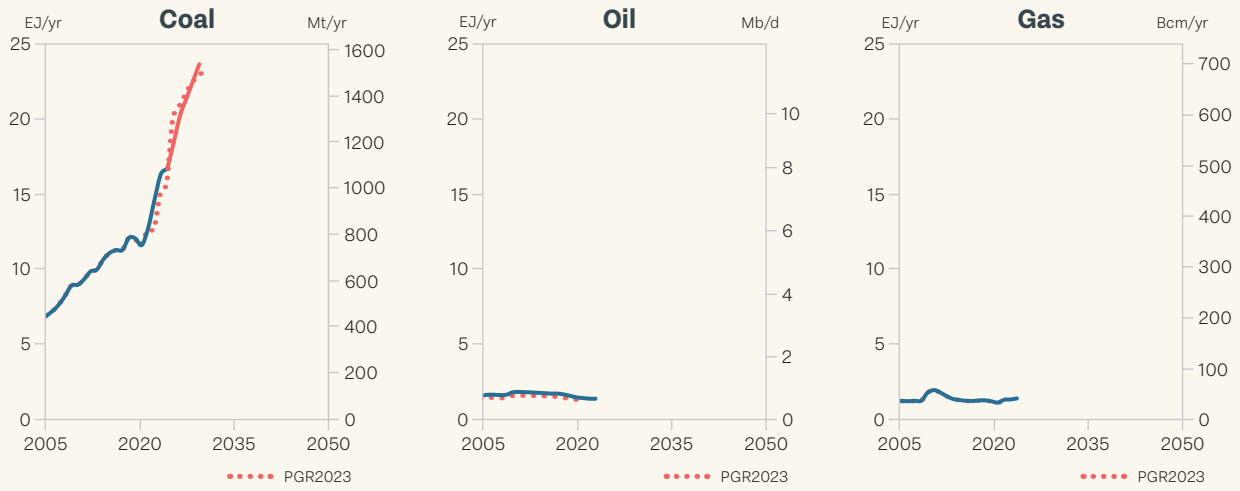
- Coal mining continues to grow, with the Ministry of Coal assigning 57 coal blocks over the last decade for companies to mine coal for captive use (specific end uses only), and auctioning another 132 mines for either captive or non-captive use (Ministry of Coal, 2025b, 2025a). The government introduced commercial coal mine auctions in 2020 to address growing coal demand, under which successful bidders must commit to sharing profits with the government (Ministry of Coal, 2025b).
- The government approved a scheme in January 2024 to achieve 100 Mt of coal gasification by 2030, citing "energy security reasons and a move towards promoting cleaner and more efficient energy use" (Press Information Bureau, 2025a).
- The Indian government is actively promoting and investing in expanding oil and gas and securing long-term LNG imports. In 2023, India allocated INR 726 billion (USD 8.8 billion) as producer subsidies to the oil and gas sector through direct budgetary transfers to state-owned oil marketing companies (Raizada et al., 2024).
- In 2025, the Ministry of Petroleum and Natural Gas reported a 19% increase in oil refining capacity and a 16% expansion in oil exploration acreage, citing its overdependence on oil imports (PRS Legislative Research, 2025).

Other developments

- In 2025, the government announced LNG deals with the US, including plans to scrap import taxes on US LNG and to increase the share of gas in India's energy mix from 6.2% in 2025 to 15% in 2030 (Verma & NR, 2025).
- In 2024, negotiations on a JETP for India, focused on phasing out coal production, were discontinued. Officials pointed to challenges with implementing transition measures in highly coal-dependent areas of the country as reasons for the discontinuation (Wettengel & Srivastava, 2024).

Figure 3.7

Historical (2005–2023/24) and projected coal, oil, and gas production for India. Sources: Hard coal projections for 2025–2029 are from India's Ministry of Coal (2025e); lignite production projections are unavailable, as are oil and gas projections. Historical data up to 2023 are from the IEA (2024c); historical coal production includes lignite. Hard coal production data for 2024 are from the Ministry of Coal (2025c). Lignite production is estimated for 2024 based on an extrapolation of historical lignite production data from the Ministry of Statistics and Program Implementation (2018).



Australia

Updated climate ambitions

As of August 2025, Australia has not yet submitted its 2035 NDC. Australia's current NDC pledges to reduce net GHG emissions by 43% below 2005 levels by 2030 (DISER, 2022). The government reports that the country is on track to achieve this target (DCCEEW, 2024a). Australia's long-term emission reduction strategy remains unchanged since 2021 (DISER, 2021) and a Net Zero Plan is currently under development (DCCEEW, 2025)

Policy updates

The federal government released its Future Gas Strategy in May 2024. This outlines the government's commitment to develop new fossil gas supply and to continue LNG exports as a "reliable and trusted trade and investment partner" to 2050 and beyond (DISR, 2024a). The strategy promotes "timely" development of existing gas resources and scaling up carbon capture and storage (CCS), including transboundary CCS for regional partners.

Updates to fossil fuel production plans and projections

- As Figure 3.8 shows, the latest projections for coal, oil, and gas production fall below those in the 2023 PGR analysis, and the coal projection drops significantly after 2030 (DCCEEW, 2024c; DISR, 2025).
- In 2023, Australia ranked as the world's second largest exporter of coal (see Table 3.1) and third largest exporter of LNG (Energy Institute, 2024). The government projects that LNG production will stay at current levels until 2035, before declining 20% by 2040 (DCCEEW, 2024c; DISR, 2025).
- Run-of-mine (raw) coal production is expected to fall 30% over the next decade, driven by declining thermal coal production (DCCEEW, 2024c). Figure 3.8 shows saleable coal production, which averages 80% of run-of-mine coal production.

Updates on government support for domestic fossil fuel production

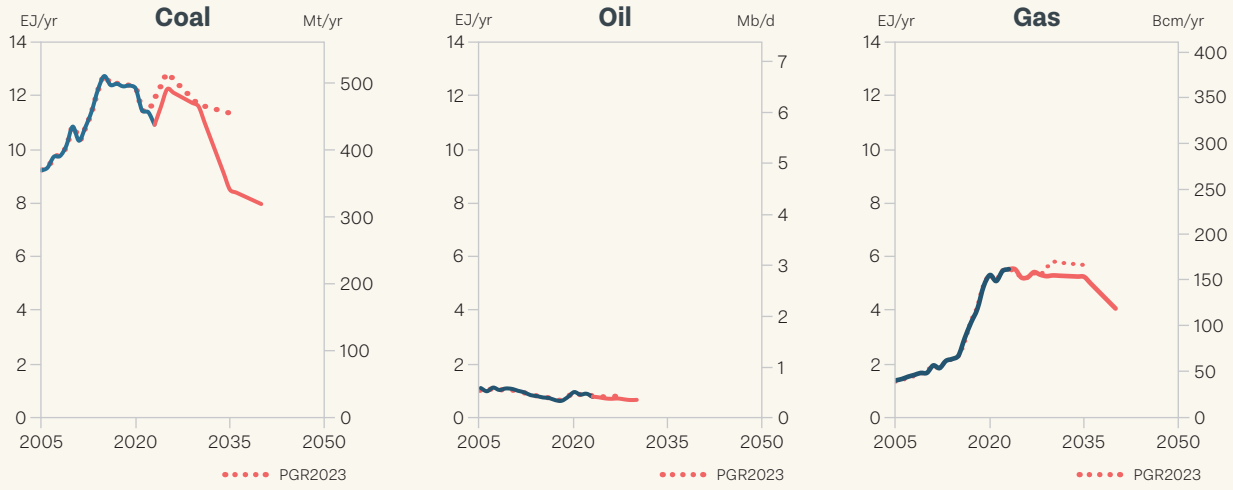
- The federal government approved 12 coal mine projects between May 2022 and May 2025, including 7 in the second half of 2024 (ERI, 2025). One of these, the Vulcan South Mine, is a new operation (Slezak, 2024). The other approved projects are expansions of existing coal mines, which will allow continued operation for several decades (Roe & Lowrey, 2024). In the same period, the federal government also approved six new oil and gas producing projects (ERI, 2025).
- The government's list of major resource projects identifies 40 coal projects and 30 oil and gas projects in the development pipeline, in addition to projects the government has already approved (DISR, 2024b). This includes projects that companies have publicly announced or are undergoing advanced feasibility assessment.
- In May 2025, the government approved the North West Shelf gas development, which extends the life of one of the world's biggest LNG projects from 2030 to 2070 (Morton, 2025; Watt, 2025).

Other developments

In 2024, the Australian federal Resources Minister noted that "we will need to keep producing more gas in Australia to ensure a stable and orderly energy transition" (King, 2024).

Figure 3.8

Historical (2005–2023/24) and projected coal, oil, and gas production for Australia. Sources: Oil and gas projections for 2025–2030 are from Resources and Energy Quarterly, March 2025 (DISR, 2025); 2035 and 2040 gas projections are estimated from LNG production projections in Australia's emissions projections 2024 (DCCEEW, 2024c), which is also the source of the 2025–2040 coal projections. Historical coal data to 2023 are from Australian Energy Update 2024 (DCCEEW, 2024b). Historical oil data (including crude oil, condensate, and naturally occurring liquefied petroleum gas) and gas data (including methane, ethane, and coal seam gas) to 2024 are from Resources and Energy Quarterly, March 2025 (DISR, 2025).



Canada

Updated climate ambitions

In February 2025, Canada submitted its 2035 NDC, targeting a reduction of GHG emissions by 45–50% below 2005 levels by 2035 (Government of Canada, 2025a). The previous NDC pledged to reduce GHG emissions by 40–45% below 2005 levels by 2030.

Policy updates

- The Canadian government enacted methane regulations in 2016 requiring the upstream oil and gas sector to reduce methane emissions by 40–45% below 2012 levels by 2025. In 2023, the government proposed updating these regulations to a 75% reduction below 2012 levels by 2030 (Environment and Climate Change Canada, 2023), but it has yet to finalize this change.
- In 2024, the Canadian government proposed an oil and gas sector GHG emissions cap to reduce upstream oil and gas emissions (largely methane and carbon dioxide) by 19–35% below 2019 levels by 2032 (Government of Canada, 2024). The new federal government, elected in 2025, has not clarified whether it will proceed with the proposed scheme (Ballingall, 2025).
- In June 2024, the Canadian government enacted the Canadian Sustainable Jobs Act, to support "sustainable jobs for workers and economic growth in a net-zero economy" (Canadian Sustainable Jobs Act, 2024).

Updates to fossil fuel production plans and projections

Canada is the world's third largest exporter of oil and sixth largest exporter of gas (see Tables 3.2 and 3.3). An updated energy outlook, published by the Canada Energy Regulator (CER), is expected in 2025 (Canada Energy Regulator, 2024a) but was not available for this assessment. Therefore, as Figure 3.9 shows, projections for oil and gas production remain unchanged from the 2023 PGR assessment. In consultations in 2024, the CER continued to explore development of net zero scenarios for oil and gas production (Canada Energy Regulator, 2024a).

Updates on government support for domestic fossil fuel production

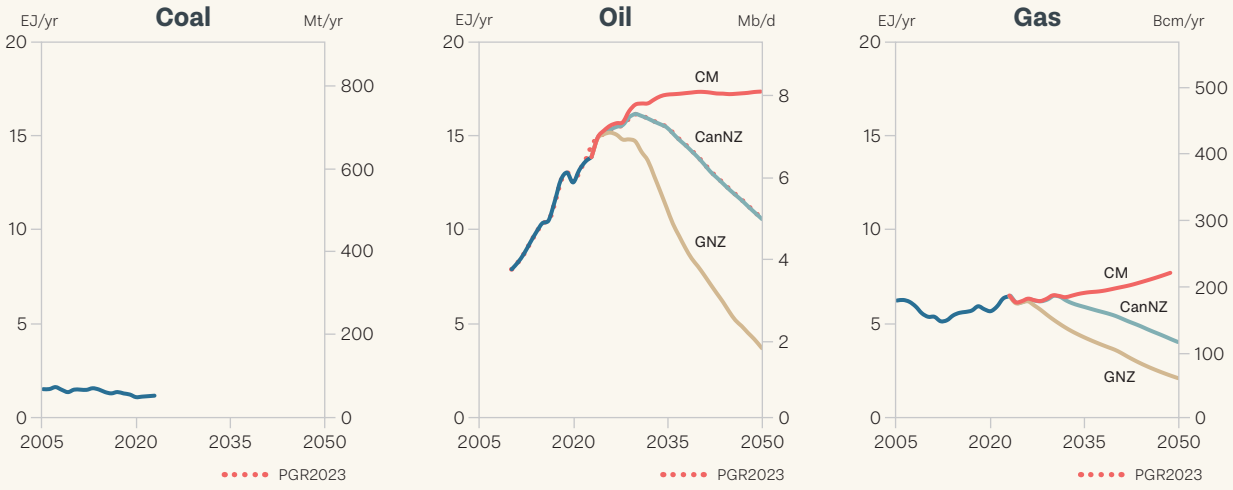
- The Canadian government has maintained commitments to phase out public finance for both domestic and international fossil fuel production (Government of Canada, 2023; Natural Resources Canada, 2022). Substantial amounts of public financing continue to flow to domestic fossil fuel production.
- In 2023, Canadian federal and provincial governments provided approximately CAD 0.95 billion (USD 0.7 billion) in fossil fuel producer subsidies (OECD and IISD, 2025). In the same year and again in 2024, Export Development Canada provided up to CAD 8 billion (USD 6 billion) to Canadian producers to facilitate fossil fuel exports (EDC, 2023, 2024, 2025). Additionally, the Canadian government has invested at least CAD 50.5 billion (USD 37.6 billion) in the Trans Mountain Pipeline Expansion since 2018, as detailed below (EDC, 2025).
- The One Canadian Economy Act (also known as Bill C-5), enacted in June 2025, streamlines regulatory approvals for infrastructure projects (Government of Canada, 2025b). In principle, the Act could be used to fast-track fossil fuel infrastructure projects (Ahmadi, 2025; Harvie et al., 2025).

Other developments

- An expansion of the Trans Mountain Pipeline — which transports crude oil from Edmonton, Alberta, to Vancouver, British Columbia, and refineries in Washington State — began operation in May 2024, nearly tripling the pipeline's capacity to 890 000 barrels a day (Canada Energy Regulator, 2024b).
- Canada's first large-scale LNG export facility, LNG Canada, began operations in July 2025 (LNG Canada, 2025). The facility operates at a capacity of 14 million metric tonnes per annum (mtpa) and has received approval for an additional 14 mtpa. Five other LNG export projects at various stages of development represent an additional 22.3 mtpa of proposed export capacity (Natural Resources Canada, 2025).

Figure 3.9

Historical (2005–2023) and projected coal, oil, and gas production for Canada; coal projections are not available. Sources: Projections and historical data to 2021 for oil and gas production are from the "Current measures" (CM), "Global net-zero" (GNZ), and "Canada net-zero" (CanNZ) scenarios in Canada's Energy Future 2023 report (Canada Energy Regulator, 2023). Historical data for 2022 and 2023 are scaled based on IEA data (2024c).



United Arab Emirates

Updated climate ambitions

■ In November 2024, the United Arab Emirates (UAE) submitted its 2035 NDC, committing to a 47% reduction in emissions by 2035 compared to 2019 levels (Ministry of Climate Change and Environment, 2024b). This commitment is more ambitious than the previous target of a 19% reduction by 2030 announced in 2023 (Ministry of Climate Change and Environment, 2023).

■ UAE's first long-term, low-emissions development strategy (LT-LEDS), submitted to the UNFCCC in January 2024, includes a 2050 net zero target (Ministry of Climate Change and Environment, 2024a).

Policy updates

In August 2024, the UAE government enacted Federal Decree-Law No. 11 on the Reduction of the Effects of Climate Change, which operationalizes the UAE's decarbonization commitments. Effective May 2025, the law requires all government bodies, private companies, and entities operating within the UAE — including oil and gas facilities — to measure, report, and reduce emissions through methods such as energy efficiency and carbon capture, with penalties for non-compliance (Federal Decree-Law No. (11) of 2024 On the Reduction of Climate Change Effects, 2024).

Updates to fossil fuel production plans and projections

■ The UAE, along with several other Organization of the Petroleum Exporting Countries (OPEC) members, implemented a series of voluntary production cuts to stabilize crude oil prices after the COVID-19 pandemic (HCOB, 2024; OPEC, 2025a).

After winning approval for a higher quota from OPEC+ in 2024,[14] the UAE has ramped up its planned production (Holtmeier, 2024). The Abu Dhabi National Oil Company (ADNOC) has now brought forward its 5 Mb/d crude oil capacity target from 2030 to 2027 (ADNOC, 2024b; Energynews, 2024; Kumar, 2024). As Figure 3.10 illustrates, production since 2023 has exceeded prior forecasts, and planned production to 2030 is now higher than the 2023 PGR projected.

■ From 2025 to 2029, ADNOC projects a compound annual growth rate of domestic gas production of 4–5%, and 12–14% for LNG (ADNOC Gas, 2024). ADNOC has continued with efforts to expand LNG production capacity to 15.6 Mt per year by 2028. As Figure 3.10 shows, gas production is projected to be 6% higher in 2030 than in the 2023 PGR assessment.

Updates on government support for domestic fossil fuel production

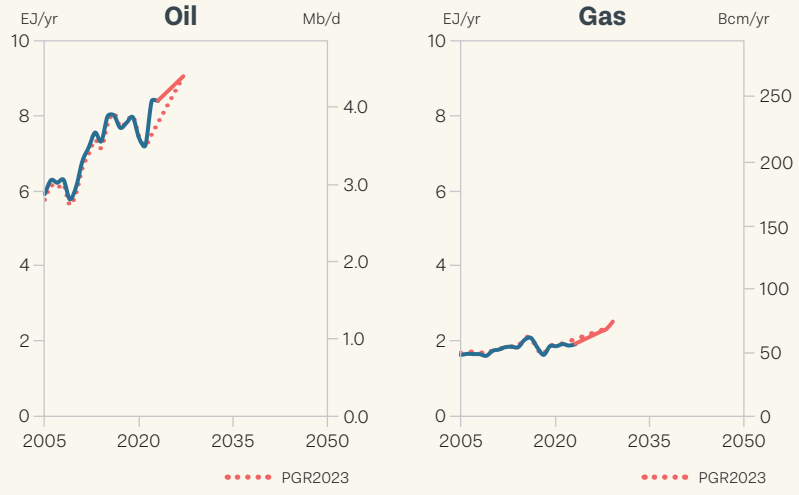
ADNOC has a five-year AED 551 billion (USD 150 billion) capital expenditure plan to increase crude oil capacity (ITA, 2025).

Other developments

In December 2024, ADNOC launched XRG, an international investment arm valued at over AED 294 billion (USD 80 billion) (ADNOC, 2024a). XRG focuses on energy investments, including gas, chemicals, and carbon capture, and plans to make significant investments in the US gas sector (ADNOC, 2024a; Webb, 2025).

Figure 3.10

Historical (2005–2023) and projected oil and gas production for the UAE, which does not produce coal. Sources: 2027 oil production is estimated by assuming it will scale with the target increase in oil production capacity reported by ADNOC (2024b). 2029 gas production is estimated from the target increase in LNG production (ADNOC Gas, 2024). Historical data are from the IEA (2023) for 2005–2021 and from OAPEC (2024) for 2022–2023.



[14] OPEC+ includes the 13 OPEC member countries and 11 other oil-producing nations.

Qatar

Updated climate ambitions

As of August 2025, Qatar has not yet submitted its 2035 NDC. Qatar's NDC from 2021 seeks an emission reduction of 25% by 2030 relative to a business-as-usual baseline (Ministry of Municipality and Environment, 2021).

Policy updates

In 2024, Qatar released its Third National Development Strategy (2024–2030), which reaffirms the country's NDC commitment (Planning and Statistics Authority, 2025). The strategy outlines Qatar's measures to reduce emissions such as by scaling up advanced carbon capture and monitoring technologies and adopting renewables and low-carbon fuels. The strategy also identifies LNG exports as important for economic growth and global emission reductions.

Updates to fossil fuel production plans and projections

Qatar exports in the form of LNG more than half the gas it produces (Nakhle, 2019). In February 2024, the state-owned oil and gas company, QatarEnergy, announced plans to further increase LNG production capacity to 142 Mt/yr by 2030 from its previous target of 126 Mt/yr by 2027 (Boufarah et al., 2024; Rashad, 2024). As Figure 3.11 illustrates, this increase is largely in line with prior expansion plans. The expansion will increase the country's current LNG production capacity by 85% and could give Qatar an approximately 25% share of the global LNG market (Boufarah et al., 2024; Rashad, 2024). QatarEnergy will own around 40% of all new global LNG capacity coming online by 2029 (QatarEnergy, 2023).

Updates on government support for domestic fossil fuel production

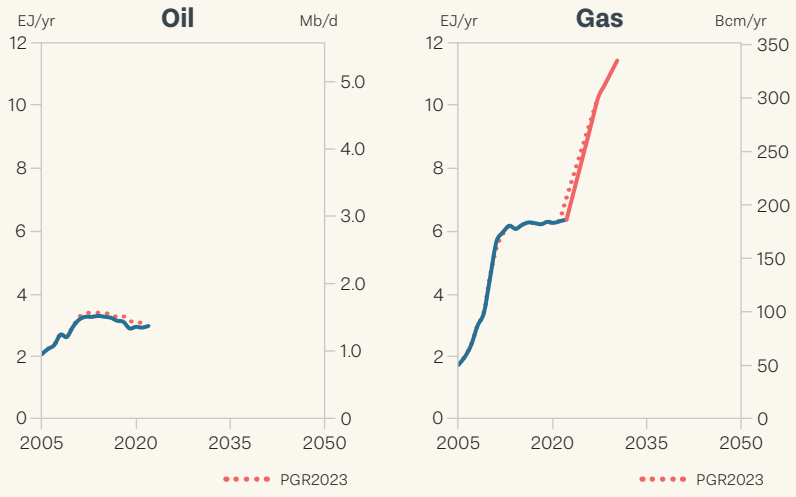
No information is publicly available on tax expenditures or other measures to support fossil fuel production in Qatar.

Other developments

In parallel to the Third National Development Strategy, Qatar's Ministry of Environment and Climate Change (MECC) released its own 2024–2030 strategy, focused on achieving the country's NDC commitments and emphasizing a balance between "meeting immediate needs" and protecting the environment (Government Communications Office, 2024).

Figure 3.11

Historical (2005–2023) and projected oil and gas production for Qatar, which does not produce coal; oil projections are not available. Sources: 2027 gas production is estimated from targeted increase in LNG production capacity (QatarEnergy, 2022). 2030 production is estimated from the target announced in February 2024 (Boufarah et al., 2024; Rashad, 2024). Historical data are from the United Nations Statistics Division (UNSD, 2025).



South Africa

Updated climate ambitions

As of August 2025, South Africa has not submitted a 2035 NDC. South Africa's latest NDC update from 2021 set a 2030 net GHG emissions target of 350–420 $MtCO_2eq$ (Government of South Africa, 2021). South Africa's LT-LEDS notes a net zero emissions target by 2050 (Government of South Africa, 2020). In 2022, the country's net GHG emissions were 435 $MtCO_2eq$ (DFFE, 2025).

Policy updates

- In October 2024, the South African government enacted the Upstream Petroleum Resources Development Act, creating a regulatory framework for the state and for Black South Africans (who were historically excluded from natural resource development) to explore and produce fossil fuel resources (Upstream Petroleum Resources Development Act, 2024). Following passage of this Act, the government officially launched the state-owned South African National Petroleum Company (SANPC) to manage the country's oil and gas resources (SANPC, 2024; South African Government News Agency, 2025).
- South Africa enacted the Climate Change Act in June 2024, which requires sectoral emission targets to meet South Africa's NDC (Climate Change Act, 2024). The Act notes decommissioning coal power plants as an essential measure for achieving the sectoral target for the power sector.
- Nevertheless, a draft Integrated Resource Plan for the power sector incorporates the decision of Eskom (South Africa's state-owned public electricity utility) to extend the lifetime of its oldest coal power plants up to 2030, citing energy security reasons (Department of Mineral Resources and Energy, 2023). Plants that were due to shut down by 2027 are now expected to run until at least 2030 (IEA, 2024a).

Updates to fossil fuel production plans and projections

- As Figure 3.12 indicates, the government continues to lack national projections or targets for coal and oil production.
- In April 2024, the government published a draft Gas Utilisation Master Plan that outlines how South Africa will address reduced gas supply from Mozambique due to declining reserves in the Pande and Temane gas fields. The plan proposes increasing domestic gas production from offshore fields and importing LNG to meet gas demand (Department of Mineral Resources and Energy, 2024).

Updates on government support for domestic fossil fuel production

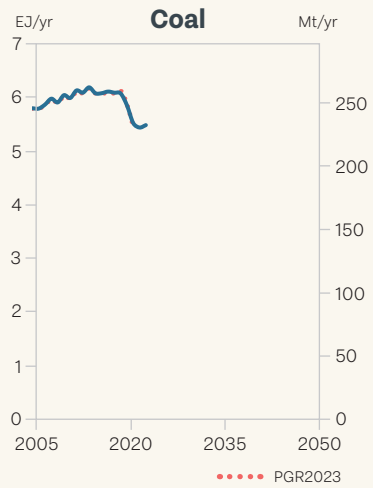
Since 2020, the South African government has provided an average of ZAR 611 million (USD 38 million) annually to fossil fuel producers through tax reductions for oil and gas development and direct budgetary transfers to coal power and coal mine projects (OECD, 2024b). In 2022, the government spent a notably higher amount of ZAR 1.45 billion (USD 90 million), largely on coal projects (OECD, 2024b).

Other developments

The government continues to implement its Just Energy Transition Implementation Plan and accompanying Accelerating Coal Transition Investment Plan (Presidency of the Republic, 2024b). While the US withdrew its support for South Africa's JETP, ZAR 235 billion (USD 12.8 billion) of the original ZAR 253 billion (USD 13.8 billion) in international support remains from the other JETP partners, with ZAR 48 billion (USD 2.6 billion) of this amount spent to date (Directorate-General for Climate Action, 2025a; Sharma & Mills, 2025).

Figure 3.12

Historical (2005–2023) coal production for South Africa, based on data from the IEA (2024c); government projections are not available. Oil and gas production is small (<0.5 EJ/yr) and not shown.



Norway

Updated climate ambitions

In April 2025, Norway published a new climate strategy white paper, and it submitted its 2035 NDC two months later. The NDC includes a revised target for reducing GHG emissions by 70–75% by 2035 compared to 1990 levels (Government of Norway, 2025). This target is higher than in the previous NDC update in 2022, which sought a reduction in emissions of at least 55% by 2030 compared to 1990 levels. The government intends to meet its NDC in cooperation with the European Union (EU) and to rely on international emissions trading for an unspecified amount of the target (MCE, 2024).

Policy updates

- Norway has enshrined the new NDC target in its Climate Act (MCE, 2025, p. 24).
- The government adopted a target in 2020 to cut emissions from oil and gas production by 50% by 2030 relative to 2005 levels. Given current production forecasts, however, the Ministry of Climate and Energy states that achieving this target will be challenging and it is likely to be reached later than scheduled (MCE, 2025).

Updates to fossil fuel production plans and projections

- In 2024, the Norwegian Offshore Directorate (NOD) (formerly the Norwegian Petroleum Directorate) updated its official scenarios for future oil and gas production (NOD, 2024). As Figure 3.13 shows, compared to prior forecasts from 2023, the NOD's revised "Central" scenario (renamed "Base" scenario) shows moderately higher production levels after 2032. Cumulative production in this scenario is now 2% higher than before.
- The NOD continues to project that Norway's oil and gas production will soon begin a steep and steady decline. However, the NOD has noted that official forecasts tend to underestimate resource growth, and that rate of decline depends heavily on possible new discoveries and thus on government policy for exploration (NOD, 2022).

Updates on government support for domestic fossil fuel production

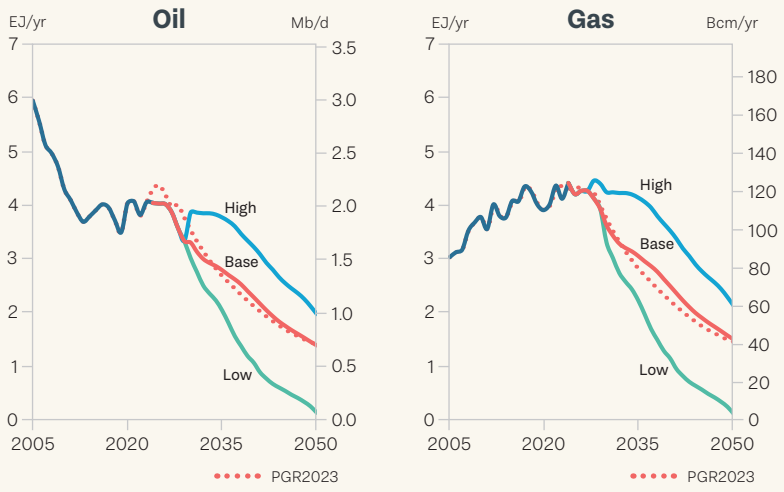
- The Norwegian government continues to make new offshore areas available for oil and gas exploration through annual licensing rounds. In 2025, a record number of licences were made available for application by oil and gas companies, with the largest addition being in the Arctic (Ministry of Energy, 2025b).
- The government also provides tax breaks and budgetary expenditure supporting oil and gas production. In particular, temporary tax breaks that were put in place in response to the COVID-19-related oil price drop in 2020 resulted in tax expenditure (i.e. forgone taxes) of around NOK 9.5 billion (USD 0.9 billion) in 2024 alone (Prop. 1 LS (2024–2025), 2024).

Other developments

- Oil and gas production continues to be legally contested in Norway. In 2025, the Norwegian Supreme Court upheld a temporary injunction against oil field development in the North Sea, based on a failure to assess the environmental impacts of Scope 3 emissions (Supreme Court order HR-2025-677-A, 2025).
- In 2025, minority owners in the state-owned oil company, Equinor, submitted a resolution asking the company to explain "material inconsistencies" between its current production and plans and Norwegian government climate policy (Reuters, 2025b). The resolution was rejected (Equinor, 2025b), with Equinor's board of directors arguing that efforts to increase short-term production, while investing in renewables and clean energy technologies, are compatible with the Paris Agreement (Equinor, 2025a).

Figure 3.13

Historical (2005–2024) and projected oil and gas production for Norway. Coal production is small (<0.5 EJ/yr) and not shown. Sources: Projections for 2025–2029 are from the Norwegian Offshore Directorate (NOD, 2025); 2030–2050 projections are from NOD's 2024 Resource Report (NOD, 2024). The 2030–2050 oil and gas projections are estimated from the source document's reported total, assuming the liquids-to-gas ratio remains constant at average 2022–2029 values. The 2024 Resource Report features updates to the original 2022 scenarios, and includes a "Base", "Low" and "High" scenario, depicted below. Historical data are from NOD (2025).



Brazil

Updated climate ambitions

At COP29 in November 2024, Brazil announced and submitted its 2035 NDC. Under this NDC, Brazil aims to reduce net GHG emissions by 59–67% by 2035 compared to 2005 levels. Brazil had previously set a target of a 53% reduction by 2030 (Government of Brazil, 2024).

Policy updates

- In August 2024, Brazil launched its National Energy Transition Policy (PNTE). This policy aims to coordinate Brazil's transition to "low carbon" energy and a net zero (Presidency of the Republic, 2024c). The PNTE does not specifically mention fossil fuels, but the government is also promoting the Gas for Employment Program, which seeks to integrate gas as a transition fuel into Brazil's energy plans (Ministry of Mines and Energy, 2024).
- Also in August 2024, the President of Brazil issued a resolution directing the National Council for Energy Policy to develop guidelines for decarbonizing upstream oil and gas activities, including by minimizing gas flaring and reducing methane and other pollutant emissions (Presidency of the Republic, 2024a).
- In January 2025, the government signed into law the Energy Transition Acceleration Program (Programa de Aceleração da Transição Energética, PATEN). This programme aims to transform Brazil's energy landscape by promoting sustainability and efficiency in energy use and, among other objectives, to foster energy transition activities in coal-mining regions (Presidency of the Republic, 2025).

Updates to fossil fuel production plans and projections

- Brazil expects oil and gas production to continue growing. Figure 3.14 shows that long-term oil and gas projections remain largely unchanged from the 2023 PGR assessment. Near-term projections reflect the latest 10-year expansion plan of Brazil's Energy Research Company (Empresa de Pesquisa Energética, EPE). Under this plan, the EPE estimates near-term oil production will peak at 5.3 Mb/d in 2030 and decline to 4.4 Mb/d in 2034 — representing an overall 30% increase from 2023 (EPE, 2024a, 2024b). The plan expects net gas production minus reinjection to reach 51 Bcm/yr by 2031, an increase of 118% from 2023 production levels (EPE, 2024b).
- The longer-term National Energy Plan 2050 released in 2020 projects oil and gas production to ramp up again after 2038 and 2040 respectively (MME & EPE, 2020).
- Brazil is actively expanding its offshore oil exploration and production and added significant new reserves in 2023 — mainly from deep and ultra-deep water offshore fields — with the potential for over 12 years of production at current levels (EPE, 2024b).
- The President of Brazil has advocated for exploratory drilling in the Equatorial Margin near the Amazon river mouth, suggesting that potential oil revenues could finance a green energy transition (Frost, 2025).
- New oil and gas production scenarios are planned for release in 2025, which may include scenarios aligned with achieving Brazil's 2050 net zero emissions goal (EPE, 2025b). These scenarios were not available for this assessment

Updates on government support for domestic fossil fuel production

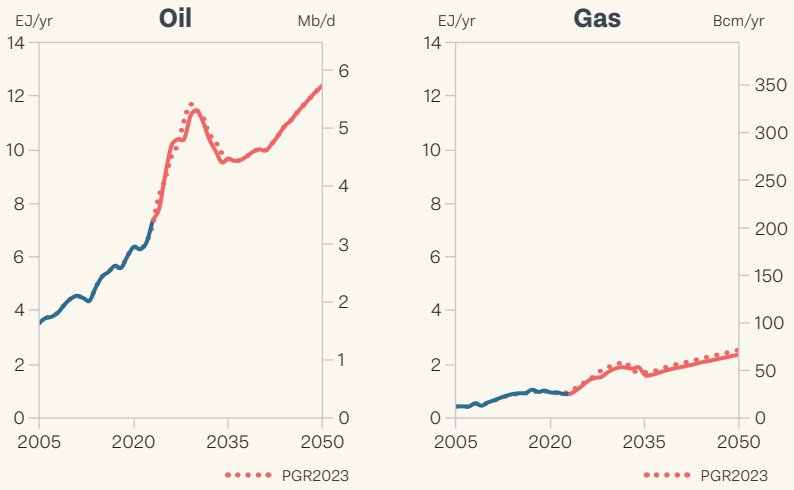
Brazil has introduced regulatory changes in the gas sector aimed at increasing market activity. These include legislative measures to enable the sale of government-owned gas and simplified procedures for pipeline contracting (EPE, 2024b).

Other developments

In February 2025, the government approved joining OPEC, noting the necessity of oil production for economic growth and job creation (Enerdata, 2025; OPEC, 2025b).

Figure 3.14

Historical (2005–2023) and projected oil and gas production for Brazil. Coal production is small (<0.5 EJ/yr) and not shown. Sources: 2024–2034 projections are from the 10-Year Energy Expansion Plan 2034 (MME & EPE, 2024); 2035–2050 projections are from the National Energy Plan 2050 (MME & EPE, 2020). Historical oil data are from the Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP, 2015, 2025) and the National Energy Balance (EPE, 2025a). Historical gas data are from the IEA (2024c). Brazil's gas production (as shown) excludes fractions that are reinjected, used by producers, or flared, expected to be around 55% of total production in 2025–2029 on average (ANP, 2020); we apply this average to subsequent years.



Kazakhstan

Updated climate ambitions

■ As of August 2025, Kazakhstan has not yet submitted a 2035 NDC. Kazakhstan's current NDC from 2023 commits the country to reducing net GHG emissions by 15% (unconditional) and 25% (subject to international investments and technology transfers) by 2030 compared to 1990 levels (MENR, 2023). Kazakhstan's emissions reduced by 8.5% between 1990 and 2022 (MENR, 2025).

■ The government is currently developing a roadmap for implementing its strategy to achieve carbon neutrality by 2060 (Carbon Neutrality Strategy) (Government of Kazakhstan, 2023b; Economic Research Institute, 2025).

Policy updates

■ Kazakhstan amended its Code on Subsoil and Subsoil Use in 2024 to "stimulate the attraction of investment in exploration and further development of depleting fields … as well as save jobs" (Office of the Prime Minister, 2025a). This change is expected to increase oil production at existing fields to 60 Mt/yr by 2045.

■ Kazakhstan's Carbon Neutrality Strategy emphasizes the need to reduce the country's dependence on coal (Government of Kazakhstan, 2023b). The government is also developing a roadmap to retire existing outdated coal-fired power plants (Government of Kazakhstan, 2024).

Updates to fossil fuel production plans and projections

■ As Figure 3.15 shows, the Kazakhstan government intends to continue expanding oil and gas production over the medium term. The aim is to increase oil production by 2030 to 103 Mt/yr (2.1 Mb/d) (17% above 2024 levels), and gas production to 35.2 Bcm/yr (23% above 2024 levels) (Ministry of Energy, 2024a, 2024c; Office of the Prime Minister, 2024).[15] A recently proposed gas development plan in April 2025 noted an interim target of 34.4 Bcm/yr by 2029 (Government of Kazakhstan, 2025).

■ Projections for coal and longer-term projections for oil and gas production in the 2023 National Energy Report — produced by the KAZENERGY Association, which represents Kazakhstan's major oil and gas and energy sector organizations and companies (KAZENERGY Association, 2023) — show no change in coal production but higher oil and gas production compared to the previous projections used in the 2023 PGR assessment.

Updates on government support for domestic fossil fuel production

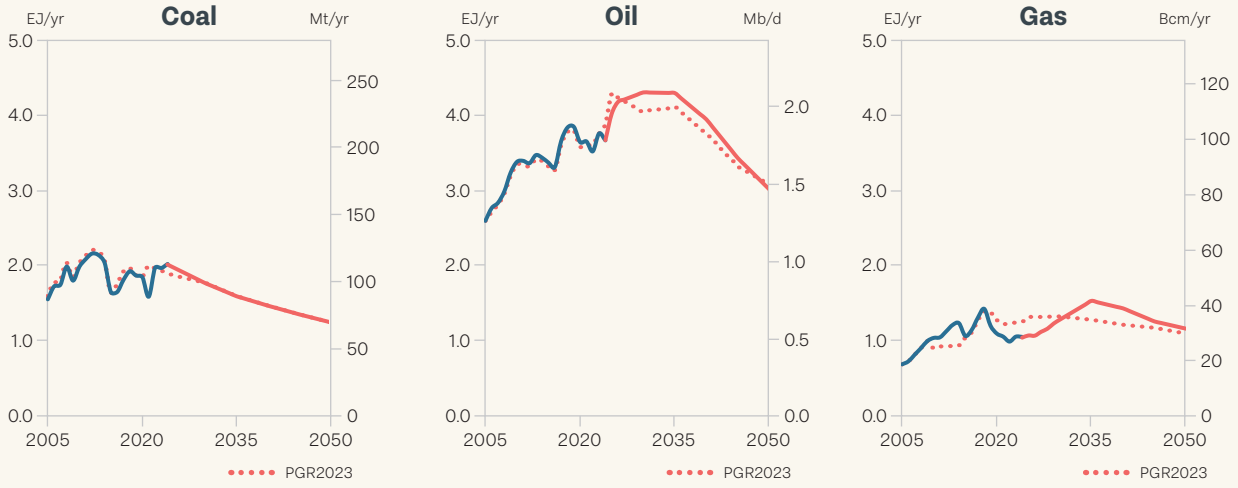
A revised tax code will enter into force on 1 January 2026. Proposed reforms include tax incentives for exploration, a zero mineral extraction tax for up to five years for fields that are currently less economically viable, and reduced tax burdens on mature oil fields. The government expects companies to reinvest tax savings in production and regional development and prohibits their distribution as dividends (Satubaldina, 2025).

Other developments

■ The government views gas as a transitional fuel for decarbonizing the power sector (Government of Kazakhstan, 2023b). In 2023, the government announced plans to build three new coal-fired power plants, intending to convert them to gas power at a later date (Government of Kazakhstan, 2023a).

Figure 3.15

Historical (2005–2024) and projected coal, oil, and gas production for Kazakhstan. Sources: Short-term gas projections are from the Ministry of Energy's Gas Forecast 2024–2030 (2024a); short-term oil projections (2025–2026) from various government sources (Ministry of Energy, 2024b; Office of the Prime Minister, 2025b). All coal projections and remaining oil and gas projections are from the base scenario in the National Energy Report 2023 (KAZENERGY Association, 2023). Projected gas production shown excludes fractions that are reinjected or used by producers, which are expected to account for 50% of gas production. Historical data are from the IEA (2023) for 2005–2021 and the Bureau of National Statistics (2023, 2024, 2025) for 2022–2024, except for gas data for 2024 obtained from Petrocouncil.kz (2025). Deviation from PGR2023 in historical gas production is due to the previous report's use of KAZENERGY's National Energy Report 2021 from 2010 onwards (KAZENERGY Association, 2021).



[15] The gas target excludes reinjected volumes.

Kuwait

Updated climate ambitions

As of August 2025, Kuwait has not submitted a 2035 NDC. Kuwait's current NDC from 2021 aims to reduce GHG emissions to 7.4% below a stated business-as-usual trajectory by 2035 (State of Kuwait, 2021).

Policy updates

Kuwait's 2023 Energy Outlook recommends "sustaining stable investment in the oil and gas sector" while meeting the government's commitment to achieve carbon neutrality in the oil and gas sector by 2050, such as by using carbon capture, utilization, and storage and carbon credits (KISR & KFAS, 2023).

Updates to fossil fuel production plans and projections

- Kuwait joined several OPEC+ countries in applying a series of production cuts during and following the COVID-19 pandemic that are gradually phasing out (HCOB, 2024; OPEC, 2025a). In 2023, Kuwait's crude oil production capacity reached approximately 3.0 Mb/d (Hagagy et al., 2025), while actual production averaged 2.8 Mb/d, as Figure 3.16 illustrates.
- According to its latest strategy, the state-owned Kuwait Petroleum Company (KPC) plans to increase oil production capacity by 40% to 3.2 Mb/d by 2030 and to 4 Mb/d by 2035–2040 (KPC, 2023; Hagagy et al., 2025; Levesque, 2025). As Figure 3.16 shows, the short-term oil projection is lower than that used in the 2023 PGR assessment, while the longer-term one is similar.
- While Kuwait typically relies on onshore reserves, KPC's subsidiary, the Kuwait Oil Company, aims to reach "full production" from newly discovered offshore fields in Al-Julaia and Al-Nokhatha (KISR & KFAS, 2023; Domat, 2025; Hagagy et al., 2025; Izzak, 2025).
- Kuwait recently set a new record in non-associated or "free" gas production.[16] The government aims to increase non-associated gas production to 1.5 Bcf/d (15.3 Bcm/yr) by 2030 and 2 Bcf/d (20.4 Bcm/yr) by 2040 (KPC, 2023; KISR & KFAS, 2023). As Figure 3.16 shows, these targets — combined with estimated increases in associated gas production — represent an overall increase in expected gas production compared to official estimates used in the 2023 PGR assessment.

Updates on government support for domestic fossil fuel production

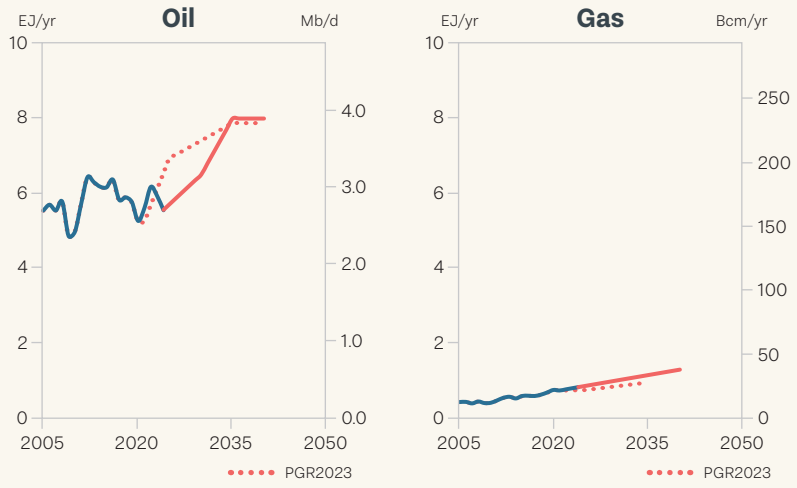
The KPC has announced plans to invest KWD 10 billion (USD 33 billion) to achieve its 2035–2040 targets for oil production capacity (Levesque, 2025).

Other developments

At COP28, Kuwait's Oil Minister rejected calls for a fossil fuel phase-out and advocated instead a focus on operational emission reductions through "new technical and control solutions" (Kuwait News Agency, 2023).

Figure 3.16

Historical (2005–2021/24) and projected oil and gas production for Kuwait, which does not produce coal. Sources: Projected data to 2030 are from the 2023 Kuwait Energy Outlook (KISR & KFAS, 2023) and data from 2030 to 2040 are from the KPC Strategy 2040 (KPC, 2023). These sources provide only crude oil and non-associated gas production capacity targets. For oil projections, we assume that crude oil production scales with the production capacity target and keep NGLs constant at the 2021 value (the latest available IEA data). For the gas projections, we estimate that associated gas production increases in line with the oil production growth rate and that the total gas production rate is similar to gas production capacity. Historical data for 2005–2021 are from the IEA (2023), while 2022–2024 crude oil data are from the OPEC Annual Statistical Bulletin (2024). There are no historical gas data for 2022–2024.



[16] Associated gas is produced alongside crude oil, while non-associated ("free") gas is found in reservoirs with little to no crude oil present. Kuwait has been actively developing non-associated gas fields.

Mexico

Updated climate ambitions

- As of August 2025, Mexico has not yet submitted its 2035 NDC. Mexico's current NDC pledges to reduce GHG emissions by 22–35% unconditionally and 40% conditionally by 2030 relative to its baseline scenario (Government of Mexico, 2022).
- The NDC also targets a 14% emission reduction in the oil and gas sector by 2030, equivalent to 87 $MtCO_2eq$. In 2024, the state-owned oil and gas company Pemex (which produces 97% of Mexico's hydrocarbons) set a more ambitious 30% emission reduction target (Pemex, 2024).
- At COP29 in 2024, Mexico announced a pledge to achieve a net zero economy by 2050 (Dlouhy, 2024).

Policy updates

To address critical financial challenges that Pemex faces, Mexico's Congress approved a package of reforms in 2024 and 2025 granting state-owned energy companies — including Pemex — a new legal status. The reforms defined Pemex's key functions, such as ensuring energy security, environmental responsibility, and promoting clean energy. (IMCO, 2025; Law on the State Public Enterprise, Federal Electricity Commission, 2025; Pemex, 2025c).

Updates to fossil fuel production plans and projections

- Mexico's current government has set a target for Pemex to increase oil production from 1.5 Mb/d to 1.8 Mb/d in the near term to 2035, while also aiming to raise gas output from 3.8 Bcf/d to 5 Bcf/d (39 Bcm/yr to 52 Bcm/yr) (Government of Mexico, 2024; Graham, 2024).[17]
- Updated longer-term projections, included in Mexico's Natural Gas and Crude Oil and Petroleum Oil Prospects 2023–2037, expect oil and gas production to reach 2.4 Mb/d and 4.9 Bcf/d (51 Bcm/yr) by 2030 respectively (SENER, 2024a, 2024b).

As Figure 3.17 shows, while these levels are an increase over current production, they represent a 6% decrease in 2030 oil production and a 15% decrease in 2030 gas production compared to prior projections used in the 2023 PGR assessment.

Updates on government support for domestic fossil fuel production

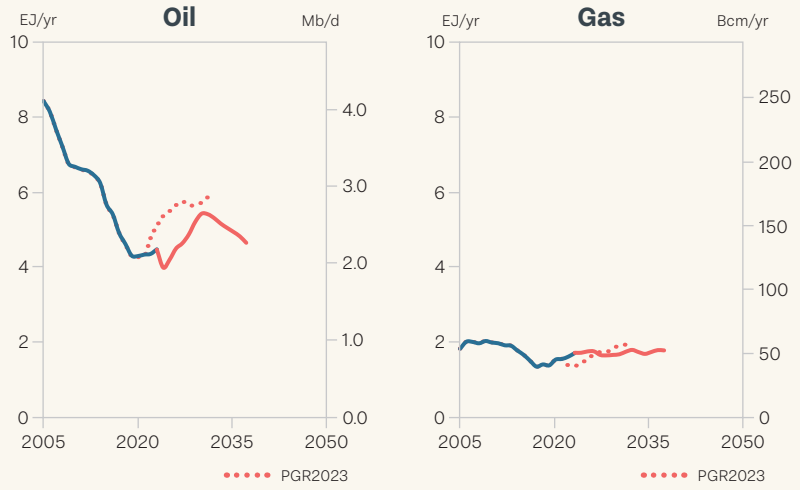
- Under the "energy sovereignty" policy of the previous government, Mexico discouraged foreign companies from investing in the oil and gas sector and increased financial support for Pemex (Berg et al., 2023). The current government, elected in 2024, has continued this policy, prioritizing Pemex's dominance and refinery expansion (Espejo, 2025).
- Between 2013 and 2024, the Mexican government provided Pemex with over MXN 2.8 trillion (USD 140 billion) in financial support, with three-quarters of this amount (MXN 2.1 trillion or USD 105 billion) allocated after 2019 under the previous Mexican administration (Ballesteros et al., 2024).
- The government reduced PEMEX's main tax burden — the Profit Sharing Tax (renamed the Hydrocarbon Welfare Tax) — from 65% in 2020 to 40% in 2023 and 30% in 2024 (Mexico Evalúa, 2025; Pemex, 2025d; Presidency of the Republic, 2024d).
- The government also increased capital contributions to Pemex to amortize the company's debt and invest in refineries, such as the MXN 320 billion (USD 18 billion) Olmeca project and the MXN 22 billion (USD 1.2 billion) Deer Park acquisition (Ballesteros et al., 2024).

Other developments

The maturity of Mexico's oil fields and natural decline of exploited reservoirs have driven the country's oil industry to unexplored areas that require advanced geophysical technology and have higher exploration costs (Pemex, 2022, 2025a).

Figure 3.17

Historical (2005–2023) and projected oil and gas production for Mexico. Coal production is small (<0.5 EJ/yr) and not shown. Sources: 2023–2037 projections are reported in the government's 2024 oil and gas outlooks (SENER, 2024a, 2024b). To be consistent with other country profiles, NGL is included in oil rather than gas production. Historical data are from the IEA (2024c). PGR2023 projections (dotted lines) show the average of "maximum" and "minimum" scenarios from the previous government forecast.



[17] These figures include NGLs in gas production; Figure 3.17 reclassifies them as part of oil production.

Colombia

Updated climate ambitions

As of August 2025, Colombia has not submitted a 2035 NDC. It has not updated its NDC since 2020 (Minambiente, 2025a).

Policy updates

- In February 2025, Colombia launched its Roadmap for a Just Energy Transition, which reiterates the government's intention to phase out of fossil fuel production (MME, 2025). The roadmap also mentions economic diversification and job creation to replace jobs lost.
- Also in February 2025, Colombia announced that it would impose a 1% tax on coal and oil production, until the end of 2025 to raise revenue to respond to a humanitarian crisis in the Catatumbo region (Reuters, 2025a).

Updates to fossil fuel production plans and projections

- Figure 3 shows five scenarios from Colombia's final National Energy Plan 2022–2052 (NEP), which projects long-term reductions in fossil fuel production across all fuels (UPME, 2023).18 The final NEP includes a baseline scenario (called "Actualización") and an ambitious "Transition" scenario, which aligns with the Roadmap for a Just Energy Transition. A new National Energy Plan 2024–2054 is under development, which will include a new "carbon neutrality" 2050 scenario, with fossil fuel production "trending towards carbon neutrality" (UPME, 2025).
- Contrary to the projections in the final NEP, coal production since 2023 has continued to decline. Operators of some of Colombia's largest open-pit mines, Drummond and Cerrejón, announced plans to reduce coal production in 2025 due to falling prices and reduced profitability (BNamericas, 2025; Delgado, 2025). Official projections have not yet reflected this change.
- The Colombian government views gas as a transition fuel, and domestic demand for it is expected to rise. However, oil and gas reserves are being depleted, and the government sees both fuels as uncompetitive and uneconomical to exploit in the long term (MME, 2025). Colombia's state oil company, Ecopetrol, is considering closing unprofitable oil fields (El Nuevo Siglo, 2025).

Updates on government support for domestic fossil fuel production

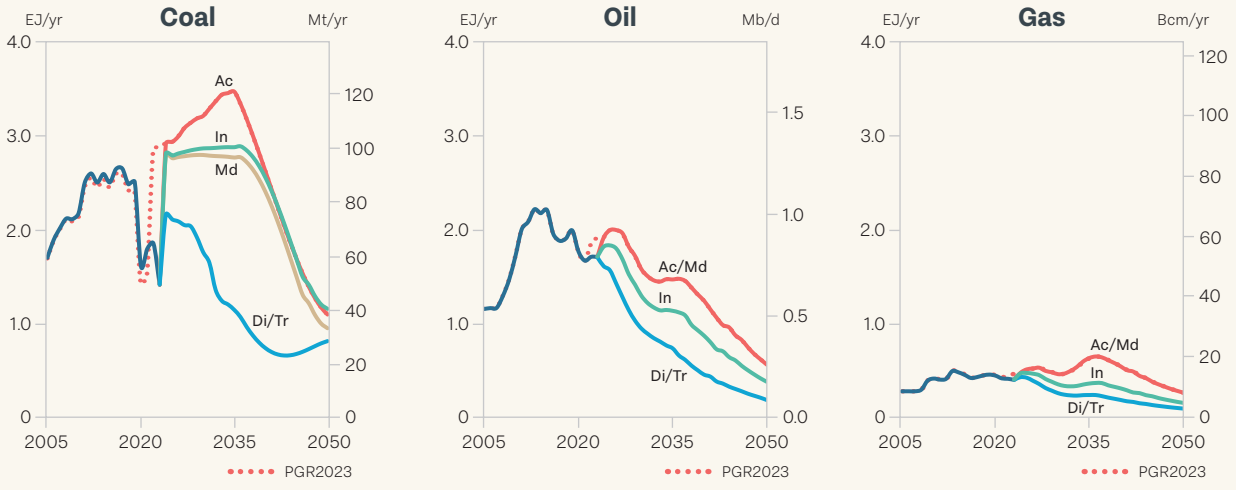
At COP28, the President of Colombia announced Colombia's support for a Fossil Fuel Non-Proliferation Treaty to stop fossil fuel exploration and expansion and phase out existing production (FFNPT, 2023). Colombia became the first Latin American country and the largest producer of coal and gas to endorse such a treaty (FFNPT, 2023). Colombia is also a member of the Beyond Oil and Gas Alliance of governments and other stakeholders working to facilitate the managed phase-out of oil and gas production (Beer, 2023).

Other developments

- Although the current administration pledged to halt new licences for oil and gas exploration, pressure to open up exploration and exploit new fossil fuel resources continues (Edwards, 2025; Price, 2023).
- In late 2024, Colombia announced a COP 163 trillion (USD 40 billion) investment plan, modelled on the JETPs, with COP 59 trillion (USD 14.5 billion) to support an energy transition, including moving away from oil and gas production (Darby et al., 2024; Rodriguez, 2024). Officials plan to release more details in October 2025.

Figure 3.18

Historical (2005–2023) and projected coal, oil, and gas production for Colombia. Source: Projections are from the National Energy Plan 2022–2052 (UPME, 2023) (PGR2023 used projections from a draft version of this document). The five energy scenarios presented are "Actualización" (Ac), "Modernization" (Md), "Inflection" (In), "Disruption" (Di), and "Transition" (Tr); the Ac and Md scenarios are identical for oil and gas, while the Di and Tr scenarios are identical for all fuels. Historical data are from the IEA (2024c).



[18] PGR2023 relied on a draft of Colombia's NEP 2022–2052. The final plan released later in 2023 and reflected in Figure 3.18, changed the projections very little.

Nigeria

Updated climate ambitions

- As of August 2025, Nigeria has not yet submitted its 2035 NDC. Nigeria's current NDC from 2021 targets an unconditional GHG emission reduction of 20% below a business-as-usual projection by 2030, and a 47% reduction conditional on international support (Federal Ministry of Environment, 2021).
- In April 2024, Nigeria published its LT-LEDS, which calls for a national carbon pricing system (Federal Ministry of Environment, 2021; National Climate Change Council, 2024).

Policy updates

- In July 2024, the Enugu State Government mandated that all existing mineral title holders commence coal-mining operations by December 2024 to restart the state's coal industry for economic growth reasons (Enugu State Government, 2024; Ugwu, 2024).
- In May 2023, the Nigerian government removed consumer fuel subsidies. Their abrupt removal raised the price of petrol by nearly 500% in 2024, causing a major political and public backlash (Okoroafor et al., 2025; Olawin, 2024; Onyeiwu, 2024). The removal has not been reversed, but amid other economic hardships, public opinion remains strongly against the policy (Mbaegbu & Nwanze, 2025).

Updates to fossil fuel production plans and projections

- The Nigerian government has not published significant updates on long-term fossil fuel production since releasing the Nigeria Agenda 2050 in May 2023 (Federal Government of Nigeria, 2023). However, the current administration recently announced short-term fossil fuel production targets to rapidly increase oil and gas production over the next five years (NUPRC, 2024) from an average of 1.6 Mb/d in 2024 to 2.1 Mb/d in 2025 (NUPRC, 2025c), 2 Mb/d by 2027, and 3 Mb/d by 2030 (The State House, 2025) — a near doubling of output.
- The Nigeria National Petroleum Corporation (NNPC) also aims to raise gross gas production to 103 Bcm/yr (10 Bcf/d) by 2027 and 124 Bcm/yr (12 Bcf/d) by 2030 (NNPC, 2025). This represents a significant increase from the 2024 gas production rate of 71 Bcm/yr (6.9 Bcf/d) (NUPRC, 2025a); however, it is lower than the 2030 target of 155 Bcm/yr (15 Bcf/d) specified in the 2023 National Development Plan (Federal Government of Nigeria, 2023).
- Based on these updated targets, projected production is 50% higher for oil and 22% lower for gas in the medium term than in the forecast used in the 2023 PGR assessment. Figure 3.19 illustrates these divergences.[19] Because of these significant changes, the projections the figure uses terminate at 2030.

Updates on government support for domestic fossil fuel production

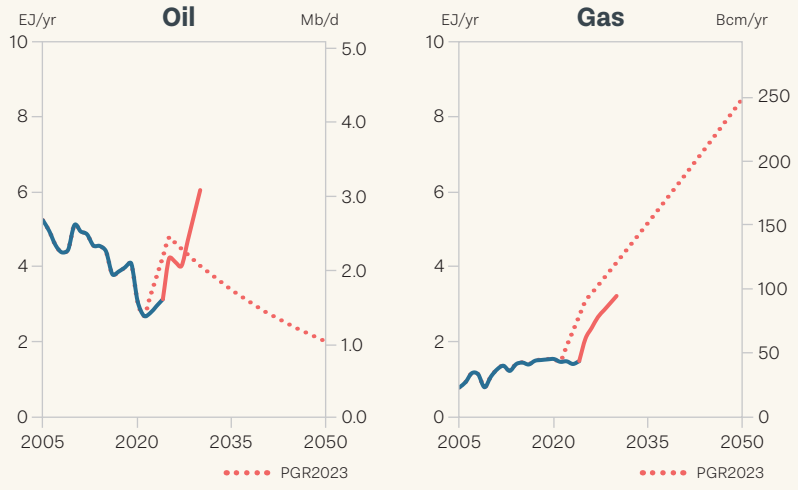
- Reforms of the oil sector implemented since the current administration took office are geared at attracting more investment in upstream development (NUPRC, 2025d). While USD 17 billion in new investments were made in the 2024, the government is aiming to attract USD 30 billion by 2027 and USD 60 billion by 2030 (NNPC, 2025; The State House, 2025).

Other developments

- The government will implement the proposed increases in fossil fuel production alongside efforts to overhaul the board and executive leadership in the NNPC (The State House, 2025).
- In the past two years, several major international oil companies operating in Nigeria have begun to end their onshore operations and divest from the Niger Delta (Hernandez, 2024; Shell, 2025; TotalEnergies, 2024) in response to oil theft, sabotage, militant violence, and environmental concerns (Adebayo, 2025).

Figure 3.19

Historical (2005–2024) and projected oil and gas production for Nigeria. Coal production is small (<0.5 EJ/yr) and not shown. Sources: The oil projection for 2025 is from NUPRC (2025c). Oil and gas projections for 2027 and 2030 are from NNPC (2025). Historical data are from the IEA (2023) for 2005–2020 and NUPRC (2025b, 2025a) for 2021–2024. Gas production excludes fractions that are reinjected, used by producers, or flared, which are estimated to decline from 37% to 20% from 2024 to 2050 (NUPRC, 2025a; Federal Government of Nigeria, 2023).



[19] For consistency with other profiles, Figure 3.19 shows net gas production after subtracting reinjection, producers' own use, and flaring, in contrast to the cited NNPC figures, which are for gross gas production.

United Kingdom

Updated climate ambitions

- The UK government submitted a new NDC in January 2025 aiming to reduce GHG emissions to 81% below 1990 levels by 2035 (UK Government, 2025). The UK's previous NDC set a goal to reduce emissions to 68% below 1990 levels by 2030 (UK Government, 2022). The UK also has a legally binding net zero target for 2050 (UK Government, 2019).

Policy updates

- The UK's current administration, which came to power in 2024, has committed to end licensing for new oil and gas exploration and coal developments, and ban fracking (Department for Energy Security and Net Zero, 2025). This contrasts with the previous government's provision of almost 200 licences for oil and gas exploration over the 2019–2024 Parliament (NSTA, 2024a).

- The current government has been clear that it will not revoke existing exploration licences (Department for Energy Security and Net Zero, 2025). However, the government has not indicated its stance on providing full approval for these fields to develop and extract fossil fuels (Rothwell-Hemsted et al., 2025)

Updates to fossil fuel production plans and projections

- UK coal production fell 79% to a record low of 107 000 tonnes in 2024. After the closure of the last large surface mine in September 2023, there is only one deep coal mine still operating in the UK, the Aberpergwm mine in Wales, which produces coal for steelmaking and other industrial uses (Global Energy Monitor, 2024). In late 2024, the UK High Court overturned the 2022 approval of the Woodhouse Colliery (also known as the Cumbrian coal mine), the first major UK coal mine approved in 40 years, on climate grounds (Bedendo & Lake, 2024).

- Figure 3.20 shows the North Sea Transition Authority (NSTA)'s oil and gas production projections as of March 2025 (NSTA, 2025). The North Sea basin is in terminal decline, and the reduction in production forecast is due largely to resource depletion. Compared with previous projections (NSTA, 2023), the NSTA now projects a somewhat faster decline, with oil and gas production in 2050 both down compared to previous projections.

Updates on government support for domestic fossil fuel production

- The Energy (Oil and Gas) Profits Levy (EPL) increased from 35% to 38% in November 2024, bringing the headline rate of tax on upstream oil and gas activities to 78% (UK Government, 2024a), thus reducing government support. The EPL's tax relief rate of 29% on investments was also removed; however, overall tax relief on oil and gas investments remain at 84% (Coleman, 2024).

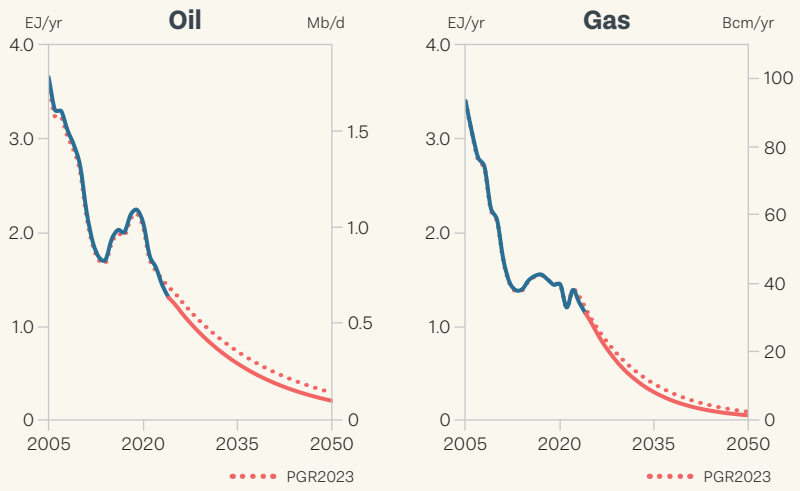
- In early 2024, the NSTA highlighted 13 projects, with total possible production of 778 million barrels of oil, waiting to receive field development consent (NSTA, 2024b). Since then, the Jackdaw and Rosebank fields have had their consents revoked for failing to account for the emissions impact of burning fuel extracted (Cook, 2025). This comes after a major UK legal ruling in June 2024, known as the Finch case, which found that fossil fuel projects need to account for the emissions impact of burning the fuels extracted (Scope 3 emissions) in their environmental impact assessment, not only the emissions that arise from the extraction of the fuels (R (on the application of Finch on behalf of the Weald Action Group) (Appellant) v Surrey County Council and others (Respondents), 2024). The government is currently assessing the effects of accounting for Scope 3 emission on oil and gas project approvals (Department for Energy Security and Net Zero, 2024), as this could lead to some or all of these projects not receiving development consent.

Other developments

The UK shuttered its last coal-fired power station in September 2024, completely phasing out coal-fired electricity generation (Lempriere & Evans, 2024).

Figure 3.20

Historical (2005–2024) and projected oil and gas production for the UK. Coal production is small (<0.5 EJ/yr) and not shown. Sources: Projections and historical data are from the NSTA's March 2025 oil and gas production projections (NSTA, 2025).



Germany

Updated climate ambitions

As a member of the European Union, Germany's near-term climate targets are linked to the EU's NDC under the Paris Agreement. The current coalition government in Germany has indicated support for the EU's proposal for a 90% reduction in emissions by 2040, on the condition that Germany could meet up to 3% of its target with international offsets (Amelang et al., 2025).

Policy updates

In 2024, the German government submitted its final updated National Energy and Climate Plan (NECP) to the European Commission (BMWK, 2024). The updated NECP indicates how Germany plans to meet current EU energy and climate targets.

Updates to fossil fuel production plans and projections

Germany's final NECP does not include explicit projections of domestic fossil fuel production, even though earlier drafts provided them (BMWi, 2020). Instead, it provides projections of primary energy consumption and net imports by fuel, from which domestic production can be inferred (BMWK, 2024). As Figure 3.21 shows, inferred production is lower than in prior forecasts for coal, but higher for gas.

Updates on government support for domestic fossil fuel production

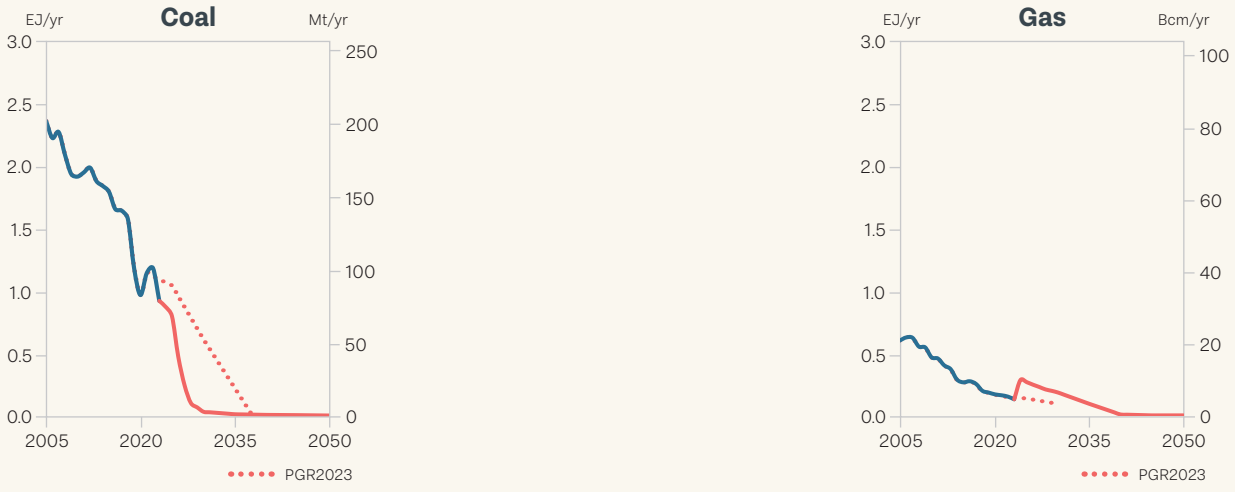
The state governments in Germany provide approximately EUR 56 million (USD 61 million) in tax exemptions to lignite producers per year (OECD, 2024a).

Other developments

- Germany consumes more coal than any other European country (Gabbatiss, 2025), primarily domestically produced lignite for electricity generation. In 2021, the German government agreed to "ideally" retire coal-fired power by 2030 (Government of Germany, 2021). In 2022, the government reached an agreement to phase out coal production by 2030 in the North Rhine–Westphalia mining region (BMWK, 2024). It is expected that carbon pricing will make coal plant operation economically unviable nationwide before 2038, when a nationwide phase-out is legally mandated (Twidale, 2024). However, there is discussion of delaying the phase-out beyond 2030 if the construction of new gas-fired power plants needed to replace coal-fired power proceeds too slowly (Wehrmann, 2024).
- Germany's deployment of renewable electricity generation capacity has assisted its coal phase-out. Renewable sources provided nearly 60% of the country's electricity supply in 2024, putting Germany on track to achieve its targeted share of 80% by 2030 (Schauenberg, 2024).
- Internationally, Germany has reaffirmed its support for JETP programmes designed to assist emerging and developing economies transition away from coal (Wettengel, 2025). Following the US withdrawal from JETPs, it has agreed to co-lead the Indonesian JETP with Japan (Jain & Bustami, 2025).

Figure 3.21

Historical (2005–2023) and projected coal and gas production for Germany. Oil production is small across all years (<0.5 EJ/yr) and not shown. Source: Projected production is inferred from forecasts of domestic energy consumption and net imports for each fuel in Germany's 2024 final National Energy and Climate Plan (BMWK, 2024). The NECP indicates 100% net imports for oil starting in 2024, implying zero domestic production. Although some domestic production is still occurring, this update includes no oil production forecast. Historical data are from the IEA (2024c).



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