

Climate Policy Factbook: COP28 Edition

Priority areas for climate action

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Key messages

This year's United Nations climate summit – better known as COP28 – will conclude the first 'stocktake' of global progress toward the Paris Agreement's goals. To make meaningful headway, parties will need to agree on bold recommendations that drive governments to ratchet up their climate plans. This includes concrete policies to realize their targets, such as phasing out fossil-fuel subsidies, robust carbon-pricing programs and rigorous climate-risk policies. This report was produced by BloombergNEF for Bloomberg Philanthropies.

- Governments and state-owned institutions in the Group-of-20 have made paltry progress in winding down support for coal, natural gas, oil and fossil-fuel-fired power. This funding totaled almost \$600 billion in 2021 alone – 14% more than in 2017 – encouraging wasteful use and production of fossil fuels and driving investment in long-lived, emissions-intensive equipment and infrastructure.
- G-20 fossil-fuel support surged even further last year to a record \$1.3 trillion, with the main reason being the global energy crisis. Some 64% of this was targeted at consumers, aiming to lessen the impact of surging retail energy prices, but often disproportionately benefitted the wealthy. Meanwhile, 35% went to fossil-fuel producers and power generators, many of which saw their profits skyrocket in 2022. The \$1.3 trillion total could have funded 1.9 terawatts of solar power plants – nearly 10 times the actual solar capacity built across the G-20 last year.
- All but one G-20 member country has at least one national or state-level carbon-pricing policy, or has such a program under discussion. However, most are ineffective at driving companies and consumers to switch to green technologies such as renewable power and heat pumps. This is primarily down to prices being too low, with only five exceeding \$40 per metric ton – the lower end of the range the World Bank estimates was needed by 2020 to limit global warming to 2C. Some programs also offer generous concessions like free emission allowances for certain sectors.
- Climate change poses ever-growing risks for financial institutions and companies, ultimately threatening the financial stability of economies. While some G-20 policymakers are convinced of these perils, few have taken effective actions to require financial institutions and corporations to mitigate their exposure to climate-related risks.
- Policymakers have continued to publish guidance and make statements about the need for climate-risk policy in recent years. But these regulations and measures take a long time to be implemented, explaining the limited progress in the G-20 countries since COP27. This report reveals strong discrepancies between the members of the group, with some leading the way (such as the European Union and UK) and others trailing behind with little advancement (the likes of the US, Canada and Indonesia).

(This report was updated on November 30, 2023, to provide a fuller picture of EU progress in the areas covered.)

G-20 progress in three priority areas

G-20 member	Fossil-fuel support 	Carbon pricing 	Climate-risk policy 
Argentina	Yellow	Yellow	Red
Australia	Red ↓	Green ↑	Red
Brazil	Yellow	Red	Green
Canada	Green ↑	Green	Red
China	Yellow	Yellow	Red
France	Yellow ↓	Green	Green
Germany	Green	Green	Green
India	Yellow	Red	Yellow
Indonesia	Red	Yellow ↑	Red
Italy	Yellow	Green	Green
Japan	Yellow	Yellow	Yellow
Mexico	Yellow	Yellow	Yellow ↑
Russia	Red	Yellow ↑	Red
Saudi Arabia	Red	Red	Red
South Africa	Red ↓	Yellow	Yellow
South Korea	Green ↑	Yellow	Red
Turkey	Red ↓	Red	Red
UK	Green	Green	Green
US	Green	Yellow	Red
EU	Comparable data not available		Green

Source: BloombergNEF. ■ Right direction ■ Mixed ■ Wrong direction/insufficient progress
 Note: [Click here](#) for definitions.
 Ratings for France, Germany ↑ Increase since COP27 ↓ Decrease since COP27 and Italy take account of EU-level policies.

Context

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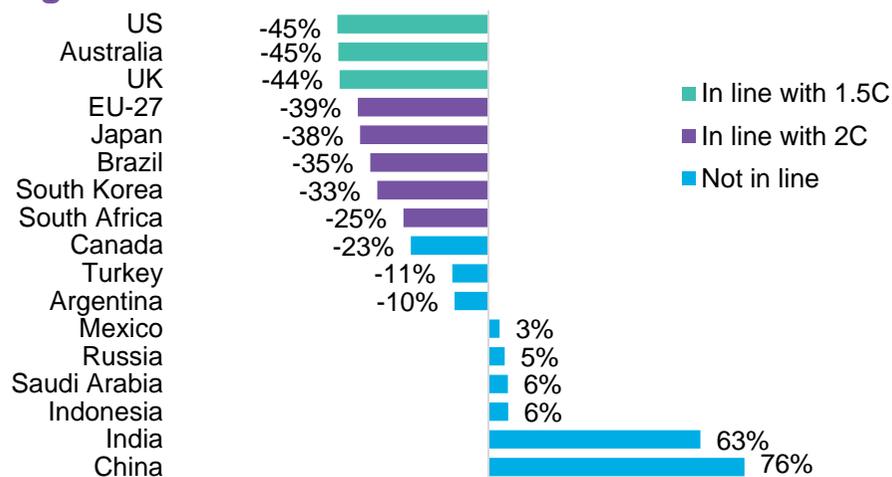
Museum of the Future, Dubai
Source: Bloomberg Mercury.

Starting on November 30, COP28 will be the first real test of the Paris Agreement

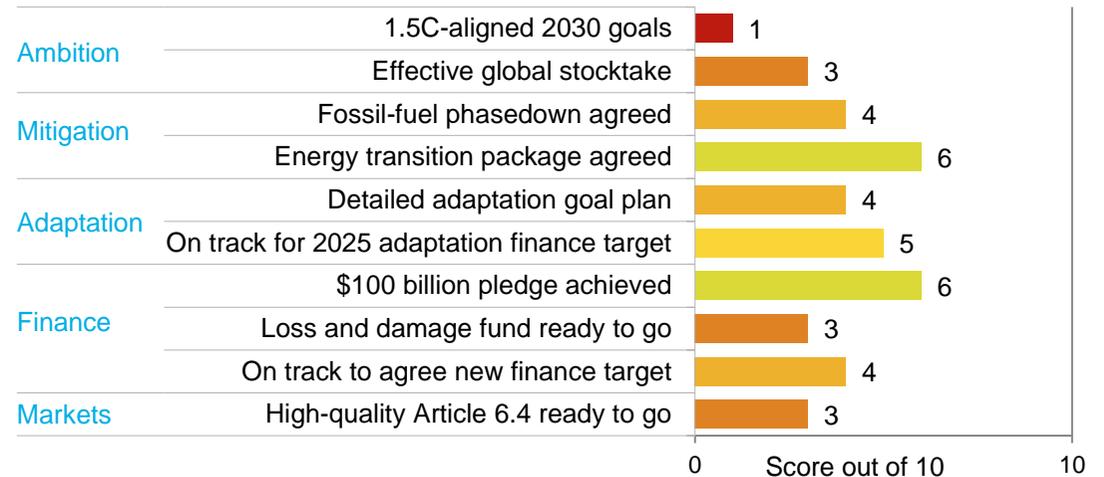
The annual UN climate summit – to be held this year in the United Arab Emirates – is the most important forum for governments to discuss how to collaborate on tackling climate change. Decisions must be unanimous, giving each party an equal standing in the discussions regardless of economic size or political clout. However, the system also often leads to protracted negotiations over seemingly small details and can result in a less ambitious outcome, as seen at last year’s COP27 in Sharm el-Sheikh, Egypt.

- Top of the agenda this year will be the conclusion of the first 'global stocktake' on progress toward the Paris Agreement’s goals. But few governments – including just three G-20 members - have 2030 emissions targets in line with limiting global warming to 1.5C above pre-industrial levels by the end of the century. COP28 will therefore only be a success if parties agree on bold, specific recommendations that drive governments to ratchet up their climate plans. If history is anything to go by, this is unlikely. Parties would need to focus less on "national circumstances", as seen at the G-20 summit this year.
- Overall, the COP28 summit is expected to score just 3.6 out of 10 on progress across 10 key areas crucial to realizing the goals of the Paris Agreement, based on BNEF analysis. This assessment examines the 10 most important areas where parties need to make progress in Dubai for the summit to be considered an overall success. We assign a metric for each and then score those indicators on a scale of one to 10 based on the anticipated level of progress. Some metrics have larger weightings to reflect their urgency, importance to the negotiations and potential impact. For the full analysis, BNEF clients can read *COP28 Is the First Real Test of the Paris Climate Deal* ([web | terminal](#)).

Change in emissions implied by G-20 members’ 2030 targets



Expected progress in 10 key areas at COP28



Source: UNFCCC, World Resources Institute CAIT, BloombergNEF. Note: The left-hand figure shows change in greenhouse gas emissions over 2019-2030 implied by unconditional or least ambitious targets, including land use, land-use change and forestry. WRI CAIT emissions data is used wherever possible for consistency. Because it may differ from governments’ reported data, the figure is based on the implied emissions reduction (in percentage terms) contained in parties’ Nationally Determined Contributions. Note that there are different ways to provide a target in the NDCs and an additional impact from the implementation of the EU policy framework. The EU and its member states agree on a common negotiating position for international negotiations.

Fossil-fuel support

G-20 governments and state-owned institutions have made paltry progress in winding down support for coal, natural gas, oil and fossil-fuel-fired power

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Flooded Pakistan State Oil gas station, Pakistan (September 2022)

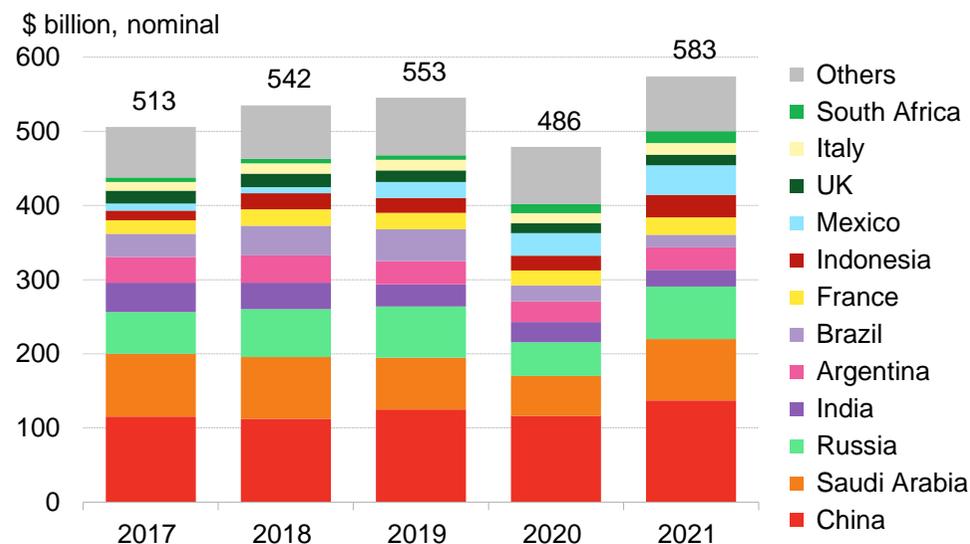
Source: Bloomberg Mercury.

In total, G-20 governments provided \$2.7 trillion in support for coal, gas, oil and fossil-fuel-fired power over 2017-2021

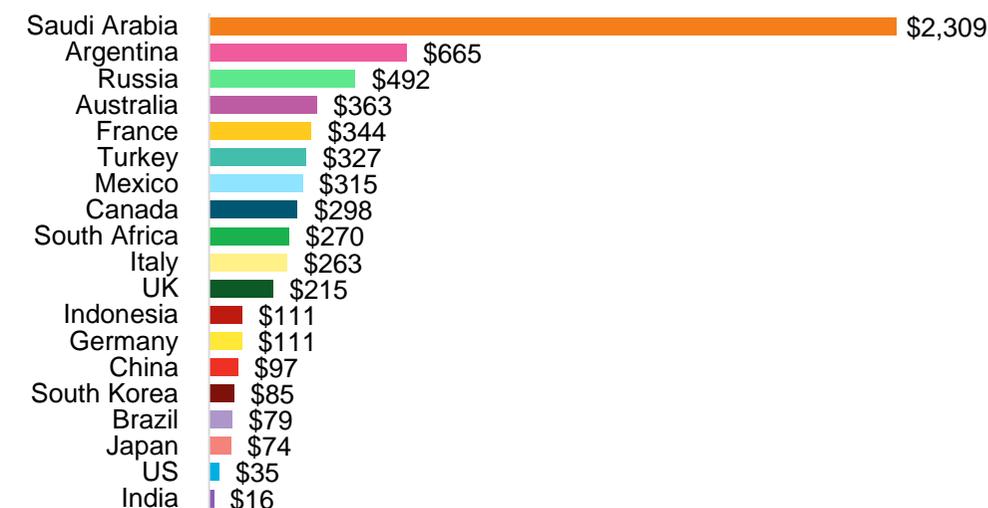
G-20 support for fossil fuels totaled almost \$600 billion in 2021 alone – 14% more than in 2017. But the trends vary significantly across countries: Brazil, India and South Korea achieved reductions of more than 40% over this period, mainly driven by less support from public finance institutions. These changes mean that these countries provide some of the least fossil-fuel support per capita. In contrast, Mexico and Turkey provided three times as much fossil-fuel support in 2021 compared with 2017 levels, due to growth in expenditure by state-owned enterprises.

- Fossil-fuel support slows down the climate transition and progress toward the goals of the Paris Agreement. It distorts prices, encouraging potentially wasteful use and production of fossil fuels, and leads to investment in long-lived, emissions-intensive equipment and infrastructure. Even subsidies intended to help low-income households and other vulnerable consumers tend to disproportionately benefit the wealthy. Reporting delays and lack of transparency suggest that 2021 spending was actually somewhat higher.
- Global public and private investment in low-carbon energy supply is now broadly on par with fossil-fuel financing, an improvement from the average 0.7:1 ratio seen across 2016-2020. However, to align with a scenario where the world achieves net-zero emissions by mid-century and limits warming to 1.5C requires the ratio between low-carbon and fossil-fuel energy supply investment to stand at roughly 4:1 by 2030, based on BNEF analysis. For more, BNEF clients can read *Energy Supply Investment for Net Zero: Regional Ratios* ([web](#) | [terminal](#)).

Fossil-fuel support by G-20 countries



Fossil-fuel support per capita, 2021



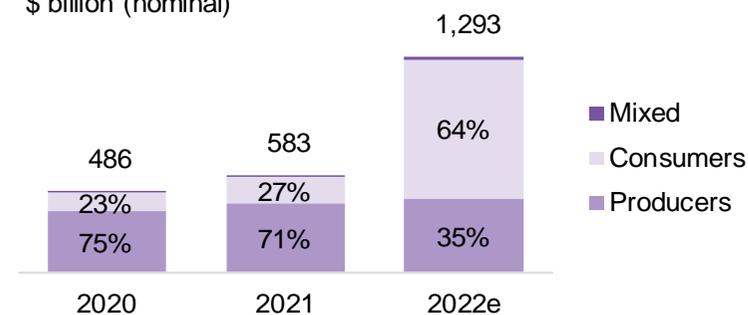
Source: Organization for Economic Co-operation and Development (OECD), International Energy Agency (IEA), Oil Change International (OCI), International Institute for Sustainable Development (IISD), BloombergNEF. Population data from the World Bank. Note: Includes budget transfers, tax expenditure, public finance, expenditure by state-owned enterprises (SOEs) and consumer-price support. Data for all years have been updated and therefore may differ from previous editions of the Factbook. Figures exclude EU-level fossil-fuel support due to data availability and comparability issues.

G-20 fossil-fuel support rocketed up to \$1.3 trillion in 2022 – more than doubling from the previous year

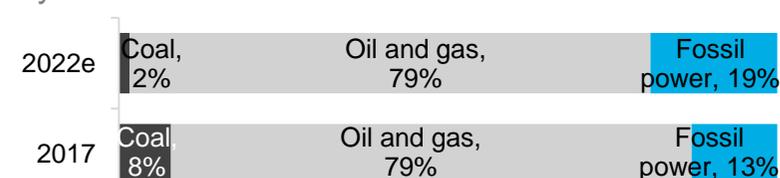
Fossil-fuel support by G-20 countries

By target

\$ billion (nominal)

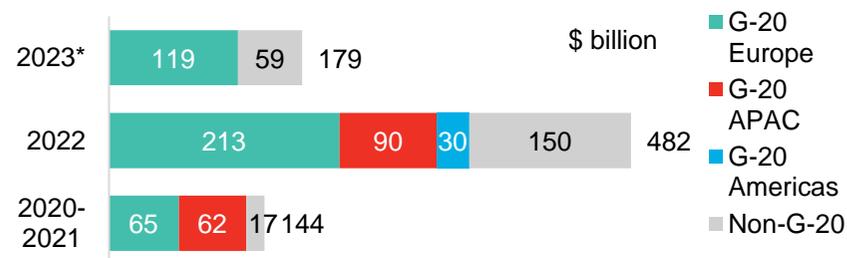


By fuel



Source: OECD, IEA, OCI, IISD, International Monetary Fund (IMF), BloombergNEF. Note: Includes budget transfers, tax expenditure, public finance, expenditure by state-owned enterprises and consumer-price support. 2021 data is provisional only. See [methodology](#) for more.

Global energy affordability funding



Source: IEA, BloombergNEF. Note: Most but not all of this funding was directed at fossil fuels and fossil-fuel-fired power. *Up to July 2023.

The global energy crisis of the last two years was the main culprit for the 122% rise in fossil-fuel support over 2021-22, based on preliminary analysis. Much of this assistance aimed to alleviate the impact of surging energy prices, leading to more than five times the level of support being directed at consumers relative to 2021. Still, at least a further \$446 billion went to fossil-fuel producers and power generators. (Read the methodology for the data sources and assumptions made.)

- Various factors sparked the crisis, not least Russia's invasion of Ukraine in February 2022. And the scale and effects differed across countries, with Europe and parts of Asia being especially exposed to the fallout. Some countries also faced their own energy-related challenges, including abnormally hot weather, unexpected drought, fuel shortages and plant outages.
- Governments had already increased funding for energy affordability during the Covid-19 pandemic. But this support rose even further in 2022, to \$482 billion globally based on data from the International Energy Agency. This was more than three times the aggregate 2020-21 sum. A further \$179 billion was announced over January to July 2023, suggesting fossil-fuel support this year could also exceed pre-energy crisis levels.
- The G-20 countries accounted for 69% of global energy affordability funding last year, of which 62% was financed by European governments. In July, Germany announced a new Climate and Transformation Fund, which included €47.6 billion (\$52 billion) in relief from electricity prices. In the residential sector, much of this support has been targeted at vulnerable customers. In September, the French government said it would allocate €1.8 billion in support for low-income households, and the UK has provided top-up Cold Weather Payments to pensioners and people with disabilities.
- Most of the energy affordability support was aimed at fossil fuels, although some of the funding for the power sector would have also benefitted low-carbon technologies. In addition, many governments have rolled out incentives to promote energy efficiency. While the motivation may have been to bolster security of supply, it should also contribute to the energy transition, as too will the not inconsiderable government support rolled out to promote alternative fuels to natural gas like renewables and low-carbon hydrogen. For more, BNEF clients can read [G-20 Zero-Carbon Policy Scoreboard – Issue 2023](#) ([web](#) | [terminal](#)).

G-20 fossil-fuel support in 2022 could have funded enough new solar generating capacity to power the Americas

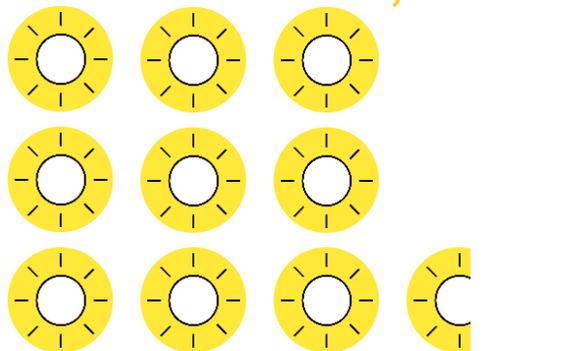
The support G-20 governments and state-owned enterprises gave to fossil fuels could have been used to advance the energy transition. The \$1.3 trillion of funding in 2022 could have financed 1,883 gigawatts of solar photovoltaic power plants, based on estimated capital costs for each G-20 member state. That would be almost 10 times the actual PV capacity built last year across the G-20 and approximately the same size as the entire power-plant fleet of North and South America combined.

New G-20 solar build in 2022 and theoretical new solar capacity that could have been financed using the money spent on fossil-fuel support

Actual



Theoretical



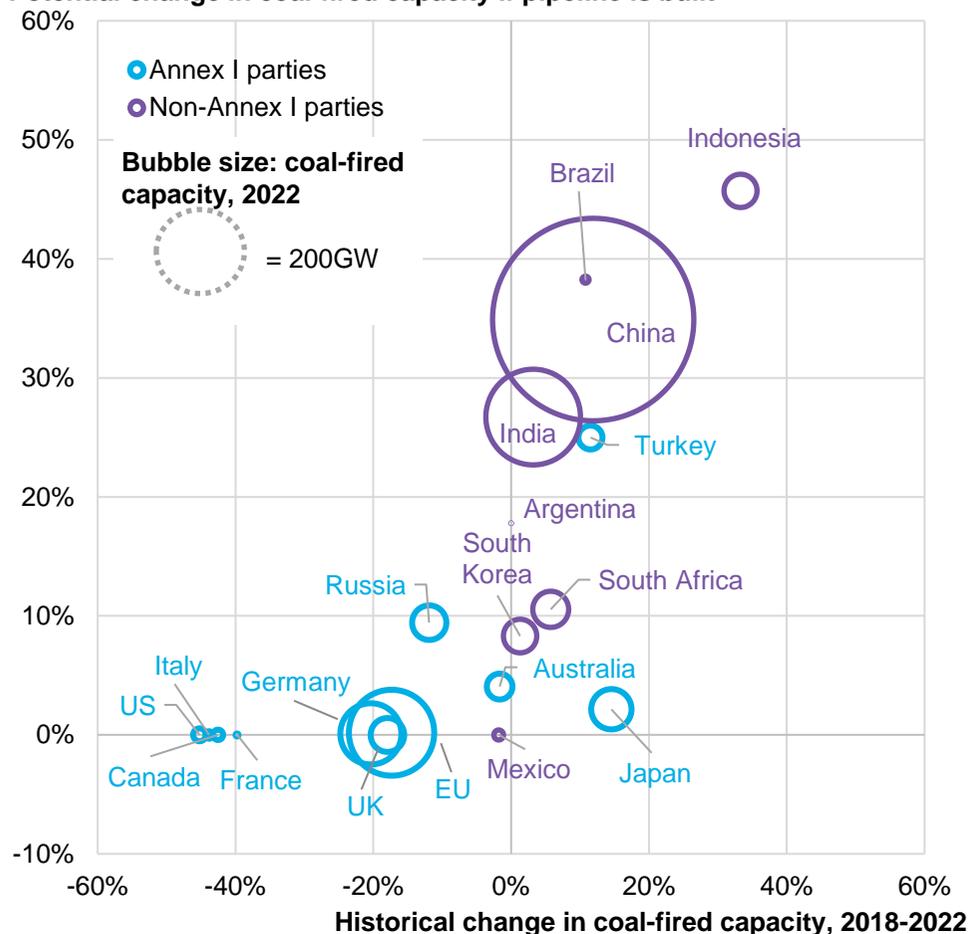
Source: BloombergNEF. Note: 'Illustrative additional new build' = estimated solar PV (without tracking) capacity using BNEF's assumptions on current capital costs. Saudi Arabia is based on UAE costs and Russia based on Germany.

- In 2009, the G-20 committed to 'phase out and rationalize over the medium term inefficient fossil fuel subsidies' and the group has repeated this commitment on multiple occasions, including this year's summit in India – read BNEF's take in *National Priorities Eclipse Global Needs at G-20 Summit* ([web](#) | [terminal](#)). Similar pledges have been included in the decision texts at the annual UN climate talks and could well be incorporated into the COP28 deal.
- But as shown on previous pages, the data suggests they have made little progress. One reason for the ambiguous language and lack of agreed definitions is that they give governments wiggle room to interpret such provisions as they see fit. This includes 'unabated fossil fuels', which could be construed as including more efficient but still emissions-intensive technologies.
- Seeking to speed the phase-out, G-20 governments developed a framework for voluntary peer reviews of fossil-fuel subsidies. China and the US were the first to undertake such reviews of each other's fossil-fuel support, with the results published in 2016. Argentina and Canada, and France and India, are in the process of undertaking peer reviews. These reviews are likely to have varying degrees of success. Each government may choose its own definition of 'inefficient fossil-fuel subsidies' and decide whether to act on the results.
- Increasing the transparency of fossil-fuel subsidy programs was a key topic for discussion at the first meeting of the World Trade Organization's Fossil Fuel Subsidy Reform initiative, held in October 2022. Launched in December 2021, the forum aims to phase out fossil-fuel subsidies that encourage wasteful consumption. France, Germany, Italy and the UK are the only G-20 countries to sign up so far.
- One G-20 nation that has taken significant steps toward ending this support is Canada, with the release in July 2023 of guidelines on inefficient fossil fuel subsidies. These are the first transparent conditions that will be used to identify and prevent inefficient subsidies. They define "abated", for example, as: 'effective (leading to significant elimination of emissions), operational carbon capture and storage (CCS)/carbon capture, utilization and storage (CCUS) or equivalent technologies. Note: This excludes carbon capture for the purposes of enhanced oil recovery.'

Developed economies in the G-20 have made more headway in moving away from coal power

Recent change in coal-fired generating capacity and potential change if planned pipeline is built

Potential change in coal-fired capacity if pipeline is built



Source: BloombergNEF, Global Energy Monitor (July 2023). Note: EU bubble includes France, Germany and Italy.

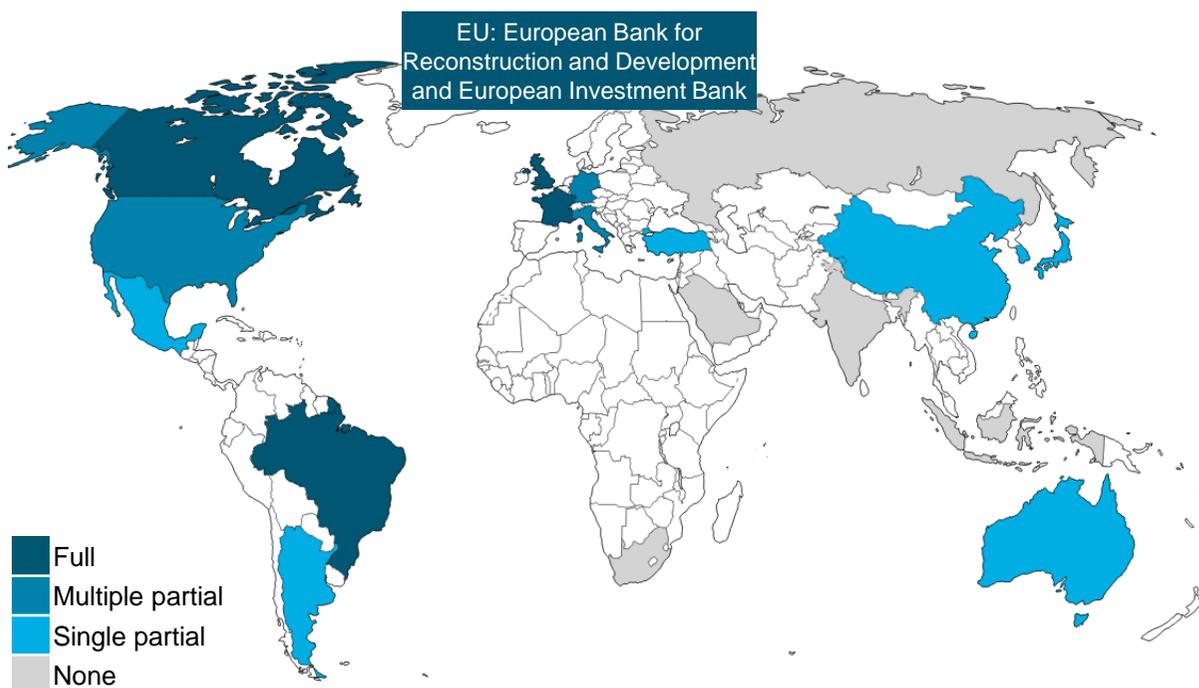
Out of the G-20 members, there is a clear divide between developed economies classified by the UN as Annex I parties and emerging markets categorized as non-Annex I parties. On average, the former reduced coal-fired generating capacity by 19% relative to 2018. In contrast, non-Annex I parties in the G-20 expanded capacity by an average of 8%, with some seeing much larger increases, such as Indonesia (33%), China (12%) and Brazil (11%).

- Looking forward, the G-20 members have an aggregate 499GW of coal-fired capacity in the pipeline – broadly equivalent to India’s entire power-plant fleet. This planned capacity is mostly concentrated in non-Annex I parties, of which Indonesia would see the biggest boost compared with its current total if all of its proposed pipeline is built. Japan and Turkey are the only Annex I parties in the G-20 with announced projects planned. If commissioned, these would increase their current coal-power capacity by 2% and 25% respectively.
- It will be crucial for countries to phase out coal-fired electricity if they want to realize the goals of the Paris Agreement: CO2 emissions from coal combustion were responsible for over 0.3 degrees Celsius of the 1 degrees of global warming to date, according to the [International Energy Agency](#). Coal-fired power accounts for around 30% of global CO2 emissions.
- At their 2023 summit, the G-20 governments said they would accelerate 'efforts towards phase-down of unabated coal power'. The same wording appeared in the COP27 decision text and the communique from the 2023 summit of the Group-of-7 countries (Canada, France, Germany, Italy, Japan, the UK and the US). However, as with fossil-fuel support in general, these pledges are watered down by vague caveats, such as 'except in limited circumstances clearly defined by each country consistent with a 1.5C warming limit'. It is hard to track these countries' progress on the commitments without precise definitions of terms like 'inefficient', 'unabated coal' and 'direct government support'.

In total, 14 of the G-20 have full or partial explicit policies to end public finance for coal power

On the brighter side, bilateral finance institutions (meaning organizations set up by an individual country) based in G-20 economies have made progress on reducing funding for fossil fuels, with an aggregate 62% decrease over 2017-2021. As a result, such finance comprised only 5% of G-20 fossil-fuel support in 2021 – 10 percentage points lower than the preceding year. It still tends to account for a bigger share of aid from richer markets – at 10% of the total for developed economies, or Annex I parties, compared with 3% for non-Annex I parties. One reason has been the growing number of public finance institutions that have pledged to end support for fossil fuels, in particular coal.

G-20 bilateral public finance institutions' policies to end coal support



Source: Public Finance for Energy Database, BloombergNEF. Note: Geographies in white are not individual G-20 member economies. 'Single' means exclusions covering only one part of the supply chain (or one type of indirect finance) at one or more of the relevant institutions. 'Full' exclusions cover all supply chain stages across all institutions. Significant loopholes may apply.

- Four G-20 nations have full exclusions on public finance for coal, based on data from the Public Finance for Energy Database. A further 10 have one or more policies covering a single part of the supply chain. The rise in such measures was buoyed by [the commitment at COP26](#) in 2021 made by 39 nations to end new direct public support for the international unabated fossil-fuel sector within one year.
- However, not all of the signatories have explained how they plan to comply with the pledge and some of these policies are subject to substantive loopholes. For example, in 2021, [OECD members](#) participating in the 'Arrangement on Officially Supported Export Credits' agreed to end export credit support for new and existing coal-fired power plants (except when CCS is present).
- But this assessment does not categorize this pledge as a 'full' exclusion because it only applies to a share of public finance and is subject to exceptions. For example, even though Japan is an OECD member, the Japan International Cooperation Agency may still provide coal finance at the request of a host country.
- Out of the G-20 countries, only the UK has a full exclusion on oil across all institutions. No G-20 member state has an equivalent policy for gas, although some individual institutions such as the Agence Francaise de Developpement do so, or – as is the case in Canada and the UK – there are significant exceptions.

Canada, Germany, South Korea, the UK and the US have taken concrete steps to scrap fossil-fuel support and coal power

Germany, the UK and the US continue to make headway on winding down fossil-fuel support and coal power. In addition, two G-20 member states have made marked progress in the last year: South Korea has achieved a substantial reduction in fossil-fuel support, although it has some way to go on phasing out coal power. Meanwhile, Canada almost halved its coal-plant fleet over 2018-2022, with no new capacity in the pipeline, and significantly decreased fossil-fuel support on a per capita basis.

- In contrast, a third of the G-20 member states are making little progress in this area, with Australia, South Africa and Turkey joining this group this year. These three countries lost points for fossil-fuel support, providing an average of \$320 per capita in 2021.
- South Africa and Turkey saw growth of more than 150% relative to 2017 levels, driven by more investment from state-owned enterprises. They also have a sizable pipeline of coal-fired capacity.
- Despite being G-7 and G-20 members, France and Italy have taken a smaller step backwards: they provided 23% and 32% more fossil-fuel support in 2021 compared with 2017 levels. As a result, their per-capita totals exceed \$250. In addition, various European countries including Germany, Italy and the UK restarted coal-power plants or delayed their closure due to the energy crisis. For most nations, these were temporary moves. But in September, President Macron delayed France's coal phase-out by three years to 2027.
- China has a significant role to play in phasing out coal-fired electricity at the global level. However, it has yet to take strides in this respect, expanding capacity by 12% over 2018-2022. If it builds all its planned plants, China would increase its current coal capacity by 35%. It also continues to provide the most total fossil-fuel support out of the G-20 members, accounting for 24% of the 2021 total. However, it is well within the bottom third for per-capita assistance.
- India also has a large coal-power pipeline. But it has made headway on fossil-fuel support, cutting its total by 42% over 2017-2021. It therefore provides the least amount on a per-capita basis at \$16 – less than 1% of Saudi Arabia, which sits at the top of the list.

Progress on phasing out fossil-fuel support

	COP		Fossil-fuel support		Coal power capacity		Exclusion policy
	28	27	Change (2017-2021)	Per capita (2021)	Change (2018-2022)	Change if pipeline is built	
Argentina	■	■	-13%	\$665	0.0%	+17.8%	Partial
Australia	■	■	+24%	\$365	-1.7%	+4.1%	Partial
Brazil	■	■	-46%	\$79	+10.8%	+38.3%	Full
Canada	■	■	+3%	\$300	-42.5%	0.0%	Full
China	■	■	+19%	\$97	+11.9%	+34.9%	Partial
France	■	■	+23%	\$346	-39.8%	0.0%	Full
Germany	■	■	-19%	\$103	-18.0%	0.0%	Partial
India	■	■	-42%	\$16	+3.2%	+26.7%	None
Indonesia	■	■	+128%	\$111	+33.3%	+45.7%	None
Italy	■	■	+32%	\$263	-43.8%	0.0%	Partial
Japan	■	■	-17%	\$82	+14.5%	+2.2%	Partial
Mexico	■	■	+324%	\$316	-1.8%	0.0%	Partial
Russia	■	■	+25%	\$492	-11.9%	+9.4%	None
Saudi Arabia	■	■	-2%	\$2,309	0.0%	0.0%	None
South Africa	■	■	+168%	\$270	+5.8%	+10.6%	None
South Korea	■	■	-83%	\$65	+1.3%	+8.3%	Partial
Turkey	■	■	+298%	\$327	+11.5%	+25.0%	Partial
UK	■	■	-16%	\$215	-17.4%	0.0%	Full
US	■	■	+51%	\$36	-45.2%	0.0%	Partial

Source: BloombergNEF. Note: [Click here for definitions](#). The EU was not included due to data availability and comparability issues.

■ Right direction ■ Mixed ■ Wrong direction/insufficient progress

Carbon pricing

Low prices and generous concessions mean most G-20 carbon markets and taxes are ineffective at driving the switch to green technologies

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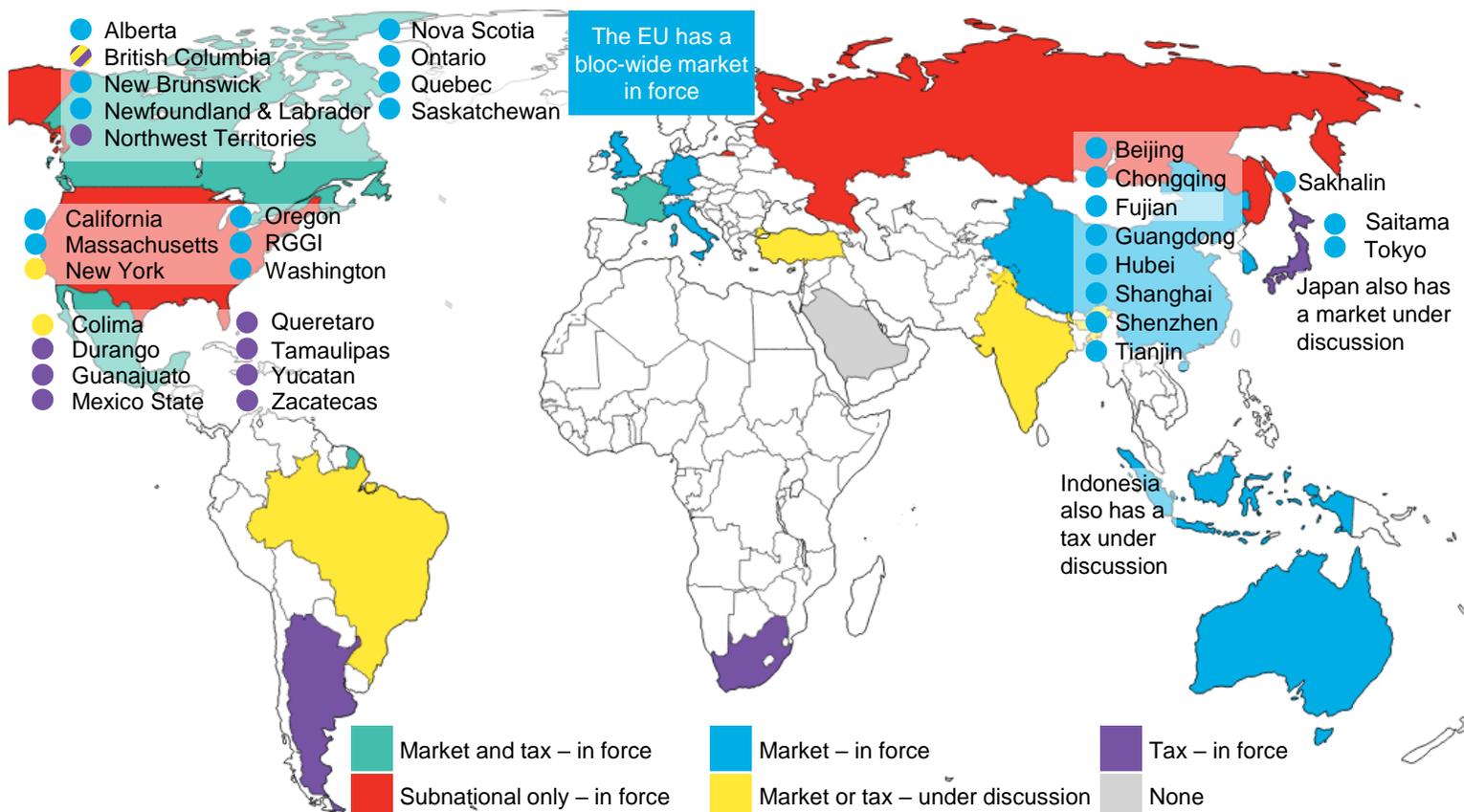
Janschwalde lignite power plant, Germany (June 2022)

Source: Bloomberg Mercury

Saudi Arabia is the only G-20 member that has not implemented or is not planning to introduce a nationwide carbon price

In total, two-thirds of the G-20 member states have a nationwide carbon price, and a further 40 or so state- or province-level policies are in place. However, these vary in type, geographic and sectoral scope, and concessions to participants. The goal of carbon-pricing schemes is to force polluters to cover the societal costs associated with their greenhouse gas emissions. Within the G-20, emissions trading schemes are more common than taxes, and are likely to remain so as more members plan to introduce a carbon market.

International, national and state-level carbon taxes and markets across the G-20

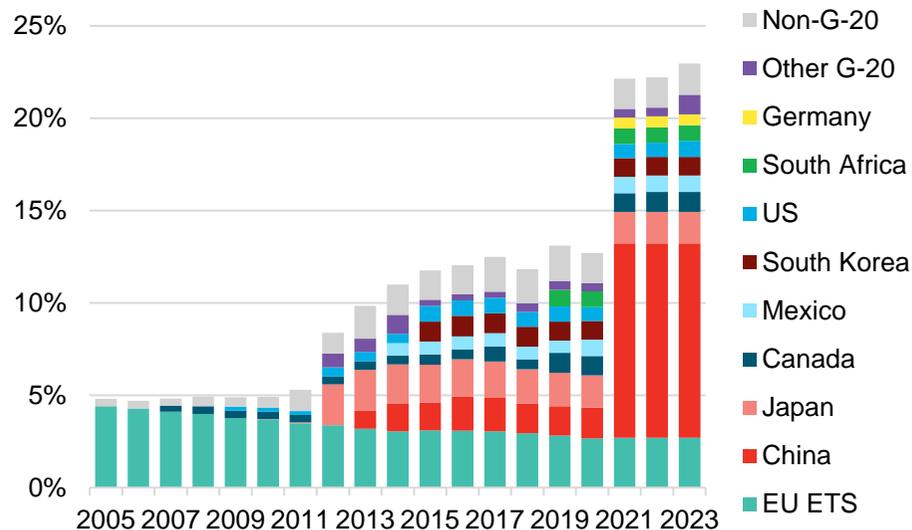


- Carbon taxes allow the government to set a fixed price per unit of emissions, while markets can guarantee a certain volume of emissions is not exceeded.
- The most common market type is a cap-and-trade scheme, which places an upper limit on the amount of available emission permits. Prices are determined by the permit supply-demand balance, in the absence of measures such as price floors.
- Carbon pricing is best used as part of a policy suite because it may not provide sufficient incentive for technological innovation. Other support may also be needed to promote a just energy transition and ensure required infrastructure is built.
- Steps to bolster public acceptance may be required. Important factors are measures to ensure fairness and the name of the policy, such as a 'fee' or 'contribution' over 'tax'. Revenue can be used to support affected and/or low-income households and companies.

Source: Governments, BloombergNEF. Note: Compliance schemes only. RGGI stands for the Regional Greenhouse Gas Initiative.

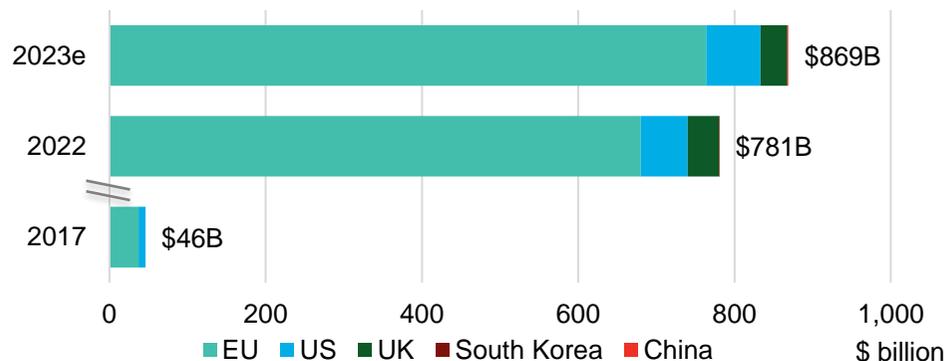
G-20 carbon-pricing policies cover 21% of global greenhouse gas emissions

Share of global greenhouse gas emissions covered by an international, national or state-level carbon price



Source: BloombergNEF, World Bank.

Value of major compliance carbon markets in the G-20



Source: BloombergNEF, InterContinental Exchange. Note: Traded value is calculated by multiplying traded volumes by carbon price. US comprises RGGI, California and Washington state. South Korea and China's auctions are excluded – the numbers represent futures products.

China's national market is the biggest carbon-pricing program in the world, in terms of emissions. But the EU Emissions Trading System, or EU ETS, takes top prize based on traded value, thanks to escalating prices and high trading volumes. Still, its share of the world market is shrinking: some 75% of carbon market futures and auctioned volumes are traded on the EU ETS today, down from almost 90% in 2017. For more, BNEF clients can see [Global Carbon Markets Get Bigger, Even as Trading Dips](#) ([web](#) | [terminal](#)).

- Trading activity remains relatively quiet in carbon markets across Asia Pacific, with much lower prices. However, there are signs of momentum growing, albeit slowly: various Asian governments are planning to deploy and expand voluntary systems before gradually shifting to more compliance-based schemes.
- For example, Japan's Green Transformation Emission Trading Scheme kicked off in April 2023 but will be voluntary at first. From April 2033, the program will be fully compliance-based, covering the power sector. Similarly, the Indian government has a three-phase framework for implementing first a voluntary and then a mandatory carbon market.
- Another trend across the G-20 is for policymakers to increase the ambition and stringency of existing mechanisms. In March 2023, the Australian parliament approved amendments to the national carbon market, known as the Safeguard Mechanism. These changes should force large emitters to reduce or offset their emissions in line with the country's decarbonization targets.
- In Europe, the EU ETS has completed two years of reforms meant to help achieve the bloc's ambitious 2030 emissions goal. In addition, the EU approved plans to create a second emissions trading system for the buildings and road transport sectors, and the Carbon Border Adjustment Mechanism – a carbon tariff on emissions-intensive imports. As a result of these reforms, permit prices have stabilized at around €88 per ton (\$93 per ton) over the last year. BNEF clients can read [EU ETS Market Outlook 2H 2023: Cleared for the Ascent](#) ([web](#) | [terminal](#)) for more.

Australia and Italy have improved their performance due to rising carbon prices, while Indonesia has implemented its market

Seven G-20 members have international or national carbon markets, three others have a tax and three have both types of program. Of the remaining countries, Brazil, India and Turkey are taking concrete steps toward introducing a mandatory carbon price. Despite these signs of growing carbon-pricing ambition, many of these policies are too weak to drive decarbonization.

- Indonesia kicked off its intensity-based emissions trading scheme in early 2023, covering coal power plants over a certain size. The program covers 81% of the country's electricity generating capacity and around a quarter of its emissions. The longer-term aim is for the scheme to work alongside the forthcoming carbon tax, which was announced in 2021 but has been postponed until around 2025.
- A national carbon price is not currently on the horizon for the US or Russia. But both have a rising number of subnational policies: in the US, Washington state launched its emissions trading scheme on January 1, and is considering linking its program with the existing markets in California and Oregon. Russia's pilot scheme in Sakhalin began in 2022 and trading started this year. Despite having a national carbon tax and now a pilot market, Mexico has seen five states introduce their own pricing policies, with Guanajuato joining the ranks in January. This assessment takes account of state-level or regional carbon policies. If a nation has more than one program, an average was calculated weighted by each scheme's emissions and prices.
- Existing carbon pricing policies across the G-20 cover an average of 38% of each member's emissions. However, the majority are ineffective at driving companies and consumers to switch to green technologies due to low prices. Only five G-20 members have a carbon price above the lower end of the \$40-80/t range the World Bank estimates was needed by 2020 to limit global warming to 2C above pre-industrial levels by the end of the century. By 2030, prices must rise to \$50-100/t.
- In some cases, governments set the carbon tax rates on the low side, to secure political approval and lessen the burden on companies and consumers. This is especially common in the early days of carbon-pricing implementation although some taxes have been in place for years. Other reasons are the generous concessions granted to participants such as free emission allowances. These measures can reduce demand and thus prices for carbon permits.

Progress on carbon-pricing policies

	COP 28	COP 27	Status	Emissions covered	Price (\$ per metric ton)	Price change
Argentina	Yellow	Yellow	Nationwide	20%	5.0	–
Australia	Green	Yellow	Nationwide	50%	20.8	+46%
Brazil	Red	Red	Under discussion	0%	–	–
Canada	Green	Green	Nationwide	78%	48.3	+34%
China	Yellow	Yellow	Nationwide	44%	8.7	+7%
France	Green	Green	Nationwide	80%	73.8	+22%
Germany	Green	Green	Nationwide	85%	62.5	+30%
India	Red	Red	Under discussion	0%	–	–
Indonesia	Yellow	Red	Nationwide	26%	–	–
Italy	Green	Yellow	Nationwide	39%	92.9	+38%
Japan	Yellow	Yellow	Nationwide	68%	2.8	0%
Mexico	Yellow	Yellow	Nationwide	40%	1.7	0%
Russia	Yellow	Red	Subnational	0.6%	11.0	–
Saudi Arabia	Red	Red	None	0%	–	–
South Africa	Yellow	Yellow	Nationwide	80%	8.3	+4%
South Korea	Yellow	Yellow	Nationwide	73%	10.1	-43%
Turkey	Red	Red	Under discussion	0%		
UK	Green	Green	Nationwide	28%	74.6	-10%
US	Yellow	Yellow	Subnational	8.7%	8.9	0%
EU	Green	Green	Bloc-wide	38%	93	+9%

Source: BloombergNEF. Note: [Click here](#) for definitions. Ratings for France, Germany and Italy take account of EU-level policies.

Green Right direction Yellow Mixed Red Wrong direction/insufficient progress

Climate-risk policy

Few G-20 governments have taken effective actions to require financial institutions and corporations to mitigate their climate-risk exposure

BloombergNEF

**Bloomberg
Philanthropies**



Low water levels at 15 de Septiembre hydropower dam, El Salvador (April 2023)

Source: Bloomberg Mercury

Many climate-risk policies are in the pipeline, but a large share has made little progress toward political approval

Climate change poses ever-growing risks to banks, investors and insurers, as well as companies, ultimately threatening the financial stability of economies in a whole new way. While some G-20 policymakers are convinced of these perils, few have taken effective actions to require financial institutions and corporations to mitigate their exposure to climate-related risks.

- Incremental regulatory steps are needed to build up organizations' capacities to assess and integrate climate risks into their decision-making processes. The first stage should be to mandate generic environmental disclosures from companies and establish a green taxonomy that sets out which economic activities are considered aligned with the Paris Agreement. Such regulatory milestones support the identification of both physical and transition risks, to guide investors, banks and insurers in their decision-making processes.
- Following these foundational steps, regulators can then start requesting both financial players and companies to specifically disclose their exposure to climate risks, as seen in the [EU](#), [UK](#) and [Brazil](#), for instance. Ultimately, banks and investors should be required to run climate-risk stress tests, to disclose how they would perform under multiple climate scenarios. The [UK](#) and [EU](#) have made these tests mandatory, while some central banks have run pilot groups like in [Australia](#) and [Canada](#). The Reserve Bank of India [hinted](#) in July 2023 that it would develop guidance on climate-risk stress tests to support domestic financial institutions through such an exercise.
- This year has been promising for climate-risk disclosure as two long-awaited reporting standards were published a few months apart. The [European Sustainability Reporting Standards](#), or ESRS, lay out a framework against which thousands of EU and non-EU companies will have to report. Meanwhile, the IFRS Sustainability Disclosure Standards – released by the [International Sustainability Standards Board](#) (ISSB) – are reporting guidelines that will likely become the bedrock of upcoming sustainability disclosure regulations across the globe.
- Our analysis reveals that G-20 member states are at significantly different stages in this process: EU countries and the UK are ahead of the curve, but other nations are still building their regulatory framework through voluntary guidance and pilot groups. And then some countries, like the US, Saudi Arabia and Turkey, are trailing even further behind.

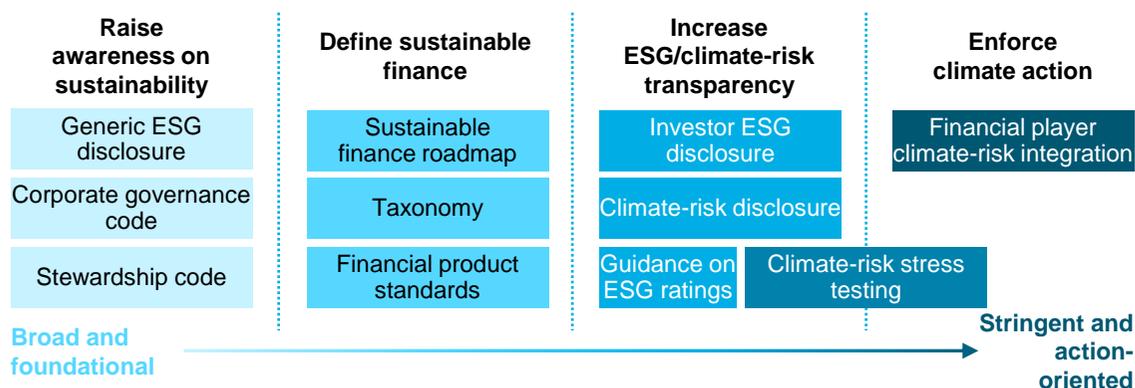
Progress on climate-risk policies

	Generic ESG disclosure	Environmental taxonomy	Climate-risk disclosure		Climate-risk stress test
			For companies	For financials	
Argentina	✓	✗	✗	✗	✗
Australia	✓	✗	✗	✗	✓ Pilot
Brazil	✓	✓	✗	✓	✓
Canada	✓	✗	✗	✗	✓ Pilot
China	✗	✓	✗	✗	✓ Pilot
France	✓	✓	✓	✓	✓
Germany	✓	✓	✓	✓	✓
India	✓	✗	✓	✗	✗
Indonesia	✗	✓	✗	✗	✗
Italy	✓	✓	✓	✓	✓
Japan	✓	✗	✓	✗	✓ Pilot
Mexico	✗	✓	✗	✓	✗
Russia	✗	✓	✗	✗	✗
Saudi Arabia	✗	✗	✗	✗	✗
South Africa	✓	✓	✗	✗	✓
South Korea	✗	✓	✗	✗	✗
Turkey	✓	✗	✗	✗	✗
UK	✓	✗	✓	✓	✓ Pilot
US	✗	✗	✗	✗	✓ Pilot
EU	✓	✓	✓	✓	✓

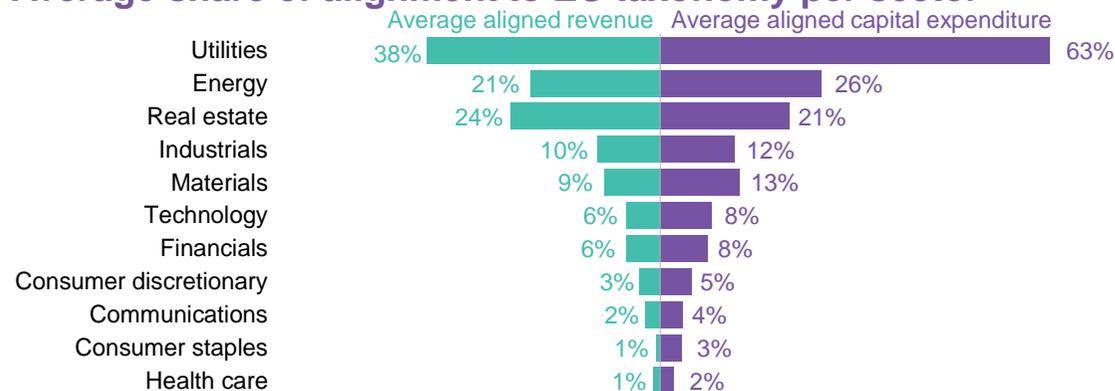
Source: BloombergNEF. Notes: Tick and crosses reflect the pillars on which the countries got allocated points. See full [methodology here](#). Ratings for France, Germany and Italy take account of EU-level policies.

The best jurisdictions introduce policies incrementally to spur action and not just create a compliance overload for organizations

Sustainable finance policy framework



Average share of alignment to EU taxonomy per sector



Source: BloombergNEF, Bloomberg Terminal. Notes: ESG means environmental, social and governance. Lower figure shows data for financial year 2022, released by August 2023.

This Factbook employs an updated methodology for assessing the G-20 countries based on four main policy types. These aim to drive financial and non-financial organizations to assess and mitigate their exposure to climate-related risks.

- Generic ESG disclosures** – Such regulations are the first step of any regulatory action plan. Mandating firms and financial institutions to report environmental, social and governance data forces them to create new internal reporting streams and educate their staff to gather non-financial data. Eventually, banks and investors rely on standardized ESG data to assess their own exposure to climate risks.
- Environmental taxonomies** – These classifications of what a certain government deems to be 'green' are becoming more common. A science-based taxonomy allows companies and investors to assess their exposure to activities aligned with the low-carbon transition. The EU's first round of alignment disclosures in 2023 found that overall few companies have a large share of green revenue and capital expenditure, but utilities and energy players are performing the best.
- Climate-risk disclosures** – These policies require financial institutions and/or corporations to report how their financial results may be positively or negatively impacted by climate risks. Such reporting can follow the Taskforce on Climate-Related Disclosures (TCFD) standard.
- Climate-risk stress tests** – These force organizations to show how they would perform under multiple climate scenarios. The results from the stress tests could ultimately compel banks and insurance companies to keep higher capital reserves.

Why care about climate-risk disclosure? Climate risk encompasses both the physical and transition risks linked to climate change. These physical consequences are increasingly impacting companies and represent a new liability for financial institutions as a result. In addition, with more governments taking climate action, corporations and financial market participants face growing transition risk in the form of new low-carbon policies, as well as litigation due to inaction. Governments must therefore enforce measures to ensure the right data is collected and published for financial players to accurately assess such climate risks. But the ultimate goal is for financial institutions to price the impact of climate change into their investment or lending activities, to mitigate the risk of an economic crisis and progressively shift financial portfolios away from activities not aligned with a low-carbon economy.

The rising number of robust climate-risk policies in development indicates these will become the standard

This report classifies the G-20 countries based on whether they have passed or written laws that create the right regulatory environment to force corporations and financial institutions to assess their exposure to climate risks and drive action to reduce it. Such policies should be gradually implemented to enable organizations to develop the right skills without creating a compliance burden. Education and change in internal processes are required.

- As outlined above, two important sustainability reporting standards with global reach have been issued in 2023. But climate-risk disclosure following such frameworks has yet to begin: ESRS reporting will only start in 2025 covering financial year 2024 for some companies and will be then extended to other firms. The ISSB framework is only voluntary for now. Some jurisdictions, such as [Japan](#) and the [UK](#), are translating the ISSB guidelines into law, but this will take several years. In addition, China, the EU, Japan, the UK and the US are part of the [jurisdictional working group](#) that aims to enhance the compatibility between the ISSB work and countries' regulatory developments on sustainability disclosure.
- The results of the first climate-risks stress tests, run by the European Central Bank and Bank of England, revealed important gaps and blind spots in banks' processes for assessing and mitigating their exposure to climate risks. Some environmental risks have still to be addressed and even when the policies are passed, they have yet to be implemented. The ECB even warned that some banks have ignored warnings from their own specialists on certain lending decisions to heavy polluters. The climate-risk stress tests so far also revealed the need for education and tighter supervision. But central banks should also use the results from climate-risk stress tests to force banks and insurance companies to keep higher capital reserves, forcing them to take action. Finally banks' strategies refer to climate change, but most do not explain how they aim to diversify their sources of revenue to move away from carbon-intensive sectors.
- One potential reason why financial players have yet to decarbonize their portfolios is that the economy itself is not yet decarbonized enough, as the 2023 EU taxonomy reporting highlighted. Certain sectors like healthcare and aviation do not have the criteria to prove their green credentials. But even the sectors with the required criteria record low levels of green revenue and capital expenditure. A low level of alignment represents both an opportunity for financial participants to fund green projects, and a risk if their portfolios hold firms that are not ready for the low-carbon economy. Despite being a robust tool to assess transition risk, only the EU has made taxonomy reporting mandatory. Most G-20 countries may have introduced or are devising a green taxonomy, but they remain voluntary.

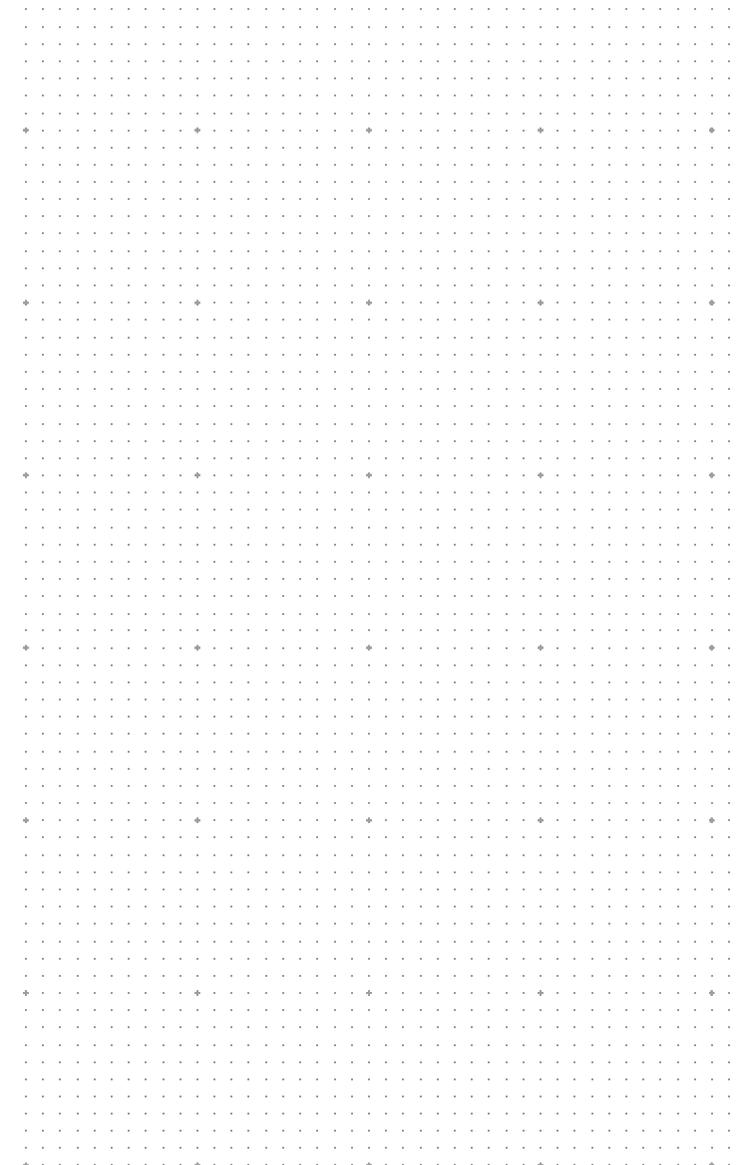
Progress on climate-risk policy

	COP28	COP27
Argentina	Red	Red
Australia	Red	Red
Brazil	Green	Green
Canada	Red	Red
China	Red	Red
France	Green	Green
Germany	Green	Green
India	Yellow	Yellow
Indonesia	Red	Red
Italy	Green	Green
Japan	Yellow	Yellow
Mexico	Yellow	Red
Russia	Red	Red
Saudi Arabia	Red	Red
South Africa	Yellow	Yellow
South Korea	Red	Red
Turkey	Red	Red
UK	Green	Green
US	Red	Red
EU	Green	Green

Source: BloombergNEF. Note: [Click here](#) for definitions. Ratings for France, Germany and Italy take account of EU-level policies.

■ Right direction
■ Mixed
■ Wrong direction/insufficient progress

Methodology and assumptions



Methodology and assumptions

Fossil-fuel support

- Fossil-fuel data covers support for oil, coal, natural gas and fossil-fuel-fired power from governments, public finance institutions and state-owned enterprises (national-level companies with at least 50% ownership). Each of the 19 individual country members of the G-20 were scored based on the four metrics in the table below (each weighted equally). In addition, members with public finance institutions with a full coal exclusion policy were awarded an additional three points, based on definitions from [OCI's 'Public Finance for Energy' database](#). Members with single or multiple coal exclusions were allocated 1.5 points, and those with no such policy received no additional points.
- The change in fossil-fuel support relates to the 2017-2021 period and the total per capita is for 2021 because national-level data for 2022 is not yet available. The 2022 estimate is provisional only.
- In general, these figures are likely to be an underestimate because countries and states vary in the transparency of their reporting. For example, no data was published on public finance for fossil fuels by Turkey's government-owned banks and export credit agencies. Public finance was attributed to the country where the institution is headquartered, not the location of the project or initiative. Regarding expenditure by state-owned enterprises, where aggregate estimates at the project level differed substantially from project-level reporting, we used the former, as was the case for Export Development Canada, for example.

Scores

Points allocated	Change in total fossil-fuel support, 2011-2021	Per-capita fossil-fuel support, 2021	Change in coal-power capacity, 2018-2022	Coal-power pipeline relative to existing coal capacity	
				Annex I*	Non-Annex I
6	Reduction of 20% or more	Under \$150	Reduction of 20% or more	0%	0%
4	Reduction of 1-19%	\$150-299	Reduction of 1-19%	–	1-10%
2	Increase of 1-19%	\$300-499	Increase of 1-19%	–	11-20%
0	Increase of 20% or over	Over \$500	Increase of 20% or over	Over 0%	Over 20%

Rating

Rating	Total score
	12-16
	8-10
	2-6

Source: BloombergNEF. Note: *Annex I parties were given a score of zero if they had any coal-fired capacity in the pipeline.

Data sources

Type	Sources
Direct budget transfers, tax breaks, retail energy price support	2017-2021: Organization for Economic Co-Operation Development, International Energy Agency and International Monetary Fund's 'Fossil Fuel Subsidy Tracker' 2022: producers - IMF's 'Energy Subsidy Template' (July 2023 edition), consumers and general support – 2019-2021 average of OECD data
Public finance institutions' support and coal exclusion policy	Oil Change International's 'Public Finance for Energy' database
Expenditure by state-owned enterprises	International Institute for Sustainable Development (2023)
Coal-power capacity and pipeline	BloombergNEF, Global Energy Monitor (July 2023)

Methodology and assumptions

Carbon pricing

- To rank the countries, only international, national or state/province-level carbon-pricing policies were included. The share of emissions covered takes into account any overlapping schemes.
- The pricing data was for the average for the 12 months to November 2023, or the latest available. France and Germany have the EU ETS and a national carbon price in place, while the US has multiple state- or province-level policies. In such cases, the price was a weighted average based on the emissions of each pricing scheme.
- For Canada, we used the backstop federal standard and Mexico the federal carbon tax rate.

Scores

Points allocated	Status	Share of emissions covered	Latest price	Change in price since COP27 Factbook
6	Nationwide	Over 66%	Over \$30	21% or more
4	Under discussion or subnational over 30% of national emissions	34-66%	\$15-29	11-20%
2	Other subnational	1-33%	\$10-14	0-10%
0	None	0%	Under \$10	Reduction

Source: BloombergNEF.

Rating

Rating	Total score
	7 - 12
	1 - 6
	0

Climate-risk policy

- The climate-risk policy scoring methodology has been updated for this Climate Policy Factbook to broaden the scope of policies covered. This methodology has been applied to the scores for the COP27 edition and may therefore differ from those published in November 2022.
- The new methodology ranked the G-20 members based on the types of climate-risk policy shown in the table on the right. We only allocated points to mandatory international or national measures that had been passed, meaning policies under discussion or development were not included.
- Policies are classified as 'under discussion' when the government has only announced them, while they are considered to be 'under development' once policymakers are actively designing them.
- We allocated the full number of points for each policy type even if the measure only targets a subset of financial institutions or companies such as only listed corporations or only pension funds.

Scores

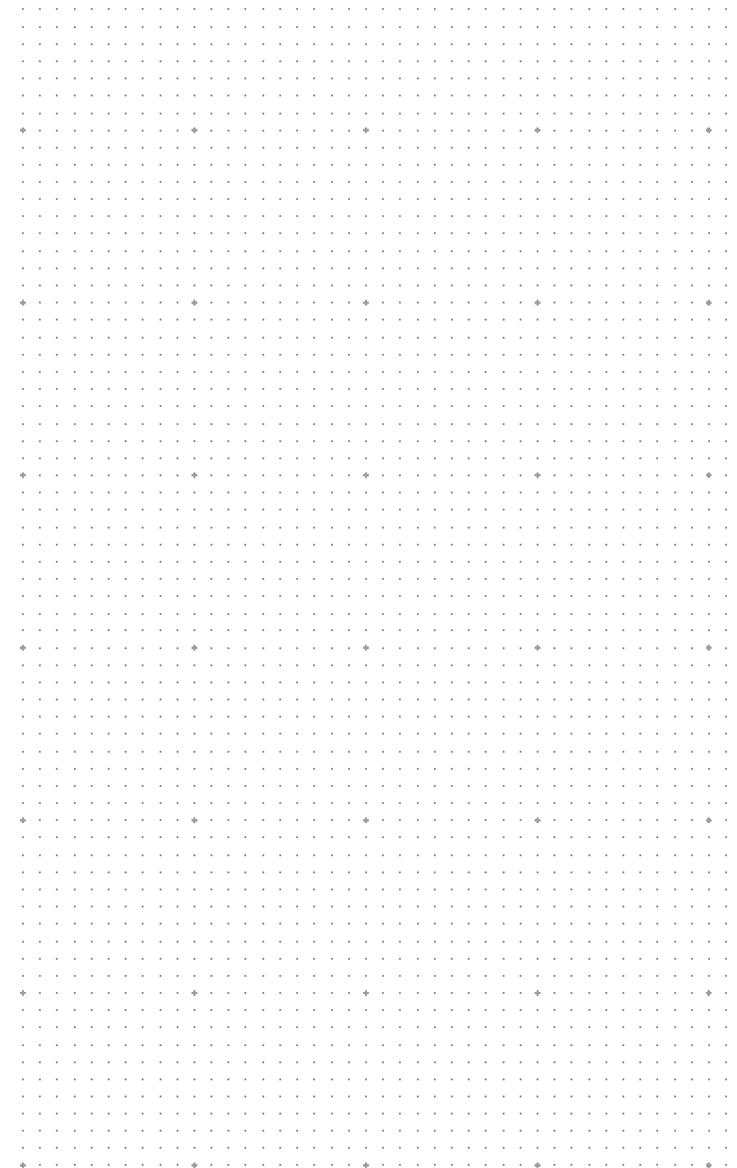
Points allocated	Policy type
1	Generic ESG disclosure policies
2 for mandatory policies, 1 for voluntary policies	Environmental taxonomies
3	Climate-risk disclosure policies for companies
3	Climate-risk disclosure policies for financials
1.5 for pilots, 3 otherwise	Climate-risk stress testing

Source: BloombergNEF

Rating

Rating	Total score
	8 - 12
	4 - 7
	0 - 3

Country snapshots



Argentina

Non-Annex I party

Argentina last updated its Nationally Determined Contribution (NDC) – its plan to help achieve the goals of the Paris Agreement – in 2021, pledging to cap emissions at 349 million tons of CO₂ equivalent in 2030. This would translate to a 10% reduction over 2019-2030 – below the 25% decrease needed to limit warming to 2C above pre-industrial levels. The country has taken steps to decarbonize its power system. But large-scale renewables auctions have stalled and the economic crisis is hindering financing, including much-needed grid investment. More policy support will be required to achieve its net-zero target for 2050.

- Argentina cut fossil-fuel support for a fourth year in 2021, marking a 13% reduction since 2017. But it has the second-highest per-capita total at \$665 in 2021 – more than double Mexico's \$315, for example. Note that the Argentine peso devalued significantly against the dollar over this period, meaning these figures in US dollars could well be an understatement.
- Investment from oil and gas state-owned enterprises YPF and Integracion Energetica Argentina accounted for two-thirds of the country's 2021 fossil-fuel support. Power increased its share of fossil-fuel support to 19% in 2021 – up from 4% in 2017 – but this also benefits oil and gas players given that these fuels provide the biggest share of electricity generation (59% in 2022).
- Argentina has had a carbon tax since 2018. But it has only a modest impact in practice: not only is it limited to liquid fuels and coal, but the price is low. It averaged 1,440 pesos per ton in July – equivalent to \$5 per ton based on exchange rates then. Without the currency devaluation in recent years, the dollar value would be higher.
- In May 2023, the Ministry of Economy adopted a national strategy on sustainable finance, which lays out plans for more climate-risk policies such as a green taxonomy and some stress tests for financial institutions. The same month, the Central Bank of Argentina released the results of the first National Survey on Sustainable Finance and Climate Change carried out in the last quarter of 2022. The results show financial institutions' growing interest in promoting sustainable finance. Argentina has few sustainable finance policies and only mandates some generic non-standardized ESG disclosure for companies, dating back from 2008.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

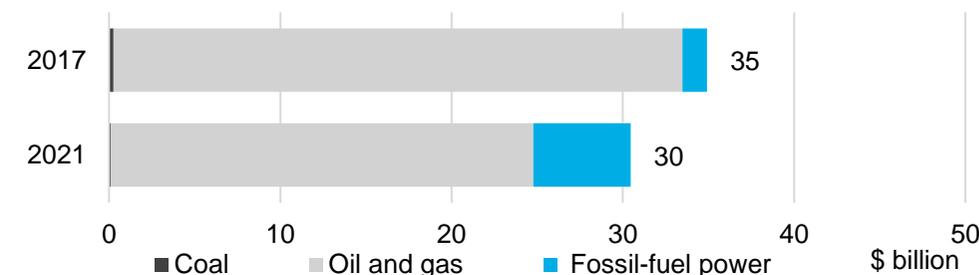


\$161 billion

0.3%

78%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to July 2023



✓

20%

\$5/metric ton*

* Average of diesel, gasoline and coal. Adjusted for fluctuations in the Argentina peso.

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓

✗

✗

✗

✗

Australia

Annex I party

In its first 18 months in power, the Australian Labor Party has taken steps to promote climate action, including a legislated net-zero target and higher 2030 emissions-reduction goal (43% below 2005 levels compared with the previous 26-28% pledge). It has also announced changes to its carbon-pricing scheme and support for energy storage and clean hydrogen, among other things.

- However, Australia has yet to show an improvement on fossil-fuel support, with a 23% increase between 2017 and 2021. As a result, it provides the fourth-highest sum per capita and the second-highest out of the Annex I parties.
- The majority of this support comes in the form of tax breaks and budgetary transfers: in 2021, the country saw US\$8 billion in foregone taxes. It has no explicit exclusion policies on public finance for coal, other than the OECD restriction on Export Finance Australia. However, coal accounts for very little of the country's fossil-fuel support.
- While a federal coal phase-out target seems out of reach for now, three of Australia's four coal-heavy states have set renewables or coal-retirement goals. Corporations that own coal plants have also announced ambitious low-carbon targets that could accelerate the retirement of their assets. BNEF clients can read more in *End of Australian Coal Could Come Sooner Than Anticipated* ([web](#) | [terminal](#)).
- In November 2022, the Australian Prudential Regulation Authority (APRA) published the results of its first climate vulnerability assessment of the country's five largest banks. APRA also unveiled [guidance](#) for investors to manage climate risks. In December 2022, the Treasury published a [consultation paper](#) on a mandatory climate-related financial disclosure regime for Australian companies, with a planned start date of 2024/25. It would follow the TCFD or ISSB frameworks. So far, Australia only has some very generic ESG disclosure for companies through its Companies Act, dating back from 2001.
- In April 2023, the government [announced](#) that it would co-fund the development of a national sustainable finance taxonomy by the Australian Sustainable Finance Institute.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

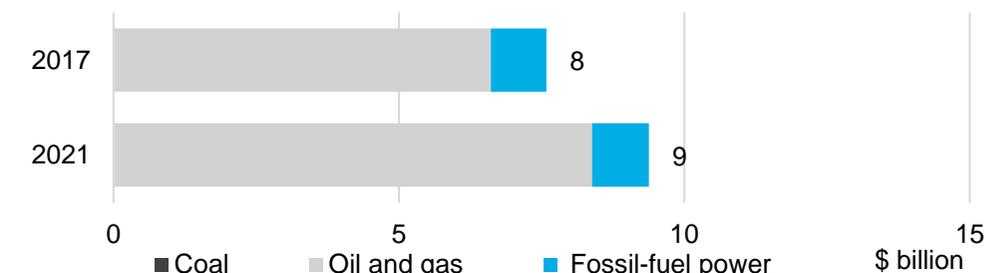


\$39 billion

0%

25%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

50%

\$21/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓

Under development

Under discussion

✗

✓ Pilot

Brazil

Non-Annex I party

Since taking the helm in January 2023, President Luiz Inacio 'Lula' da Silva has taken steps to reposition Brazil as a major climate player. The energy transition is likely to be a key topic at the 2024 G-20 summit in Rio de Janeiro, and Belem on the edge of the Amazon rainforest hosts COP30 in the following year. National policy has also improved, with a hydrogen strategy under development and headway on offshore wind and grid transmission. However, tensions with a conservative Congress could slow progress.

- Brazil reduced fossil-fuel support by 46% over 2017-2021, giving it the fourth-lowest total per capita by the end of the period. Note that the Brazilian real devalued significantly against the dollar over this period, meaning these figures in US dollars could well be an understatement. Lula's green transition initiative includes a plan to gradually end fossil-fuel subsidies. But Lula is also a strong supporter of Brazil's large state-owned companies like national oil player Petrobras, which aims to increase its role in the energy transition but also expand oil and gas production. The government recently approved Petrobras' proposed deepwater exploration drilling program in the Equatorial Margin. More generally, Brazil continues to develop liquefied natural gas-to-power projects and offshore gas. If the three major offshore gas developments come online, they could double the national production from the average seen over the last five years.
- Another component of this package is a compliance carbon market. In October, the Senate approved a bill to create a regulated emissions trading scheme covering companies with emissions over 10,000 tons per year. The proposal has yet to be approved by the Chamber of Deputies.
- Brazil is Latin America's leader for sustainable finance policy. The Brazilian Central Bank passed regulations to force financial institutions to report on climate risk and integrate it in their stress-test analysis. In November 2022, the BCB also published findings from its top-down analysis of climate risk in its financial stability report. Brazil does not have any corporate ESG reporting beyond the one requested from listed companies.
- The Brazilian Federation of Banks published a voluntary sustainable taxonomy to be used as an industry tool in 2020 and in September 2023 the Ministry of Finance launched a consultation for a government-led Sustainable Taxonomy.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

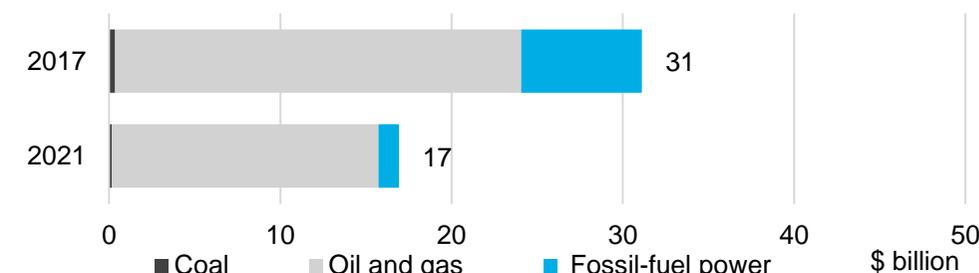


\$152 billion

0.9%

68%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



Under discussion

0%

Not applicable

Climate-risk policy (mandatory)

- Generic ESG disclosure Financial institutions/listed companies
- Environmental taxonomy Voluntary – government one under development
- Climate-risk disclosure for companies ✗
- Climate-risk disclosure for financials ✓
- Climate-risk stress test ✓



Canada

Annex I party

Under its latest NDC issued in 2021, Canada pledged to cut emissions by 40-45% below 2005 levels by 2030 and reach net zero by 2050. More federal and subnational policy support could well be required to realize both commitments. This is especially true outside the power sector, which is already largely decarbonized. That said, the last year has seen improvements in incentives for low-carbon fuels, carbon capture, utilization and storage, and energy efficiency.

- Canada is now what we class 'moving in the right direction' on fossil-fuel support, having cut its per-capita total to \$298 in 2021 – down 41% on the year before. Export Development Canada has a full exclusion on thermal coal and multiple policies to reduce support for oil and gas. As a result, public finance for fossil fuels fell by two-thirds over 2017-2021. In addition, the government has issued the first guidelines to be released by a G-20 policymaker to identify and prevent inefficient fossil fuel subsidies.
- Canada reduced its coal-fired generating capacity by 43% over 2018-2022. With a ban on unabated coal power for 2030, it has no new capacity planned. The federal government is supporting provinces' transition, with C\$20 million (\$15 million) of funding announced in October for Nova Scotia and New Brunswick.
- Canada is one of the few G-20 members with a carbon price in line with a 2C scenario and in November 2023, the government imposed a three-year pause on the charge for residential heating fuel. At the subnational level, Nova Scotia's carbon market ended in 2023, Quebec is reforming its market, and British Columbia's industrial carbon market starts in 2024, adding to its existing CO2 tax.
- Canada does not have a robust climate-risk regulatory framework, with only generic ESG disclosure for corporations. But a lot is in the pipeline: it has yet to release its green and transition taxonomy. In 2021, the Canadian regulator proposed a new rule to force issuers to report climate-related risks, excluding investment funds and issuers of asset-backed securities, but the amendment has been put on hold. The Canadian regulator ran a pilot climate-risk stress test in 2022 and in October 2023 the Office of the Superintendent of Financial Institutions released a draft on requiring 353 financial institutions to complete a standardized report to assess transition and physical climate-risk exposure. This is up for consultation.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

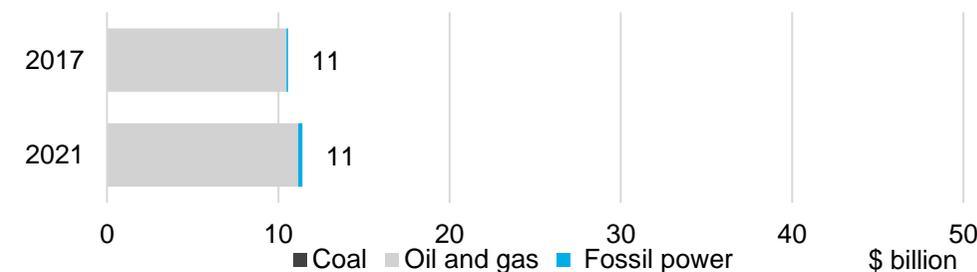


\$71 billion

0.1%

84%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

78%

\$48/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓

Under development

Under discussion

✗

✓ Pilot. Mandatory under discussion

China

Non-Annex I party

The last year has seen policymakers roll out more policies and regulations to realize China's goals for peak carbon emissions by 2030 and carbon neutrality before 2060. At the same time, they need to balance these ambitions against priorities for economic expansion and mass deployment of new technologies. China remains a renewables giant and doubled electric vehicle sales in 2022, with a last-minute surge due to the imminent expiration of national subsidies.

- China leads the G-20 members on absolute volumes of fossil-fuel support, with \$137 billion provided in 2021 – 19% more than in 2017. However, it halved funding for coal over the period, and on a per-capita basis in 2021, it is in the lowest third of the G-20.
- Despite policymakers' green energy push, China is doubling down on its aim of ensuring security of supply by strengthening domestic fossil-fuel production. Coal will therefore remain a mainstay of the energy system to ensure supply security, accounting for 59% of power generation in 2022. If the planned pipeline of new coal plants is built, it would expand current capacity by a third.
- Carbon prices remain muted in China, with a generous share of permits allocated for free. But there are signs that the national scheme could be expanded to heavily emitting industries such as aluminum and steel. These players are now subject to new rules for carbon reporting, though they are unlikely to be incorporated into the national market before 2024.
- China does not have any policy to promote ESG or climate-risk disclosure for companies. However, the government has published guidelines for banks and insurers on how to integrate environmental and climate-related factors into their credit business.
- The government developed its green taxonomy quite early, which is referred to as the Green Bond Endorsed Projects Catalogue. China also developed a common-ground taxonomy with the EU to identify the similarities and discrepancies between the two region's green frameworks. The People's Bank of China ran its first climate-risk stress test in 2021 on 23 major banks; some future phases are expected but the dates remain unknown.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

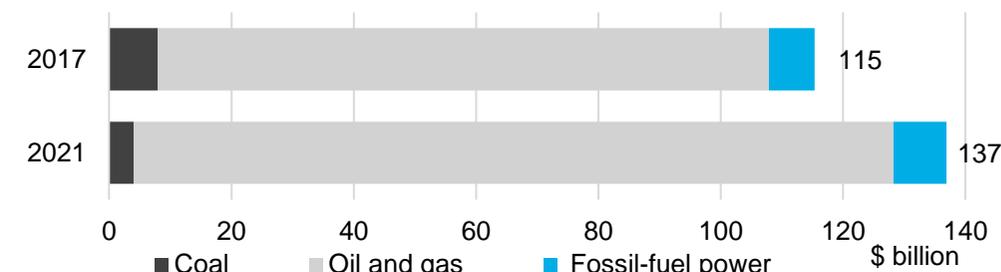


\$606 billion

2.9%

84%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

44%

\$9/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✗

✓

✗

✗

✓ Pilot

France

Annex I party

France is second only to Germany for its low-carbon policy mix, based on BNEF's 2023 *G-20 Policy Scoreboard* ([web](#) | [terminal](#)). Some of its boldest targets and mandates have been implemented at the EU level, and therefore also apply to Germany and Italy. In the last year, the bloc has boosted support for renewables and low-carbon fuels, as well as the EU ETS, partly driven by the energy crisis. In addition, the last year has seen France improve national policies to decarbonize the industry and buildings sectors.

- France has made mixed progress on fossil-fuel support, which rose by almost a quarter over 2017-2021. As a result, it has the highest per-capita total of the G-7 countries. Half of France's 2021 total comprised expenditure by state-owned enterprises in fossil-fuel power. One example is Electricite de France, which owns almost a third of the country's fossil-fuel generating capacity.
- France's public financial institutions cut fossil-fuel support by a third over 2017-2021. They have a full exclusion policy on coal and some organizations ban oil and gas-power funding. With its reliance on nuclear, France reduced coal-fired generating capacity by 40% over 2018-2022. But it has delayed its coal power phase-out by three years to 2027 due to the energy crisis.
- The country performs better on carbon pricing, with 80% of emissions covered by the national tax or EU ETS.
- France has a strong climate-risk policy framework, both through its national laws and as an EU member state. The [Sustainable Finance Disclosure Regulation](#) (SFDR) requires asset managers to assess their exposure to climate risks and disclose how they aim to mitigate them. The French central bank [ran](#) a climate-risk stress test in 2020 and the ECB published [results](#) of the stress test it mandated on more than 100 banks in 2022.
- In 2023, the EU passed the European Sustainability Reporting Standards (ESRS) which will be the standardized framework that thousands of companies will have to [follow](#) to report their exposure to climate risks. It starts from 2025 for the first group of targeted firms. The EU's policies rely on the concept of dual materiality, meaning what matters is both how climate-related risks impact a company's financial value and a company's negative impacts on the climate.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

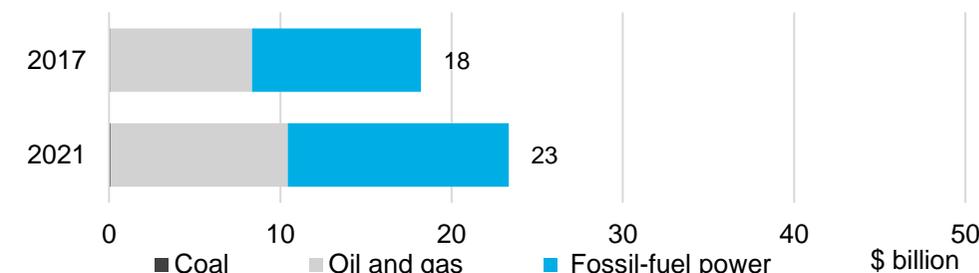


\$106 billion

0.3%

59%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



80%

\$74/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Passed – pending enforcement



Germany

Annex I party

Germany tops the G-20 members for low-carbon policy, based on BNEF's 2023 assessment ([web](#) | [terminal](#)). In particular, it has some of the best support packages for electric vehicles and clean hydrogen, and is planning a new carbon management plan for CO2 storage and utilization, and a potential ban on new fossil-fuel boilers. These measures should help Germany realize its 2045 net-zero target – five years earlier than the EU-level goal.

- In contrast to France and Italy, Germany reduced fossil-fuel support by a fifth over 2017-2021, mainly driven by a 34% fall in funding for producers. But the country had the second-biggest share of support for coal, principally in the form of tax breaks for consumers and budgetary transfers for producers and utilities.
- In terms of coal-fired generating capacity, Germany reduced its total by 18% over 2018-2022. It restarted some coal plants on the grounds of managing the energy crisis. But unlike France, this move is expected to be temporary and will not affect its albeit quite unambitious phase-out deadline of 2038.
- Germany has the largest share of national emissions covered by a carbon price, thanks to the EU ETS and its domestic market. Until 2025, the national program has a fixed price, which remains at €30 per ton (\$32 per ton). The scheduled rise to €35 per ton (\$37 per ton) in 2023 was delayed by a year. Auctioning begins from 2026.
- Germany has devised its own climate-risk policy but also benefits from the EU regulatory framework. Climate-risk disclosure is mandatory in Germany for investors, corporations and banks through the [SFDR](#) and [ESRS](#). In addition, a [rule](#) passed by the European Banking Authority in 2022 requires banks to provide information on how they are managing ESG risks and exposure to the EU green taxonomy and Paris-aligned activities. More broadly, the EU green taxonomy also requires thousands of companies to report the share of their revenue, and capital and operational expenditure that can be considered 'green'. It also requires disclosures from financial institutions and is the only green taxonomy in the world that mandates alignment disclosures.
- As an EU member state, German banks also had to take part in the ECB's 2022 bottom-up climate-risk [stress test](#). To complement this, in 2023, the ECB published the results of its second economy-wide, top-down climate stress test, looking at the risks from a macro level.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

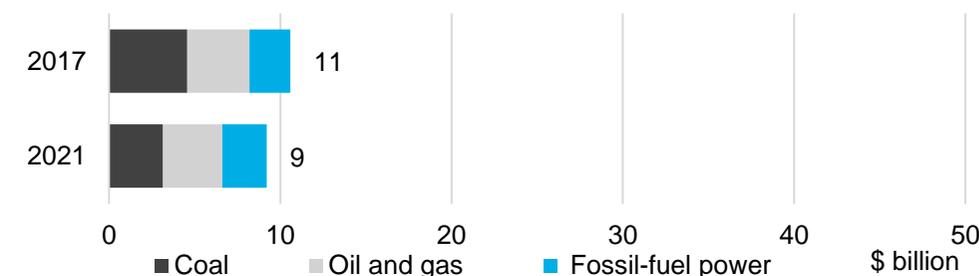


\$58 billion

34%

36%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



85%

\$63/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Passed – pending enforcement



India

Non-Annex I party

India is a global leader for clean energy auctions in terms of capacity volumes and program design. The last year has also seen the government improve support outside the electricity sector, with incentives for clean hydrogen, CCUS and EVs. To realize its 2070 net-zero target, it could well need to implement more measures focused on the agriculture sector, which accounts for a quarter of India's emissions.

- India has made mixed progress on fossil-fuel support, achieving the fifth consecutive year-on-year decrease. As a result, the country provides the least fossil-fuel support of all G-20 members, with the majority comprising expenditure by state-owned enterprises. However, India remains reliant on coal, which provided 75% of power generation in 2022. While it only expanded coal-fired capacity by 3% over 2018-2022, it has plenty in the pipeline: if built, this could increase current capacity by 27%.
- However, the country is making progress toward creating a carbon market, with the plan to start with a voluntary system in the short to medium term before introducing a compliance program. In June 2023, the government announced the organizational framework and structure to create the new Carbon Crediting Trading Scheme. Then in October, draft rules were released for the planned compliance program, which will have an intensity-based emissions cap, rather than an absolute limit, and cover various industrial sectors at the start.
- Increasingly volatile weather patterns and other climate-related risks threaten India's growth prospects, leading policymakers to rethink their regulatory agenda. The Listing Obligations and Disclosure Requirements Regulations by the Securities and Exchange Board of India (SEBI) require companies to establish a policy on risk management, including sustainability and ESG-related risks. In 2021, SEBI also amended a 2012 regulation and now requires the 1,000 largest listed companies publish a Business Responsibility and Sustainability Report (BRSR) as of financial year 2022-23.
- During a panel discussion in July 2023, the Deputy Governor of the Reserve Bank of India reiterated that the central bank was about to release a framework to implement a climate-risk stress test.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

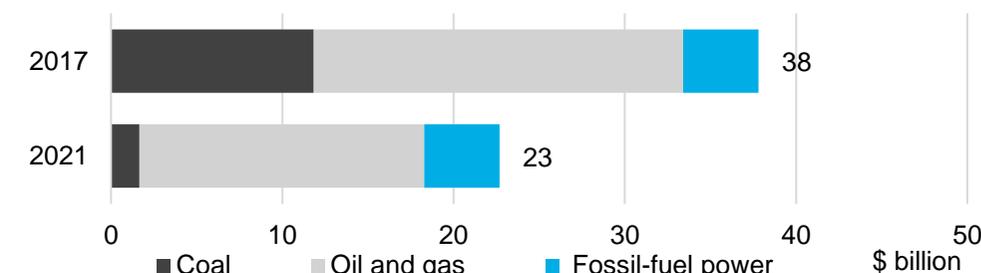


\$155 billion

7.2%

81%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



Under discussion

0%

Not applicable

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓ For listed companies

✗

✓ For listed companies

✗

✗ Under discussion

Indonesia

Non-Annex I party

Indonesia aims to reduce its emissions by 32% by 2030 relative to the government's business-as-usual scenario. In the longer term, it aspires to reach net zero by 2060, which potentially represents a \$3.5 trillion investment opportunity based on BNEF analysis ([web](#) | [terminal](#)). But the country lags on concrete policy support, and will need to undertake regulatory and market reform, and kickstart low-carbon investment.

- Despite undertaking energy-subsidy reforms, fossil-fuel support in 2021 was more than double the volumes seen in 2017. Half of the that sum comprised expenditure by state-owned enterprises. Such companies' reliance on government subsidies will make it tough to phase out this support. Indeed, state-owned utility PLN believes its mission is to "provide subsidized electricity to the public".
- Having expanded coal-fired generating capacity over 2018-2022, Indonesia has the biggest pipeline relative to its operational fleet. It has also made mixed progress on coal policy: announced in 2022, the Indonesia Just Energy Transition Partnership mandates tougher decarbonization goals, such as achieving peak power emissions by 2030, seven years earlier than planned. But its recently released JETP investment plan only identifies two coal-power plants for early retirement and includes no limits for captive coal-power plant build.
- In September 2023, Indonesia kicked off a mandatory emissions trading program and a new carbon exchange to host trading of voluntary offsets and compliance permits. The scheme only applies to coal-fired power plants over 100 megawatts in the first two-year phase.
- But the government has yet to clarify how the scheme will work in practice. In particular, there are questions about how it is meant to complement the future carbon tax. The levy, which is due to be introduced by 2025, is set at 30,000 rupiah per ton (\$1.92 per ton) – well below the rate needed to drive decarbonization.
- Indonesia launched its voluntary green [taxonomy](#) in January 2022, but beyond that the country lacks climate-risk policies. Financial institutions, issuers and listed companies (with sufficiently large assets) are [required](#) to submit an annual sustainability report, including an action plan on sustainable finance. It will be expanded to other financial institutions by 2025. The Financial Services Authority also published a sustainable finance roadmap in 2021.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

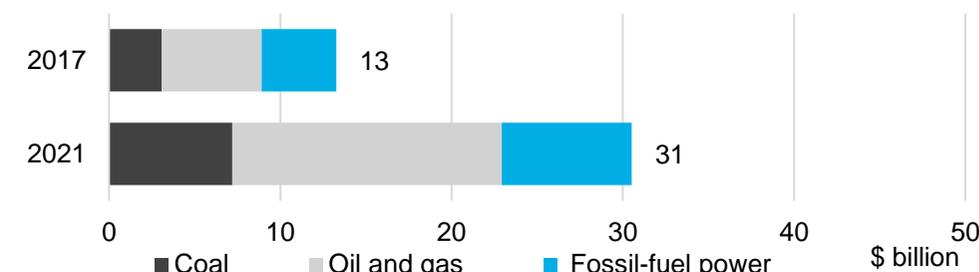


\$106 billion

24%

70%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

26%

—

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✗

✓

✗

✗

✗

Italy

Annex I party

Like Germany and France, Italy is covered by the EU's binding targets to cut greenhouse gas emissions by at least 55% by 2030 below 1990 levels and to reach net zero by 2050. It has implemented the best low-carbon sectoral support targeted at the power system, although renewables build has been hindered by grid connection delays. Compared with Germany and France, it has much less national hydrogen support and its slow start to introduce purchase subsidies means it lags on EV sales.

- Italy has been downgraded to 'mixed progress' in this year's Factbook, having provided a third more fossil-fuel support in 2021 relative to 2017 levels. The increase was mainly caused by more budgetary transfers for oil and gas.
- With regards to coal, Italy's public financial institutions only have multiple partial exclusions in place and thus still provided modest coal funding in 2021. The country also reduced its coal-fired generating capacity by 44% over 2018-2022 – the second-biggest decrease out of the G-20. It has no new capacity in the pipeline.
- Unlike France and Germany, Italy does not have a national-level carbon price on transport and heating fuel. However, this is set to change with the start of the EU ETS reforms agreed in the last year. This includes a new separate carbon market for heating and road transport, with reporting requirements to begin in 2024.
- Climate-risk disclosure is mandatory in Italy for investors, corporations and banks through the SFDR, the ESRs and a rule passed by the European Banking Authority in 2022 that requires banks to provide information on how they are managing ESG risks and exposure to the EU green taxonomy and Paris-aligned activities. Some Italian companies and financial institutions also need to report their alignment to the EU taxonomy, supporting the assessment of transition risk.
- Italy took part in the climate-risk stress test that the ECB ran in 2022. The Banca d'Italia also ran its own climate risk assessment focusing on the impacts of various one-off carbon taxes on households and businesses. The analysis uses a microdata-based approach to assess financial sector vulnerability.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

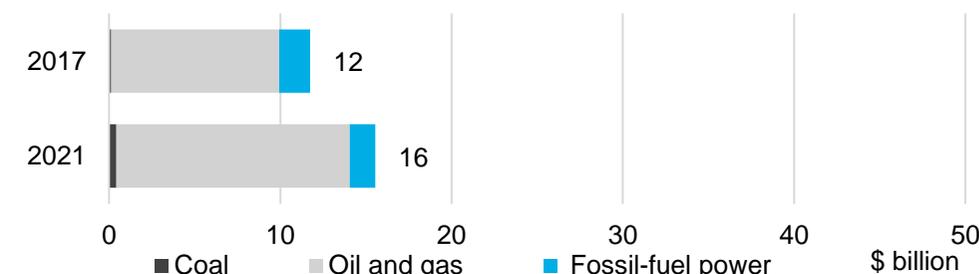


\$69 billion

2.7%

20%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



39%

\$93/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Passed – pending enforcement



Japan

Annex I party

Japan has issued several policies this year designed to promote the energy transition. Passed in May 2023, the Green Transformation (GX) Promotion Law seeks to couple Japan's economic growth and decarbonization, and aims for up to ¥150 trillion (\$1.1 trillion) of green investment. But its latest sector-specific policies tend to focus on unproven long-term solutions (like coal-ammonia co-firing for power) rather than commercialized technologies like renewables. As a result, it risks missing its emissions goals, including net zero by 2050.

- Japan further cut fossil-fuel support in 2021, marking a 17% drop since 2017. It curtailed coal funding by two-thirds over the same period, though it is one of the few Annex I parties in the G-20 with plans to add one more coal power plant.
- Japan's public finance institutions provide more fossil-fuel support than other G-7 nations – including by far the most coal financing – and they have the weakest exclusion policy. In 2020, the government said that, in principle, its institutions would not finance overseas coal-power plants in countries without decarbonization policies. But this pledge came with exceptions.
- The country's existing carbon tax will remain low for the time being, rendering it relatively ineffective as a decarbonization driver. However, the voluntary Green Transformation (GX) Emission Trading Scheme began in April 2023 and will gradually shift to a compliance program from April 2028. At this point, the government is also planning to introduce a new separate carbon surcharge known as the GX Surcharge covering fossil-fuel importers.
- The Bank of Japan and financial regulator published the results of the pilot climate-risk stress test in August 2022. This pilot was run on three major banks and three major non-life insurance groups.
- The 2021 revision of the corporate governance code states that listed companies should include both financial and non-financial information, including ESG matters, in disclosures on a comply or explain basis. Since March 2023, listed companies need to add a new section for sustainability-related information in the annual securities report (in other words, the statutory report) and report using the TCFD pillars (strategy, metrics and targets, governance and risk management). Japan also announced in March 2023 that it would develop new sustainability disclosure standards following the ISSB guidelines.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

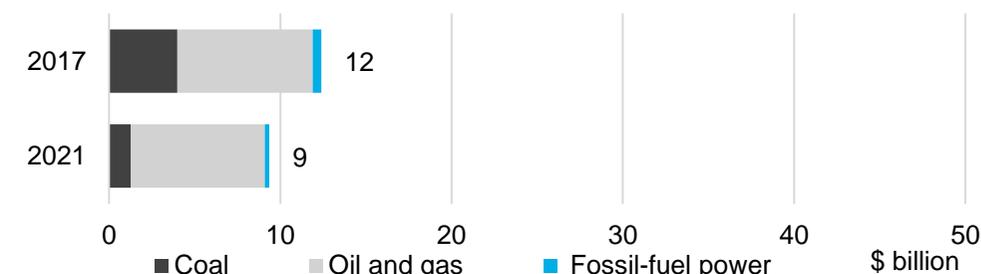


\$62 billion

14%

77%

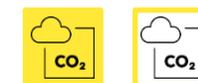
Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

68%

\$2/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓ For listed companies

✗

✓ For listed companies

✗

✓ Pilot

Mexico

Non-Annex I party

Unlike most G-20 members, Mexico has not committed to reach net zero and seems unlikely to do so at least until the 2024 presidential elections. In the meantime, President Andrés Manuel López Obrador's (AMLO) government seeks to strengthen state control of the energy sector, increasing uncertainty and deterring private investment. On the bright side, Mexico could benefit from changes in global trade and efforts to near-shore supply chains due to the pandemic and rising US-China tensions.

- Out of the G-20 members, Mexico had the biggest rise in fossil-fuel support over 2017-2021, with 34% compound annual growth. AMLO has also prioritized development of state-owned oil and power companies in the name of 'energy sovereignty'. Support for energy producers in 2021 was thus five times higher than five years before.
- The operational phase of the emissions trading scheme has been delayed by a year to 2024, to give the government time to finalize the regulations. Covering industrial and energy facilities with annual emissions over 100,000 tons, the program underwent a two-year pilot and a 'transition phase' in 2022. In addition, Mexico has had an economy-wide carbon tax since 2014. However, its low rate and exemptions (including natural gas) mean it has little impact.
- At subnational level, various states have implemented a carbon tax or have plans to do so. Colima is designing its levy for implementation in 2024. This will bring the total to eight, which vary widely in rate – from the state of Mexico at a similar level to the national tax, to Queretaro at 580 pesos per ton (\$33 per ton).
- Mexico has few sustainable finance policies. That said, it is the only G-20 country in the Americas with a government-recognized taxonomy, which is also the first in the world to consider both social and environmental issues. Mexico announced in 2019 that it would require pension funds to integrate ESG into their investment decisions. This is the country's one mandatory policy, which took effect in January 2022.
- No climate-risk stress test has been implemented by the Mexican central bank but in 2022 it produced a tool that aids financial institutions in diagnosing ESG and climate risks. The results of the disclosures are made public when they are completed, but participation in the self-diagnosis is entirely voluntary.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

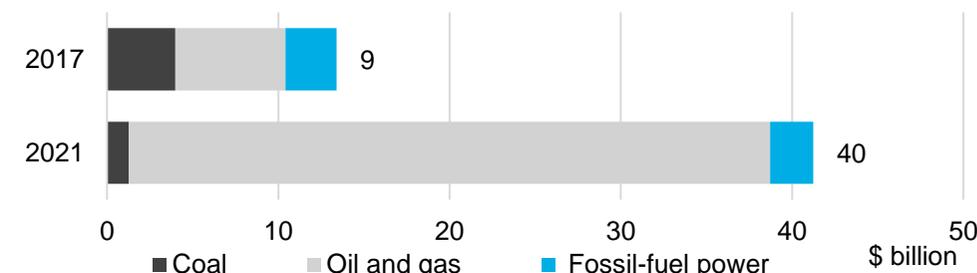


\$109 billion

0%

61%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



✓

40%

\$2/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✗

✓

✗

✓ For pension funds

✗

Russia

Annex I party

Russia last revised its 2030 emissions target in 2015 and President Vladimir Putin said in 2021 that the country would seek to become carbon neutral by 2060. However, this goal has yet to be legislated, nor has the government implemented concrete policy to realize this pledge. What low-carbon support is available is concentrated in the power sector, though renewables deployment has been modest.

- Russia is moving further in the wrong direction on fossil-fuel support, recording a 25% rise over 2017-2021. As a result, it has the third-highest per-capita sum, with almost all of this funding targeted at oil and gas producers. The support principally comprises tax breaks and expenditure by state-owned enterprises.
- The country increased coal-fired generating capacity by 11% over 2018-2022. However, it still provides relatively little power generation at 14%, with 84% of electricity supply coming from natural gas, nuclear and hydro.
- Trading began in January 2023 for the pilot compliance emissions trading scheme in Sakhalin, having been delayed from 2022. This will make it tougher for the gas-rich island to achieve carbon neutrality by 2025, as planned.
- The program covers companies with annual emissions over 20,000 tons. A 1,000 ruble per ton (\$11 per ton) penalty applies if they fail to comply with their cap. The Nizhny Novgorod and Kaliningrad governments have signaled that their regions also plan to introduce emissions trading.
- Russia does not have any climate-risk policy beyond its environmental taxonomy. The Russian Green Taxonomy covers waste management, energy, construction, industry, transport, water supply, biodiversity and agriculture. It is not a regulation and does not require mandatory reporting, but it can be used as a voluntary framework by companies and financial participants. Russia's taxonomy includes 'adaptation criteria' and provides an opportunity to develop transition criteria in the future. While it broadly aligns with the 'substantial contribution' components of the EU taxonomy, it does not include 'do no significant harm' criteria.
- Russia only has a broad Corporate Governance Code that listed companies have to report against, on a comply-or-explain basis. The Bank of Russia made an official announcement in 2021 recommending that listed companies disclose information about ESG factors.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

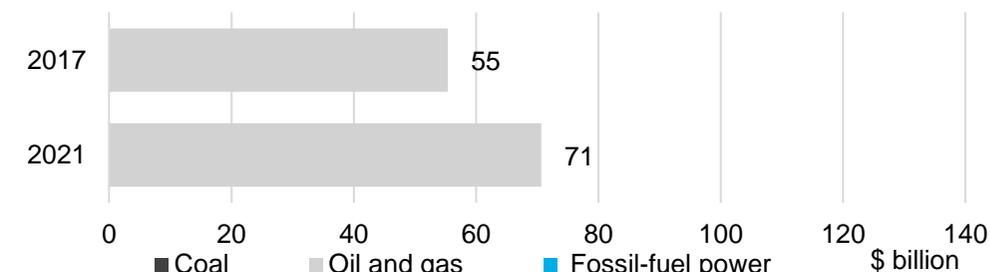


\$307 billion

0.1%

99%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



Subnational pilot

Less than 1%

\$11/metric ton*

* Traded price in January 2023 equal to 1,000 ruble per ton (\$11 per ton) penalty.

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



x

✓

x

x

x

Saudi Arabia

Non-Annex I party

Having seen its emissions climb by a fifth in the decade to 2020, Saudi Arabia will need to considerably improve policy support to realize its net-zero target for 2060. On the plus side, it will not necessarily have to reduce oil output since the pledge only applies to territorial emissions. Nonetheless, it will need more policy support to realize even these commitments. The kingdom aims to generate half its power from renewables by 2030, from less than 0.5% today, as part of the 'Vision 2030' plan to diversify Saudi's oil-reliant economy.

- At international climate talks, Saudi Arabia has actively opposed arguments for the decision text to include pledges to phase out fossil-fuel subsidies and questioned the scientific validity of findings from the UN Intergovernmental Panel on Climate Change.
- While some of its rhetoric has changed, Saudi Arabia has made little progress on reducing fossil-fuel support. It provides more on a per-capita basis than any other G-20 member at \$2,309 in 2021 – more than three times the second highest, Argentina. While half of the kingdom's total that year was consumer price support, the other half comprised expenditure by state-owned enterprises.
- Saudi Arabia has not signaled plans to introduce carbon pricing, although it is taking an increasingly active role in the voluntary market. The Saudi-backed Regional Voluntary Carbon Market Company has held carbon credit auctions and the kingdom has indicated it plans to create a domestic carbon-crediting system in 2024.
- Saudi Arabia does not have any climate-risk policy or guidelines. The Saudi Central Bank is part of the central bank Network for Greening the Financial System (NGFS).

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

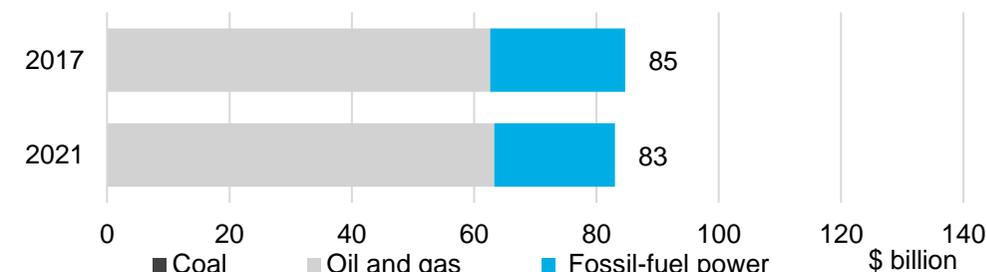


\$375 billion

0%

51%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



x

0%

Not applicable

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



x

x

x

x

x

South Africa

Non-Annex I party

South Africa has introduced more policy support to decarbonize the power system – by far its biggest emitter – than in other sectors. This includes the somewhat stop-start renewables auction scheme and recent regulatory changes and tax breaks to promote small-scale solar. Its latest 2030 emissions goal would be the third-most ambitious of the non-Annex I parties of the G-20. It also has a net-zero target for 2050.

- South Africa further boosted fossil-fuel support by 168% over 2017-2021. The main cause was increased expenditure by state-owned enterprises, which accounted for 77% of the 2021 total – up from 46% in 2017.
- The country remains reliant on coal for power, with the fuel providing 85% of generation in 2022. Coal-fired capacity expanded by 6% over 2018-2022 to 43GW. This could rise by 5-11% if the planned build is completed.
- South Africa does not have a fossil-fuel phase-out policy. However, there is a soft schedule for the closure of some of its coal power plants, with 7GW of retirements expected between 2021 and 2030, and the bulk of the remaining fleet to close from 2031 to 2050, as detailed in the government's 2019 Integrated Resource Plan, as well as the 2031-2050 schedule.
- In 2022, the government extended the first phase of its carbon tax to 2025. As a result, the generous tax-free allowances and other concessions will be in place for a further three years. While the rate is relatively low at 159 rand per ton (\$9 per ton) in 2023, it is scheduled to reach 462 rand per ton (\$25 per ton) by 2030.
- As part of the 2021 Common Scenario Stress Test (CSST), the South African Reserve Bank (SARB) piloted a climate-risk stress test. It focused mainly on the physical risks arising from climate change as a result of a drought scenario. For transition risks, participants completed a qualitative assessment of their foreseeable impact.
- Since 2011, South African pension funds have been required to consider and annually report any factors that may affect the sustainability of their long-term performance. This has included voluntary guidance on ESG risk consideration since 2019. South Africa published its green taxonomy in April 2022 and this is only a voluntary guide at present.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

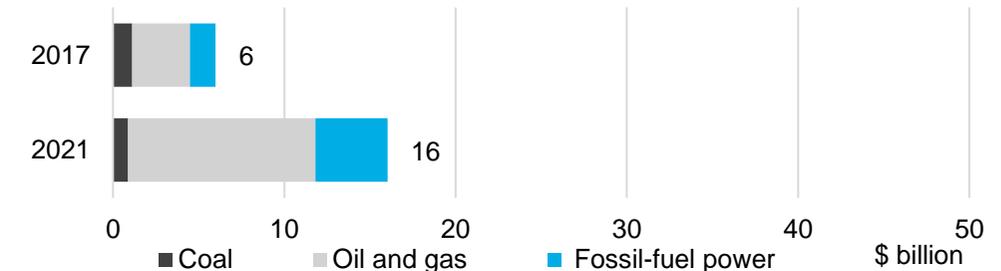


\$47 billion

5.4%

77%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



80%

\$9/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓ For listed companies



South Korea

Non-Annex I party

Renewables have been a hotbed of contention since Yoon Suk Yeol was elected president in March 2022. The previous administration's nuclear phase-out policy has been reversed and Yoon has floated the idea of building new reactors. Solar funding has been cut and new rules have introduced more hurdles for renewables developers. This will put in jeopardy its 2030 target for 21.6% renewable power, despite it being some way below the previous 30.2% goal.

- South Korea is now classified by BNEF as 'moving in the right direction', having reduced fossil-fuel support by 83% over 2017-2021. In particular, public financial institutions have significantly decreased funding, with minimal volume recorded in 2021.
- In addition, it provided 78% less total support for coal in that year relative to 2017. This would be in line with pledges made by former President Moon to end state-backed financing of domestic and overseas coal projects. South Korea still expanded its coal-fired generating capacity over 2018-2022 but at a slower pace than in the previous Factbook. Its pipeline has also shrunk.
- The national emissions trading scheme covers almost 73% of emissions. But its effect has been weakened by lower prices and continued high volumes of free permits. President Yoon's pre-election commitment to curb free allocation has yet to be realized.
- The Bank of Korea's analyzed the transition risks faced by the banking sector and published its results in the Financial Stability Report released in December 2021. The Korean Financial Supervisory Service also stated around that time that it intended to work with financial institutions to develop climate scenarios in order to conduct a wider stress test in the future. But no further announcement has been made.
- South Korea released its green taxonomy in December 2021, but only as a voluntary framework. The National Pension Service Act requires the National Pension Service to consider ESG issues and to declare the extent to which ESG considerations are taken into account in investment management.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

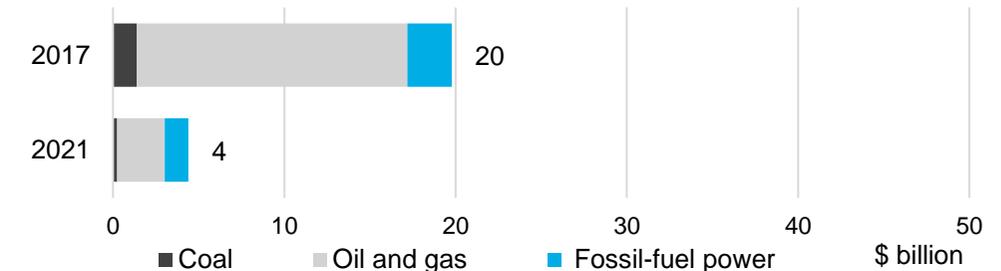


\$71 billion

5.1%

69%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



73%

\$10/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Turkey

Annex I party

Submitted in April 2023, Turkey's updated NDC includes a bolder 2030 emissions target. But the country has little support for low-carbon technologies and has sought to exploit domestic fossil-fuel resources (mostly coal) on the grounds of greater energy independence. Turkey has focused on power decarbonization and low-carbon fuels so far. Yet its renewables auction program has been scaled down and it has paltry concrete support to achieve its 2022 hydrogen strategy.

- In 2021, Turkey provided four times as much fossil-fuel support as in 2017 – the second-largest increase after Mexico. Support in the form of budgetary transfers and tax breaks both declined by a quarter over the period.
- But this was overshadowed by 15 times more expenditure by state-owned enterprises. Most of this investment was directed at coal, especially to mining companies (such as the Turkish Coal Operations Authority and Turkish Hard Coal Enterprises), as well as state utility Electricity Generation Company.
- Turkey has been discussing a carbon pricing scheme for some time, having participated in the World Bank's Partnership for Market Readiness program from 2011 and now its successor the Partnership for Market Implementation. In the country's updated NDC submitted in April 2023, establishing an emissions trading scheme is one of the targets in its Medium Term Programme (2023-2025) and Green Deal Action Plan. It will be a cap-and-trade program covering the energy and industry sectors.
- The Banks Association of Turkey published its Sustainability Guidelines for the Banking Sector in March 2021. They provide information on managing ESG risks to drive uptake among the largest domestic banks.
- The Capital Markets Board of Turkey passed its sustainability principles compliance framework in 2014. This requires listed companies to provide corporate governance information in their annual reports, on a comply-or-explain basis. The CMB announced some additional sustainability principles in October 2020, including environmental disclosures. Borsa Istanbul also published some sustainability guidelines for companies in 2020 to help firms attract international investors.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

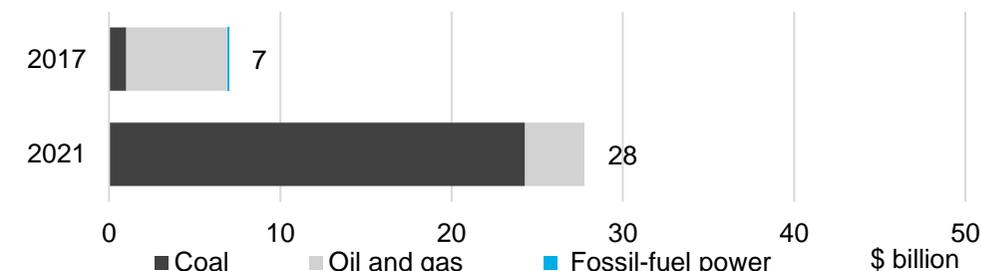


\$49 billion

88%

87%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



Under discussion

0%

Not applicable

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



✓ For listed companies

✗

✗

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Announcements in the last year have called into question the government's commitment to climate action. In September 2023, Prime Minister Rishi Sunak outlined his “new approach” to net zero. This included delays to the phase-out of petrol and diesel cars and certain fossil-fuel heating, and the cancelation of planned energy efficiency standards for rental properties. This came after multiple unexpected reductions in support for clean technology including heat pumps and EVs. In July, Sunak said “hundreds of new oil and gas [drilling] licenses will be granted in the UK”.

- The UK cut fossil-fuel support by 16% over 2017-2021, reducing funding for producers by a third. Most of the 2021 support came in the form of tax breaks for oil and gas. Public finance institutions still provided some coal support that year, despite having an exclusion policy. They also have bans on oil and restrict most gas finance except in “exceptional circumstances”. The UK also scored points for a 17% drop in coal-fired generating capacity over 2018-2022.
- Prices on the UK Emissions Trading Scheme fell 46% over the last year on the back of mild temperatures, reduced industrial demand and uncertain political ambition. In July, the market regulator responded to the consultation on reforms but pushed back many details to “later in 2023”.
- When it was part of the EU, the UK onboarded its ESG disclosure policy, also known as NFRD. The UK mandates the largest companies and financial institutions to report in alignment with the TCFD guidelines from April 2022 and expands such requirements over the following years. It is developing its Sustainable Disclosure Regulation (SDR) to create an overarching reporting framework for sustainability risks, impacts, and opportunities for corporations and financial institutions. The government is working on its green taxonomy, which, like SDR, is taking longer than originally expected.
- In 2021, the Bank of England ran its first pilot climate-risk stress test, involving the largest UK banks and insurers. It has yet to announce a date for a new climate-risk stress test. The Prudential Regulation Authority requires banks and insurers to integrate climate change considerations into wider risk management processes, and also necessitated them to start making climate-risk disclosures by the end of 2021.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

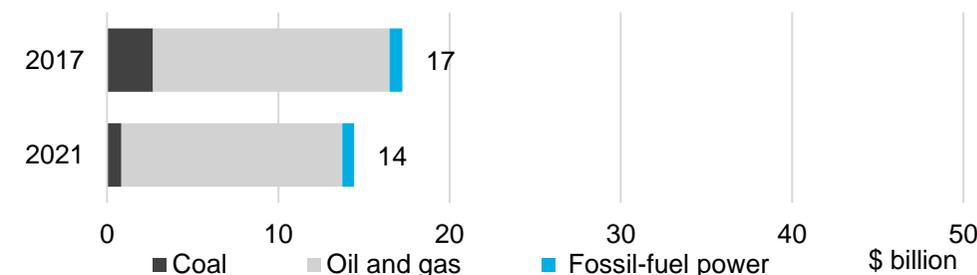


\$79 billion

5.8%

19%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



28%

\$75/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Under development



✓ Pilot

US

Annex I party

The US was the standout performer in BNEF's 2023 assessment of the G-20 policies ([web](#) | [terminal](#)). In large part, this was due to the Inflation Reduction Act, the country's most substantive climate policy to date, which provides over \$370 billion in direct support for low-carbon technologies. In 2023, the Biden administration has focused on devising and introducing the guidance needed to roll out these new programs. Meanwhile, stringent rules could prevent developers from claiming the domestic content bonuses in the near term.

- The US increased fossil-fuel support by 51% over 2017-2021, mostly for producers. But by the end of the period, its total was the fifth-lowest out of the G-20 and it had the second-lowest per-capita amount. In addition, it reduced coal-fired generating capacity by 45% over 2018-2022, with no new capacity planned.
- The country has five operational carbon markets, covering 9% of national emissions, and one under discussion in New York. Washington state's cap-and-invest program, which began in January 2023, has had the highest prices, with an average of \$58 per ton since its launch. At the other end of the spectrum is the Regional Greenhouse Gas Initiative in the Northeast US, with average prices of \$13.8 per short ton in the last year.
- The US does not have any climate-risk policy so far. The Securities and Exchange Commission (SEC) proposed two policies in 2022, with one aiming at [corporate](#) climate-risk disclosure and the other one at [investors](#). If such proposals were passed, it would create a more ambitious climate policy landscape, but the SEC is facing threats of lawsuits unless it weakens the text. The Biden administration also had to overturn a rule passed during the Trump era that made it very difficult for pension funds to consider ESG criteria in their investment processes.
- The US faces considerable anti-ESG backlash in the form of state-level regulatory barriers. These prevent investors from developing ESG strategies or even blacklist financial institutions promoting sustainable finance. So far, 17 states have passed at least one anti-ESG law and more are in the pipeline.
- The Federal Reserve Board is [conducting](#) a pilot climate scenario analysis exercise with six banking organizations, with results expected by the end of the year.

Fossil-fuel support

- Total (2017-2021)
- Share spent on coal (2021)
- Share targeted at producers and utilities (2021)

COP28 COP27

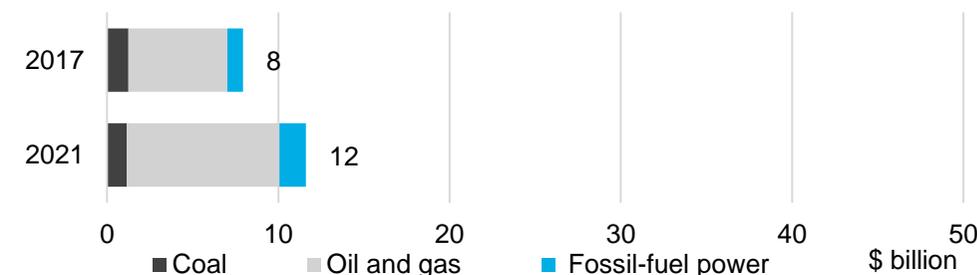


\$58 billion

9.9%

43%

Fossil-fuel support



Source: OECD, IEA, Oil Change International, IISD, BloombergNEF.

Carbon pricing

- Nationwide carbon price
- National emissions covered by carbon price
- Average carbon price over 12 months to November 2023



Subnational

9%

\$9/metric ton

Climate-risk policy (mandatory)

- Generic ESG disclosure
- Environmental taxonomy
- Climate-risk disclosure for companies
- Climate-risk disclosure for financials
- Climate-risk stress test



Under development

✘

Under development

Under development

✓ Pilot

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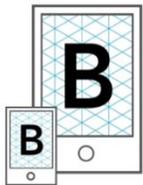
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