

Inevitable Policy Response 2023 Policy Forecast

Preparing financial markets for climate-related policy and regulatory risks September 2023



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IPR WAS COMMISSIONED BY THE PRI¹ AND IS SUPPORTED BY WORLD CLASS RESEARCH **PARTNERS AND** LEADING PHILANTHROPIES, **FINANCIAL INSTITUTIONS**, & NGOS

Principles for Responsible Investment

The conclusions of the report are solely those of Energy Transition Advisers and Theia Finance Labs

Commissioned by PRI

In 2018, the Inevitable Policy Response was commissioned by PRI to advance the finance industry's knowledge of climate transition risk & support investor efforts to incorporate climate risk & opportunities in portfolio assessment



A Climate Research Consortium

This report was produced by Energy Transition Advisers and Theia Finance Labs.²

NGO partners include Carbon Tracker, Climate Bonds & Planet Tracker

Energy Transition Advisors



Strategic Partners

In 2021, leading financial institutions joined the IPR as Strategic Partners to provide more indepth industry input, and to further strengthen its relevance to the financial industry









Core philanthropic support

The IPR is funded in part by the Gordon and Betty Moore Foundation through The Finance Hub, which was created to advance sustainable finance, and the ClimateWorks Foundation striving to innovate and accelerate climate solutions at scale

GORDON AND BETTY





IPR OFFERS A RANGE OF APPLICATIONS TO HELP FINANCIAL INSTITUTIONS NAVIGATE THE CLIMATE TRANSITION



IPR also develops a '1.5°C Required Policy Scenario'(1.5°C RPS) building on the IEA NZE by deepening analysis on policy, land use, emerging economies, NETs and value drivers. The RPS scenario is also run through the model and can be used by those looking to align to 1.5°C.
 Urban areas are not modelled in detail in IPR



IPR HAS DEVELOPED GLOBAL, POLICY-BASED FORECASTS OF FORCEFUL POLICY RESPONSES TO CLIMATE CHANGE AND IMPLICATIONS FOR ENERGY, AGRICULTURE AND LAND USE

Please see the IPR <u>Home Page</u> for further details

	Scenario	Policy Forecast Details	Open Access Database
	 IPR 2023 Forecast Policy Scenario (FPS) Models impact of forecasted policies on the real economy 	IPR FPS 2023 Summary Report IPR 2023 Policy Forecast IPR FPS 2023 Detailed Energy Results IPR FPS 2023 Detailed Land Use and Nature Results IPR 2023 Bioenergy Report	IPR FPS 2023 Value Drivers IPR Scenario Explorer
	 IPR 1.5°C Required Policy Scenario (RPS) Required policies to align to a 1.5°C objective building on the IEA's Net Zero scenario and deepening analysis on policy, land use, emerging economies and value drivers 	IPR 1.5°C RPS Energy and Land Use System Results including Policy Details	IPR RPS 2021 Value Drivers
ANT AN	 IPR Forecast Policy Scenario + Nature (FPS + Nature) First integrated climate and nature scenario for use by investors 	IPR 2022 FPS + Nature detailed results	IPR FPS + Nature Value Drivers

IPR has published a set of publicly available outputs from the FPS and 1.5°C RPS that offer significant granularity at the sector/country level, allowing investors to assess their own climate risk across 4,000+ variables

Disclaimer: This is not intended to constitute policy advice, financial advice or any specific advice.



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(1/2) IPR 2023 TOP 10 POLICY FORECASTS

Timing	1.	IPR policy announcements carry on over the next decade, with continued announcements to 2025 following the Paris Agreement's first Global Stocktake, and continued acceleration to 2030 and beyond in the harder-to-abate sectors.
ို့္သား Economy wide	2.	 India achieves net zero CO₂ emissions by 2065, accelerating 5 years ahead of its existing net zero by 2070 target (India contributes 7% of global CO₂ emissions). The acceleration is driven by India's exposure to climate change and falling low-carbon technology costs
	3.	 Several non-OECD countries achieve net zero emissions later than their current targets given slow decarbonisation progress to date. Turkey and Vietnam reach net zero by 2060 and South Africa beyond 2065 despite all having targets between 2050-55 (each country contributes 1% of global CO₂ emissions) Russia reaches net zero beyond 2065 despite a target of 2060 (Russia contributes 5% of global CO₂ emissions)
	4.	 Low-carbon incentives play an increasingly important role in facilitating the climate transition as countries continue to respond to the US Inflation Reduction Act. Carbon prices are expected to have a stronger role in enabling the transition in advanced economies compared to the emerging market and developing economies
Power	5.	China ends the construction of new unabated coal-fired electricity generation by 2030 and end all unabated coal generation by 2045 ¹ , but keeps ~400GW of unabated coal plants in reserve and retrofit ~100GW with CCS (China coal-fired electricity contributes 11% of global CO ₂ emissions). Unabated coal phase out is driven by China's economy-wide net zero target, the decreasing relative costs of alternative power sources and CCUS retrofit.
Nature	6.	Land protection reaches 30% of national land area by 2035 in North America and China, and by 2030 in Europe, as nature and biodiversity policy accelerates following COP15. The Kunming-Montreal Global Biodiversity Framework targets 30% of global land and marine areas to be protected by 2030.

1. Definition for ending unabated coal generation: actual policy and anticipated policy signals deliver 97% of dispatched power generation from sources other than unabated coal. Coal is abated when installed with CCS with a capture rate of 90% or equivalent



(2/2) IPR 2023 TOP 10 POLICY FORECASTS

Road transport	7.	 The sale of new cars and vans with CO₂ emissions mostly ends by 2040,¹ driven by global automotive OEMs decarbonising, EV technology improvements and cost falls, and increasing policy momentum to meet national net zero targets (cars and vans contribute 8% of global CO₂ emissions). Europe and China stop selling cars and vans with CO₂ emissions by 2035 The US and India end the sale of cars and vans with CO₂ emissions by 2040
Industry	8.	 Industry achieves deep decarbonisation (>97% for fuel combustion and >80% for process emissions)² after economy-wide net zero, with iron and steel, chemicals, and cement decarbonising after light industry has electrified (industry contributes 23% of global CO₂ emissions). Europe begins decarbonising heavy industry in the 2020s, with steel moving quicker than chemicals and cement, as low-carbon incentives and the phase out of EU ETS free allowances, drive scaled deployment of low-carbon heavy industry in the 2030s and 2040s The US delivers heavy industry decarbonisation primarily through low-carbon incentives, e.g., the IRA, on a similar timeline to Europe Heavy industry decarbonisation spreads globally with a 5-10 year lag to the US and Europe, as high low-carbon incentives and national carbon pricing are more widely adopted and CBAMs incentivise global decarbonisation to protect export market shares
Carbon removals	9.	Policy delivers significant DACs deployment from 2040 through primarily market incentives as climate change impacts increase and the cost of DACs falls. There is a limited role for BECCS in the climate transition given technology costs as well as land constraints resulting from guardrails for avoiding nature displacement, deforestation, food competition, irrigation, and use of land unsuitable for bioenergy.
ြာ Land use	10.	 Global net deforestation ends³ by 2030-35 (land use change contributes 10% of global CO₂ emissions). Brazil ends net deforestation by 2030 in line with existing policy ambition and due to ratchet pressures of hosting COP30 in 2025, and Indonesia also ends net deforestation by 2030 given recent falls in deforestation levels and expected ratchet pressures at COP30 in the Amazon (both countries each contribute 25% of CO₂ emissions from land use change) Deforestation-free supply chain mandates from Europe and North America reinforce domestic pressures to end deforestation

1. Forecast definition: policy ends the sale of 97% of new cars and vans with CO₂ emissions. (I.e., 97% of sales are ZEVs). ZEV = BEV, PHEV, FCEV.

3. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.

^{2.} Deep decarbonisation is defined as full deployment of the best available technology. According to the IEA Net Zero by 20250 report deployment of such technology is expected to deliver ~93% emissions reduction across industry. This equates to a reduction in emissions of ~97% for fuel combustion and ~80% for industrial processes – <u>IEA</u>.



IPR 2023 FORECASTS HIGHER CLIMATE POLICY AMBITION ACROSS 10 POLICY LEVERS COVERING ENERGY, LAND USE, AND NATURE

Net zero ငို့်လှာ	Carbon pricing	Clean power	Low-carbon buildings	Low-carbon Age of agriculture
 Interim emissions target Net zero CO₂ long-term target 	 Carbon taxes Emission trading systems Carbon border adjustment mechanisms (CBAMs) 	 Targets for a fully decarbonised electricity system Renewable capacity auctions Renewable subsidies Nuclear power targets and and strategies 	 Prohibiting regulations for fossil heating systems Purchase subsidies for low- carbon heating systems Thermal efficiency regulations for buildings Minimum energy performance standards for new appliances 	 Subsidies for low- emissions practices and technologies Emissions regulation including via tax or cap- and-trade systems Farmer education and technical assistance programs
Coal phase-out	Zero emissions	Clean industry	Forestry	Nature-based solutions
 Regulations prohibiting coal build Emissions performance standards Electricity market reforms 	 ZEV consumer subsidies Targets to fully decarbonise the new sales of road vehicles Manufacturer ZEV obligations 	 Emissions performance standards for industrial plants Subsidies for new or retrofit clean industrial processes 	 Incentives for reforestation and afforestation Penalties for deforestation, supported by consumer pressure Mandates to ensure deforestation free supply chains 	 Land protection and restoration policy Nature incentives for landowners to protect biodiversity hotspots and habitats Voluntary biodiversity credit markets



THE DRIVERS OF POLICY MOMENTUM MAKE AN INEVITABLE AND FORCEFUL POLICY RESPONSE MORE LIKELY...SOCIAL TIPPING POINTS ARE KEY





RATCHET PRESSURES INCREASE THE LIKELIHOOD THAT GOVERNMENTS WILL STRENGTHEN POLICY BY 2025, AND AGAIN TO 2030 AND BEYOND

Paris Ratchet process triggers a cumulating policy response into 2025, 2030, and beyond



Policy announcements are expected to continue in 2023 -2025, with continued acceleration in 2028-2030. Recognition of Overshoot grows from 2025.





IPR 2023 POLICY FORECASTS ACROSS ENERGY, LAND USE AND NATURE

Policy ambition¹: Tier 1 Tier 2 Tier 3

	ို့ထို့ Econo	my wide	Powe	er		Build-	Trans	port	Indust	ry	Agri	igoplus Land us	e	🔇 Nature	2
Country ²	Net zero CO ₂ emissions	Carbon price (/tCO2)	New coal phase out	All coal phase out	Clean power	Zero-carbon heating	Light-duty vehicles	Heavy-duty vehicles	Fuel combustion	Industrial process	Low-carbon agriculture	Net deforestation	Deforest- ation free supply	Protection & restoration	Nature incentives
*: China	2060	\$50	2030	2045	2050	2045	2035	2040	2070	>2070	2030	2025	2035	2035	2030
US	2050	\$30	<2023	2035	2040	2040	2040	2045	2055	2065	2030	2025	2035	2035	2030
India	2065	\$50	2025	2060	2060	N/A	2040	2045	>2070	>2070	2035	2025-35	>2035	2040	>2035
Russia	>2065	\$0	2030	2060	2060	2050	2050	2055	>2070	>2070	2035	2025-35	>2035	>2040	>2035
Japan	2050	\$70	2025	2045	2045	2040	2040	2040	2055	2065	2025	2025	2035	2030	2030
Germany	2045	\$120	<2023	2035	2040	2030	2035	2040	2050	2060	2025	2025-30	2030	2025	2030
South Korea	2050	\$70	2025	2045	2045	2040	2035	2040	2055	2065	2030	2030	>2035	2040	2030
Indonesia	2060	\$50	2025	2050	2050	N/A	2045	2050	2070	>2070	2035	2030	>2035	>2040	2035
Saudi Arabia	2060	\$20	N/A	N/A	2060	N/A	2040	2045	2070	>2070	N/A	2030	>2035	2040	>2035
🔶 Canada	2050	\$100	<2023	2030	2035	2035	2035	2040	2055	2065	2025	2025	2035	2035	2030
📀 Brazil	2050	\$50	2025	2045	2050	N/A	2045	2050	2060	2070	2030	2030	2035	2030	2030
C* Turkey	2060	\$30	2030	2045	2050	2050	2040	2045	2070	>2070	2035	2025	>2035	>2040	>2035
≽ South Africa	>2065	\$30	2025	2050	2050	2050	2040	2045	>2070	>2070	2035	2035	>2035	2040	2035
Mexico	>2065	\$30	<2023	2038-40	2050	N/A	2040	2045	>2070	>2070	2035	2030	>2035	2040	2035
👫 🔆 Australia	2050	\$70	2023	2038-40	2045	2035	2040	2045	2055	2065	2030	2025-30	2030	2030	2025
💦 ик	2050	\$120	<2023	<2030	2035	2035	2030	2040	2055	2065	2025	2025	2030	2030	2025
📩 Vietnam	2060	\$50	2025	2050	2050	N/A	2040	2045	2070	>2070	2030	2025	>2035	>2040	2030
Italy	2050	\$120	<2023	<2030	2045	2035	2035	2040	2060	2070	2025	2025	2030	2030	2030
France	2050	\$120	<2023	<2030	2035	2035	2035	2040	2055	2065	2025	2025	2030	2030	2025
Argentina	2060	\$30	2023	2045	2050	2045	2040	2045	2070	>2070	2035	2030	>2035	2040	2035
Nigeria	>2065	\$20	2030	2045	2050	N/A	2045	2050	>2070	>2070	2035	2035	>2035	>2040	>2035

1. Tiers reflect different levels of climate ambition.

2. Ranked by CO₂ emissions, <u>European Commissions Emissions Database</u>



OVER 50% OF IPR 2023 FORECASTS HAVE POLICY IN PLACE THAT IS CONFIRMATORY OR SUPPORTIVE OF THE FORECAST

Existing policy developments are assessed against the IPR's 2023 forecasts...

...With over 50% of forecasts having policy in place that is confirmatory or supportive of the forecast and ~40% of forecasts having a policy gap

	Policy gap assessment categories	By number of policy forecasts, %	By CO ₂ emissions share of policy
Accelerating beyond FPS towards IPR's [–] 1.5°C RPS	Acceleration Policy announced or legislated/implemented that addresses the specific IPR forecast and sets a target date that is earlier than forecast in 2023	4%	1%
Consistent with IPR's	Confirmatory Policy announced or legislated/implemented that addresses the specific IPR forecast and is in line with what was forecast in IPR 2023	22%	10%
1.8°C FPS	Supportive Policy announced or legislated/implemented that moves in the direction of forecast but does not definitively meet it	37%	43%
Decelerating away from FPS _ towards a 2°C outcome	Deceleration Policy announced or legislated/implemented that addresses the specific IPR forecast but sets a target date that is later than forecast in 2023	1%	2%
	FPS policy gap No policy announced	35%	43%



WHILE SOME SECTORS HAVE SIGNIFICANT CLIMATE POLICY, SUCH AS POWER AND LDVS, OTHERS HAVE MANY GAPS, SUCH AS COAL PHASE OUT AND HGVS

•••	••••	•••••	••••••	•••••	••			Policy gap as	sessment relative	to IPR 2023 forec	ast ¹ FPS pol	icy gap 📃 Acc	eleration 📃 Co	onfirmatory	Supportive	Deceleration
			ို့္လား Econor	ny wide	Power			Build-	📇 Transp	ort	Indu-	🕂 Agri	igoplus Land us	se	🖗 Nature	
6			Net Zero CO ₂	Carbon price	New coal	All coal	Clean newer	Zero-carbon	Light duty	Heavy duty	Industry	Low-carbon	Net	Deforestation	Protection ⁴ &	Nature
CU			emissions	carbon price	phase out	phase out	clean power	neating	venicies	venicies	decarb.	agriculture	deforestation	nee supply	Testoration	Incentives
		US	Announced	Policy gap	Legislated	Announced	Announced	Legislated	Announced	Announced	Legislated	Legislated	Announced	Policy gap	Announced	Legislated
S		Japan	Legislated	Announced	Policy gap	Announced	Announced	Announced	Announced	Policy gap	Announced	Legislated	Policy gap	Policy gap	Legislated	Policy gap
mie		Germany	Legislated	Legislated	Legislated	Announced	Announced	Announced	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated
ouc		South Korea	Legislated	Legislated	Announced	Announced	Announced	Policy gap	Announced	Policy gap	Announced	Announced	Policy gap	Policy gap	Legislated	Policy gap
р	÷	Canada	Legislated	Legislated	Legislated	Legislated	Announced	Announced	Announced	Announced	Legislated	Legislated	Legislated	Policy gap	Announced	Legislated
ance	*	Australia	Legislated	Legislated	Policy gap	Policy gap	Announced	Policy gap	Announced	Policy gap	Legislated	Legislated	Legislated	Policy gap	Announced	Announced
Adva		UK	Legislated	Legislated	Legislated	Legislated	Announced	Announced	Announced	Announced	Legislated	Legislated	Legislated	Legislated	Announced	Legislated
		Italy	Legislated	Legislated	Announced	Announced	Announced	Announced	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated
		France	Legislated	Legislated	Legislated	Legislated	Legislated	Announced	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated	Legislated
S	*1	China	Announced	Legislated	Policy gap	Policy gap	Announced	Announced	Announced	Policy gap	Announced	Legislated	Announced	Policy gap	Legislated	Legislated
omie	()	India	Announced	Announced	Announced	Policy gap	Announced	N/A	Policy gap	Policy gap	Legislated	Policy gap	Announced	Policy gap	Legislated	Policy gap
conc		Russia	Announced	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Legislated	Policy gap
ЪВГ		Indonesia	Announced	Announced	Announced	Announced	Announced	N/A	Announced	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Legislated	Policy gap
lopi	3339333 	Saudi Arabia	Announced	Policy gap	N/A	N/A	Announced	N/A	Policy gap	Policy gap	Announced	N/A	Announced	Policy gap	Announced	Policy gap
eve		Brazil	Announced	Announced	Policy gap	Policy gap	Announced	N/A	Policy gap	Policy gap	Policy gap	Announced	Announced	Policy gap	Legislated	Announced
8	C*	Turkey	Announced	Announced	Policy gap	Policy gap	Announced	Policy gap	Policy gap	Policy gap	Announced	Policy gap	Announced	Policy gap	Legislated	Policy gap
kets		South Africa	Announced	Announced	Announced	Announced	Announced	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Legislated	Announced
Mar	۲	Mexico	Policy gap	Legislated	Policy gap	Policy gap	Policy gap	N/A	Announced	Policy gap	Policy gap	Policy gap	Announced	Policy gap	Legislated	Legislated
ing	*	Vietnam	Announced	Announced	Announced	Announced	Announced	N/A	Announced	Announced	Announced	Announced	Announced	Policy gap	Legislated	Legislated
nerg	•	Argentina	Announced	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Announced	Policy gap	Policy gap	Policy gap	Announced	Policy gap	Legislated	Legislated
ш		Nigeria	Legislated	Policy gap	Policy gap	Policy gap	Announced	N/A	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Policy gap	Legislated	Policy gap

1. Based on major announcements and developments tracked in IPR 2021 Policy Forecast Detailed resource (March 2021) and 2022 and 2023 QFTs

2. Countries in each bucket (AE and EMDE) are ranked in order of CO₂ emissions, <u>European Commissions Emissions Database</u>

2. End of deforestation is defined as reduction in average annual deforestation by more than 95% versus 15 the 1990-2020 level, alongside a net increase in forest cover

4. Policy gap assessment is shown for land protection only



ADVANCED ECONOMIES HAVE CLOSED NEARLY ALL THE POLICY GAPS...

Policy forecasts relative to existing policy announcements¹, IPR advanced economies



- >90% of CO₂ emissions in IPR advanced economies (AE) are covered by existing climate policy that meets, or moves in the direction of meeting, IPR's Forecast Policy Response (FPS)
 - 4% accelerates beyond FPS towards IPR's 1.5°C Required Policy Response (RPS)
 - 11% is confirmatory of FPS, of which ~40% is legislated, while 81% moves in the direction of meeting it, of which ~30% is legislated
- 4% of CO₂ emissions in IPR AE are not covered by existing climate policy that aims to reduce them

...BUT THE KEY CHALLENGE IS IN EMERGING & DEVELOPING ECONOMIES

Policy forecasts relative to existing policy announcements¹, IPR emerging market and developing economies



- 39% of CO₂ emissions in IPR emerging market and developing economies (EMDE) are covered by existing climate policy that meets, or moves in the direction of meeting, IPR's FPS
 - 10% meets the forecast (confirmatory), of which ~15% is legislated, while
 29% moves in the direction of meeting it, of which ~25% is legislated
- 58% of CO₂ emissions in IPR EMDE are not covered by existing climate policy that aims to reduce them



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CHINA'S COAL-FIRED ELECTRICITY FLEET CONTRIBUTES NEARLY HALF OF THE GAP TO BE ADDRESSED IN IPR'S 2023 POLICY FORECAST

Breakdown of IPR policy forecasts with no existing policy announcements to meet them, weighted by CO₂ emissions¹



1. Weighted by CO₂ emissions covered by IPR's policy forecasts. IPR policy forecasts do not cover all CO₂ emissions and therefore the percentage breakdowns shown will likely be higher than if this analysis was done for all countries and sectors, covering all global emissions. For example, coal-fired power generation in China accounts for 11% of global CO₂ emissions but 20% of emissions covered by IPR policy forecasts.



New forecast

IPR 2023 POLICY FORECAST CHANGES RELATIVE TO IPR 2021 FOR ENERGY, LAND USE, AND NATURE Change in forecast relative to IPR 2021¹:

,								0		-					
•••••	ို့ော် Econo	omy wide	Powe	r		Build-	📇 Trans	port	http://www.indust	ry	🖧 Agri	igcap Land us	e	🖗 Nature	9
Country ²	Net zero CO ₂ emissions	Carbon price (/tCO ₂)	New coal phase out	All coal phase out	Clean power	Zero-carbon heating	Light-duty vehicles	Heavy-duty vehicles	Fuel combustion	Industrial process	Low-carbon agriculture	Net deforestation	Deforest- ation free supply	Protection & restoration	Nature incentives
* China	2060	\$50	2030	2045	2050	2045	2035	2040	2070	>2070	2030	2025	2035	2035	2030
US	2050	\$30	<2023	2035	2040	2040	2040	2045	2055	2065	2030	2025	2035	2035	2030
📃 India	2065	\$50	2025	2060	2060	N/A	2040	2045	>2070	>2070	2035	2025-35	>2035	2040	>2035
Russia	>2065	\$0	2030	2060	2060	2050	2050	2055	>2070	>2070	2035	2025-35	>2035	>2040	>2035
Japan	2050	\$70	2025	2045	2045	2040	2040	2040	2055	2065	2025	2025	2035	2030	2030
Germany	2045	\$120	<2023	2035	2040	2030	2035	2040	2050	2060	2025	2025-30	2030	2025	2030
South Korea	2050	\$70	2025	2045	2045	2040	2035	2040	2055	2065	2030	2030	>2035	2040	2030
Indonesia	2060	\$50	2025	2050	2050	N/A	2045	2050	2070	>2070	2035	2030	>2035	>2040	2035
Saudi Arabia	2060	\$20	N/A	N/A	2060	N/A	2040	2045	2070	>2070	N/A	2030	>2035	2040	>2035
🔶 Canada	2050	\$100	<2023	2030	2035	2035	2035	2040	2055	2065	2025	2025	2035	2035	2030
Srazil	2050	\$50	2025	2045	2050	N/A	2045	2050	2060	2070	2030	2030	2035	2030	2030
C* Turkey	2060	\$30	2030	2045	2050	2050	2040	2045	2070	>2070	2035	2025	>2035	>2040	>2035
South Africa	>2065	\$30	2025	2050	2050	2050	2040	2045	>2070	>2070	2035	2035	>2035	2040	2035
Mexico	>2065	\$30	<2023	2038-40	2050	N/A	2040	2045	>2070	>2070	2035	2030	>2035	2040	2035
👫 😳 Australia	2050	\$70	2023	2038-40	2045	2035	2040	2045	2055	2065	2030	2025-30	2030	2030	2025
ик	2050	\$120	<2023	<2030	2035	2035	2030	2040	2055	2065	2025	2025	2030	2030	2025
📩 Vietnam	2060	\$50	2025	2050	2050	N/A	2040	2045	2070	>2070	2030	2025	>2035	>2040	2030
Italy	2050	\$120	<2023	<2030	2045	2035	2035	2040	2060	2070	2025	2025	2030	2030	2030
France	2050	\$120	<2023	<2030	2035	2035	2035	2040	2055	2065	2025	2025	2030	2030	2025
Argentina	2060	\$30	F2023	2045	2050	2045	2040	2045	2070	>2070	2035	2030	>2035	2040	2035
Nigeria	>2065	\$20	2030	2045	2050	N/A	2045	2050	>2070	>2070	2035	2035	>2035	>2040	>2035

1. Based on policy announcements tracked in IPR 2021 Policy Forecast Detailed resource (March 2021) and in 2022 & 2023 live regulatory tracking (QFTs). Deceleration – forecast has been decelerated relative to IPR 2021; No change – forecast remains the same as IPR 2021, Acceleration – forecast has been accelerated relative to IPR 2021. 2. Ranked by CO₂ emissions, <u>European Commissions Database</u>



74% OF IPR'S 2023 POLICY FORECASTS ARE CONSISTENT WITH THOSE FROM 2021, WITH 8% ACCELERATED AND 19% DECELERATED

IPR's 2023 policy forecasts are compared with IPR's 2021 ...With ~74% remaining the same based on new policy, social, technological, and forecasts and put into one of four categories¹... economic evidence, and exert survey input Number of policy forecasts in each category Share of IPR 2021 policy Categories for comparison of 2023 forecasts relative to x% forecasts 2021 Acceleration 8% Policy forecast date has been brought forward relative to IPR 2021 Consistent 74% Policy forecast date has remained the same relative to IPR 2021 Deceleration 38 19% Policy forecast date has been pushed back relative to IPR 2021 New forecast 102 Policy forecast is new to IPR 2023

Based on policy announcements tracked in IPR 2021 Policy Forecast Detailed resource (March 2021) and in 2022 & 2023 live regulatory tracking (QFTs). Deceleration – forecast has been decelerated relative to IPR 2021; No change – forecast remains the same as IPR 2021, Acceleration – forecast has been accelerated relative to IPR 2021.



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THE IPR 2023 FORECAST PROVIDES AN UPDATE TO IPR 2021, COVERING 21 MAJOR ECONOMIES ACCOUNTING FOR 74% OF GLOBAL CO₂ EMISSIONS





IPR FORECASTS THE YEAR OF DEEP DECARBONISATION ACROSS SECTORS WHILE ALLOWING FOR A SMALL RESIDUAL OF FOSSIL FUEL PRODUCTS AND PROCESSES

Several factors may restrict or limit the 100% phase out of fossil fuel products or processes¹...



Regulation

Existing regulations may make transitioning fully to low-carbon products challenging e.g., heating systems for protected buildings.



The technology required to achieve a 100% reduction in carbon emissions may not be fully commercialised.



Infrastructure costs

Low-carbon infrastructure costs may be much higher to abate a small share of emissions, particularly in very remote areas, making it more challenging to fully phase out fossil fuels from certain uses at the same pace as the rest of the economy.



Security of supply

The high penetration of renewables on the electricity grid may require dispatchable fossil capacity to be held in reserve to meet periodic supply shortfalls.

...resulting in four IPR policy areas using a threshold of 97% phase out of emissions for deep decarbonisation

Buildings

Regulation could result in some protected buildings having strict building codes and planning requirements which makes installing low-carbon heating systems more difficult.



Industry

Full deployment of the best available technology does not fully decarbonise industry, particularly industrial process emissions.

(F	
Ш	
-	+)

Transport

The costs of deploying EV charging infrastructure to very rural off grid areas may decrease the likelihood of reaching 100% zero-emissions vehicle sales.

Power

In areas without low-carbon dispatchable electricity generation, fossil plants may still meet a very small share of electricity generation in the future to correct occasional demand-supply imbalances. 

IPR MAKES 15 POLICY FORECASTS COVERING 7 MAJOR ENERGY AND LAND USE SECTORS

New for IPR 2023

Policy Area	Policy Forecast	Forecast Definition
Economy wide	Net zero	Policy delivers net zero CO ₂ emissions
	Carbon pricing	Explicit carbon price signal or backstop covering industry and power in 2030
Power	End of new unabated coal	Actual policy and anticipated policy signals end new unabated coal from being built . Coal is abated when installed with CCS with a capture rate of 90% or equivalent
	End of new unabated coal	Actual policy and anticipated policy signals deliver 97% ¹ of dispatched power generation from sources other than unabated coal. Coal is abated when installed with CCS with a capture rate of 90% or equivalent
	Clean power	Policy delivers dispatched generation of 97% low-carbon power
Buildings	Fossil fuel heating	Policy ends the sale of 97% of new fossil fuel heating systems in all buildings
Transport	LDVs	Policy ends the sale of 97% of new cars and vans with CO ₂ emissions. (I.e., 97% of new sales are ZEVs). ZEV = BEV, PHEV, FCEV
6-0	HDVs	Policy ends the sale of 97% of new heavy-duty vehicles with CO ₂ emissions. (I.e., 97% of new sales are ZEVs)
Industry	Fuel combustion	Policy or anticipated policy signals deliver 97% emissions reduction in all heavy industry fuel combustion
	Processes	Policy or anticipated policy signals deliver >80% ² reduction in all heavy industry process emissions
Agriculture	Agricultural emissions	Policy delivers significant nationwide market incentives to encourage farmers to reduce emissions from crop production and livestock
🗘 Land use	Net deforestation	Policy delivers an end to net deforestation ³ and delivers afforestation or reforestation at scale
Ш	Supply chains	Policy delivers 100% deforestation-free supply chains
Nature	Land protection & restoration	30% protection ⁴ of all land achieved, and 30% of degraded land under effective restoration or restored
	Nature incentives	Policy delivers significant nationwide market incentives to landowners to preserve nature

1. Rationale for using a 97% threshold is explained on the previous slide.

2. Full deployment of the best available technology is expected to deliver ~93% emissions reduction across industry under a net zero by 2050 scenario. This equates to 97% for fuel combustion and ~80% for process emissions – <u>IEA</u>.

3. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.

4. 30% threshold is in line with headline target from <u>COP15</u>.



IPR POLICY FORECASTS ARE INFORMED BY A ROBUST EVIDENCE BASE, INCLUDING A SURVEY OF >100 CLIMATE POLICY EXPERTS

Evidence base deep dive to follow





A1: RELEVANT SOCIAL, ECONOMIC, TECHNOLOGICAL, AND POLITICAL FACTORS ARE USED TO INFORM THE IPR 2023 FORECASTS

Policy

Current policy ambition Current targets, strategies and emissions reduction policy

Track record of ambition

Historical track record of implementing climate policy

Energy security

Reliance on energy imports to secure energy needs

Industrial strategy

Prospects for policy action to support internationally competitive export industries

Social

Just transition

Likely socio-economic impacts of policy action

Civil society

Direction and magnitude of citizen attitudes towards climate action

Consumer preferences

Size and trends in early adopter market for new energy technologies



Economics

Trade exposure

Climate ambition of trading partners e.g., safeguarding competitiveness and preventing carbon leakage

Investment pipeline

Current pipeline of new fossil investments that are planned or under construction

Industrial competitiveness

Impact of policy action on the competitiveness of domestic energy and energy-intensive sectors

Technology

Techno-economics

Economic costs and benefits of policy action, driven by the cost and maturity of available climate solutions

Status of transition

Current progress in and track record of rolling out climate solutions and reducing emissions



IPR forecast release

Legislated Announced

A2: IPR TRACKS MAJOR CLIMATE POLICY DEVELOPMENTS LIVE TO ENSURE THE BEST AVAILABLE EVIDENCE BASE INFORMS THE POLICY FORECASTS

Summary of key climate policy announcements, Oct 2021 – Sep 2023





A3: THE POTENTIAL IMPLICATIONS OF CLIMATE ACTION ON ACHIEVING A JUST TRANSITION ARE USED TO INFORM IPR'S POLICY FORECASTS

IPR's policy forecasts incorporate just transition impacts across policy areas



Just transition impacts of existing policy announcements

Climate policies with greater positive just transition impacts are likely to be more effective at achieving their goals



Employment impacts

A large domestic manufacturing sector of fossil fuel products, which accounts for a high share of employment, is likely to act as a barrier to the phase out of such products



Health impacts

A high level of air pollution, which causes negative health impacts, is likely to accelerate the phase out of highly polluting industries such as coal-fired power generation

3

Land

Increased land constraints (e.g., land required for urban areas or food production) act as a barrier to reducing environmentally harmful practices such as deforestation



Institutional capacity

Higher institutional capacity increases the ability of the state to support and/or compensate indigenous and rural communities to shift away from CO2-emitting activities and maintain living standards **Scoring deep dive:** ~90 climate policy developments have been scored against just transition impact categories over the past 12 months¹

Number of policies in each just transition impact category



1. Assessments of just transition elements completed by researchers at the LSE, building on Chan, Tiffanie; Higham, Catherine; Muller, Sabrina; Setzer, Joana; and Robins, Nick (2022). 'An assessment of Just Transition elements in the Inevitable Policy Response'. Available at: https://www.lse.ac.uk/granthaminstitute/publication/an-assessment-of-just-transition-elements-in-the-inevitable-policy-response/.



B1: IPR ASSESSES THE EXISTING POLICY LANDSCAPE AGAINST ITS FORECASTS TO GIVE A COMPREHENSIVE UNDERSTANDING OF CURRENT POLICY GAPS

Policy gap analysis method

Input	Policy gap assessment: forecasts from IPR 2	021 are assessed against existi	ng policy developments	Output
	Existing climate policy is assessed against IPR forecasts and put into one of 5 categories	By number of policy forecasts, %	By CO ₂ emissions share of policy forecasts ¹ , %	
	Acceleration Policy announced or legislated/implemented that addresses the specific IPR forecast and sets a target date that is earlier than forecast in 2021	6%	3% ← Accelerates beyond FPS and moves in the direction of IPR's 1.5C Required Policy Scenario (RPS)	
IPR's 2021 policy forecasts are the starting	Confirmatory Policy announced or legislated/implemented that addresses the specific IPR forecast and is in line with what was forecast in IPR 2021	19%	10%	The policy gap assessment acts as an evidence point informing the IPR 2023
point of the policy gap analysis	Supportive Policy announced or legislated/implemented that moves in the direction of forecast but does not definitively meet it	35%	42%	
	Deceleration Policy announced or legislated/implemented that addresses the specific IPR forecast but sets a target date that is later than forecast in 2021	4%	2%	forecasts
	FPS policy gap No policy announced	37%	43'	



C: IPR FORECASTS ARE INFORMED BY A SURVEY OF CLIMATE POLICY EXPERTS COVERING 12 GEOGRAPHIES AND 11 POLICY AREAS





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IPR 2023 POLICY FORECAST: NET ZERO CO₂ EMISSIONS ACHIEVEMENT YEAR

IPR 2023 forecast for net zero CO₂ emissions

Tier	Country	2023 Policy Forecast				
Tier 1	Germany	Net zero CO_2 emissions to be achieved by 2045				
	UK					
	France					
	🔶 Canada					
	ltaly	Not zero CO, omissions to be achieved by 2050				
	🥌 South Korea	Net zero CO_2 emissions to be achieved by 2050				
	USA					
	🕒 Japan					
	찬 🕂 Australia					
	📀 Brazil					
Tier 2	Argentina					
	📩 Vietnam	Not zero CO, omissions to be achieved by 2060				
	C• Turkey					
	China China	Net zero CO ₂ emissions to be achieved by 2000				
	Saudi Arabia					
	Indonesia					
Tier 3	💶 India	Net zero CO_2 emissions to be achieved by 2065				
	South Africa					
	Mexico	Net zero CO ₂ emissions to be achieved beyond 2065				
	Nigeria					
	Russia					

Details on country tiering system Tier 1 countries have a net zero target by 2050 or before and a strong track 1 record of implementing climate policy Germany By 2045 In 2021, Germany accelerated its net zero target date from 2050 to 2045. South Korea By 2050 In 2021, South Korea legislated a carbon neutrality target for 2050. Tier 2 countries have a net zero target by 2060 and a moderate track record 2 of implementing climate policy China By 2060 In 2020, China announced a net zero target for 2060. Tier 3 countries have made little or no progress on reducing emissions to 3 date By 2065 🔍 India In 2021, the Indian government pledged to achieve net zero emissions by 2070, however IPR expects India to reach net zero 5 years earlier than the

announced target given falling technology costs and its exposure to climate

change.



This is a new IPR policy forecast



No target

TBC

Mexico

8 IPR COUNTRIES HAVE LEGISLATED A NET ZERO TARGET, WITH A FURTHER 12 HAVING ANNOUNCED ONE



Indonesia





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IPR 2023 POLICY FORECAST: CARBON PRICING FOR POWER AND INDUSTRY

IPR 2023 forecast for carbon pricing

Tier	Country	Survey vs 2021 ²	Change vs 2021	2023 Policy Forecast
Tier 1	France Germany Italy UK	↑ ↑ ↑	↑ ↑ ↑	Explicit carbon price signal or backstop covering industry and power of US\$120 by 2030
	🔶 Canada	1	—	US\$100 by 2030
	AustraliaJapanKorea	→ →		US\$70 by 2030
Tier 2	 India Brazil Indonesia Vietnam China 	$\stackrel{\checkmark}{\rightarrow}$	↓ 	US\$50 by 2030
Tier 3	USA Argentina Mexico South Africa USA Mexico	•	$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	US\$30 by 2030
	Nigeria Saudi Arabia	•	\downarrow	US\$20 by 2030
	nussia	٠	\downarrow	US\$0 by 2030

Change in forecast vs IPR 2021 — No change \uparrow Acceleration \downarrow Deceleration \bullet N/A¹

...which has 14 changes since IPR 2021

Information on key changes



The EU and UK have implemented more stringent emissions caps for their ETS since IPR 2021, and expert evidence also indicates an upgrade in the forecast.

USA 📕

↓ (\$65 to \$30)

The US has not implemented a federal carbon price, with focus at the federal level being on low-carbon incentives, e.g., the IRA. However, IPR still expects some carbon prices at the state-level in the US, resulting in a forecast of \$30 which is a weighted average of state-level forecasts.

📒 China

↓ (\$60 to \$50)

China's carbon price trajectory is aligned with a lower carbon price by 2030 compared to IPR 2021, with expert survey evidence also indicating a downgrade.

≽ South Africa

Mexico



👃 (\$50 to \$30)

Limited policy developments and expert survey evidence indicating a deceleration in the forecast.

📕 Nigeria 🛛 🔤 Saudi Arabia

🦊 (\$35 to \$20)

Nigeria and Saudi Arabia do not have any form of carbon pricing.

1. 12 geographies have survey results. IN/A' is shown for countries without results or with inconclusive: results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey question: What will the national carbon price pathway be for the power and industry sectors in 2030 in the following countries?

Sources: full forecast evidence base can be found in the annex.

OF THE IPR COUNTRIES, ONLY THE EU AND THE UK HAVE CARBON PRICES THAT ARE HIGHER THAN \$50/TCO2E IN 2023



1. 7 IPR countries do not currently have carbon prices, including India, Vietnam, Turkey, Nigeria, Brazil, Russia, and Saudi Arabia.

2. The US carbon price is calculated as the weighted average price per state based on the share of power and industry emissions.



Key Insights

- The EU and the UK have carbon price mechanisms with the highest prices of IPR countries in 2023, at US\$96/tCO₂e and US\$88/ tCO₂e, respectively.
- South Africa, Japan and South Korea's carbon price initiatives cover the highest share of national emissions of IPR countries, at 80%, 75% and 74%, respectively.
- Mexico, the US, Argentina and Japan all have carbon price initiatives that are below \$5/tCO₂e.



AMONG THE 21 IPR COUNTRIES, 14 HAVE IMPLEMENTED CARBON PRICING SCHEMES TO MITIGATE THEIR EMISSIONS

The 2023 carbon pricing forecast focuses on the power and industry sectors

14 countries have introduced a carbon price

France

💳 Germany 🛛 📕 Italy

The EU ETS covers power, industry and aviation, with a shipping expansion planned.

😹 ик

The UK ETS covers power, aviation and industry.

🔶 Canada

Canada has a minimum carbon price of US\$31 by 2030 applied to industrial facilities and a federal carbon charge on fuels.

찬 Australia

Australia Safeguard Mechanism establishes an emissions cap on the largest industrial facilities.

USA 🔜

The US has no federal carbon pricing scheme. However, multiple states have introduced carbon pricing initiatives covering the power and industry sectors.

📒 China

China has an ETS launched in 2021 covering the power generation sector.

Japan

In April 2023, Japan launched the trial phase of its new ETS, GX League, with plans to transition to a compliance market in 2026.

Argentina

In 2018, Argentina launched a carbon price on petrol and petroleum coke

Mexico

In 2020, Mexico launched an ETS that covers emissions from the energy and industrial sectors.

Indonesia

In 2023, Indonesia launched a mandatory ETS initially covering 99 coal facilities that account for 81% of it's national power generation capacity.

意 South Korea

South Korea's ETS has been active since 2015 and covers ~700 of the country's largest emitters.

South Africa

South Africa's carbon price covers emissions across industry, power, buildings and transport.

5 countries have **proposed** the introduction of a carbon tax

💶 India

India passed the Energy Conservation Amendment Bill which proposes the establishment of a carbon market.

📩 Vietnam

The government has been evaluating options for implementing a carbon credit market with a carbon credit pilot from 2025 and full trading potentially beginning in 2028.

C Turkey

Turkey's president has approved a recommendation to launch a pilot ETS in 2024.

Nigeria

In 2022, the Nigerian Minister of the Environment announced that the country had begun activities to develop a national ETS.

📀 Brazil

Brazil has proposed the establishment of a regulated carbon market for major emitters based on a cap-and-trade scheme.

2 countries have no carbon pricing policy Russia Saudi Arabia



IPR 2023 INTRODUCES A CARBON PRICE FORECAST FOR US STATES

Breaking the USA into different tiers

IPR 2021 projected that the USA will have a national minimum price of \$65/tCO2e

In the absence of a nationwide policy, there is evidence that individual states could implement their own carbon pricing policies

	Tier 1 ¹	Tier 2 ²	Tier 3 ³
Climate ambition	High	Medium	Low
1. Carbon price in place or in development		\mathbf{X}	×
 Emission reduction targets and/or released climate action plan⁴ 			×
 Proportion of national emissions, % (power and industry) 	16	22	62
4. Carbon price by 2030 (US\$/tCO2e) IPR 2023 forecast	100	50	0
US weighted average carbon price by emissions (US\$/tCO2e)		~\$30	

US States are grouped into three tiers

- 1. California, Washington, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, Virginia, Oregon, Pennsylvania (15)
- 2. Colorado, Illinois, Minnesota, New Mexico, Louisiana, Hawaii, Michigan, Montana, Nevada, North Carolina, Wisconsin (11)
- 3. Kansas, Arkansas, Texas, Wyoming, Florida, Alabama, Alaska, Arizona, Iowa, Kentucky, Georgia, Idaho, Indiana, Mississippi, South Carolina, Missouri, Nebraska, North Dakota, South Dakota, Ohio, Oklahoma, Utah, West Virginia, Tennessee (24)
- 4. Tier 1 states have net zero targets, tier 2 states have climate action plans less than 5 years old, and tier 3 states do not have net zero targets or climate action plans less than 5 years old


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Deceleration • N/A¹

IPR 2023 POLICY FORECAST: ENDING CONSTRUCTION OF NEW UNABATED COAL

IDP 2022 forecast for the phase out of new unabated coal

IPR 20	23 IUI ELAST IUI	the phase	e out of net	w unabaleu luai
Tion	Country	Survey vs	Change vs	
Tier	Country	2021 ²	2021	2023 Policy Forecast
Tier 1	USA	\checkmark	-	
	Germany	-	—	
	France	-	-	Actual and anticipated policy signals
	Italy	•	—	(bans, EPS, carbon pricing), and market
	UK	-	-	reforms end new unabated coal build before 2023
	挫 Canada	-	-	
	Mexico	•	—	
	찬 Australia	\checkmark	—	Actual and anticipated policy signals and
	Argentina	•	_	market reforms end new coal build from 2023
Tier 2	冬 South Korea	a •	\checkmark	
	💻 India	\checkmark	\checkmark	
	📕 Japan	_	_	Actual and anticipated policy signals and
	📀 Brazil	\checkmark	\checkmark	market reforms end new coal build by
	📩 Vietnam	•	_	2025
	≽ South Africa	a 🦊 a	_	
	Indonesia	_	↑	
Tier 3	C* Turkey	٠	\checkmark	
	Russia	٠	_	Actual and anticipated policy signals and
	* China	\checkmark	\checkmark	market reforms end new coal build by
	Nigeria	•	_	2030
	🚟 Saudi Arabi	a •	_	No coal in use or expected

...which has 6 changes since IPR 2021

Change in forecast vs IPR 2021 — No change

Detail on key changes

鼶 South Korea 🔱 2020 to 2025

South Korea does not have policy to end new coal plants and has 3 GW in the pipeline.

1 Acceleration

💽 India

🔶 2020 to 2025

In 2023, India announced an intention to halt the addition of new coal power plants apart from those already in the pipeline. India has 61 GW in the pipeline. Expert survey indicates a deceleration.

Srazil J 2020 to 2025

Brazil does not have policy in place to phase out coal power and has 2 GW of new coal plants in the pipeline. Survey indicates deceleration.

Indonesia 1 2030 to 2025

In 2021, Indonesia announced a target to phase out all unabated coal power by 2056 with potential acceleration to 2040.

C Turkey J 2025 to 2030

Turkey does not have policy to end new coal plants and has 11 GW in the pipeline.

China 🦊 2025 to 2030

China does not have policy to end new coal power plants and has >350 GW in the pipeline. Expert survey indicates deceleration to 2030.

1. 12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey question: What target year will policymakers set in the following countries for ending construction of new unabated coal generation capacity?

Sources: full forecast evidence base can be found in the annex.

THERE IS ~500 GW OF NEW COAL POWER PLANTS IN THE PIPELINE IN IPR COUNTRIES, MAINLY IN CHINA AND INDIA

Coal power plants pipeline as of Jan 2023,¹ GW



"Announced: Projects that have appeared in corporate or governmental planning documents but have not yet moved actively forward by applying for permits or seeking land, coal, or financing. Pre-permit: Projects that have actively moved forward in one or more of the following ways: applying for environmental permits, acquiring land, acquiring coal, acquiring water rights, acquiring transmission arrangements, or securing financing. Permitted: Projects that have secured all environmental permits but have not broken ground. Construction: Projects where physical construction (i.e. concrete and steel, not just a ground-breaking ceremony or early site preparation) has begun.
 Source: Global Energy Monitor, IRENA



Key Insights

12 IPR countries have new coal in the pipeline.

- China and India have pipelines collectively amounting to ~430 GW of new coal plants, which accounts for 88% of all coalfired power capacity in the pipeline of IPR countries.
- Indonesia has the highest share of new coal to total power generation, with the capacity in the pipeline amounting to 34% of the country's total electricity installed capacity.
- China's new coal in the pipeline is equivalent to ~20% of current global coal-fired power capacity.



6 COUNTRIES HAVE ENDED THE CONSTRUCTION OF NEW UNABATED COAL-FIRED ELECTRICITY GENERATION



A ban on all coal implies an end to new coal several years earlier, dependent on the retirement age of plants in that country. Just Energy Transition Partnership. Source: all sources available in policy evidence in the Annex.



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IPR 2023 POLICY FORECAST: PHASE OUT OF ALL UNABATED COAL GENERATION

IPR 2023 forecast for the phase out of all unabated coal

Tier	Country	Survey vs 2021 ²	Change vs 2021	2023 Policy Forecast
Tier 1	France UK	_	_	Strong policy signal that coal generation will be made unlawful or unprofitable or held in reserve before 2030
		_	-	By 2030
Tier 2	USA Germany	↓ -	- ↑	Coal to be made unlawful or unprofitable or held in reserve by 2035
	Australia Mexico	•	_	Coal to be made unlawful or unprofitable or held in reserve by 2038-40
Image: Constraint of the second s	C• Turkey C• Argentina	•	_	
	Brazil	↑ ≥a •	_	Coal to be made unlawful or unprofitable
	_	or heid in reserve by 2045		
	Nigeria	٠	-	
Tier 3	South Afric	ca ↓ • —	↓ ↓ ↑	Coal to be made unlawful or unprofitable or held in reserve by 2050
	India Russia	•	_	Coal to be made unlawful or unprofitable or held in reserve by 2060
	Saudi Arab	ia •	_	No coal in use or expected

...which has 4 changes since IPR 2021

Detail on key changes

USA — 2035 DEEP DIVE TO FOLLOW

New EPA emissions standards support IPR's 2021 forecast.

Germany **1 2038-40 to 2035**

In 2022 the German government announced an acceleration of its coal phase out target to 2030. Details of the target are not yet clear, and it has not been legislated.

China — 2045 DEEP DIVE TO FOLLOW

China does not have policy to phase out coal. IPR consortium forecasts 2045 phase out.

Nouth Africa 🔱 2038-40 to 2050

South Africa had a 90% share of coal in the system in 2020. South Africa has not set a target to phase out coal. Survey indicates a deceleration to 2050.

📩 Vietnam 🛛 👃 2045 to 2050

In 2023, the government restated plans to phase out coal by 2050.

Indonesia 🏫 2060 to 2050

In 2021, Indonesia announced a target to phase out unabated coal by 2056. This target will be accelerated to 2040 conditional on international support through JETPs.

1. 12 geographies have survey results. IN/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey question: What target year will policymakers in the following countries set for ending all existing unabated coal generation?

Sources: full forecast evidence base can be found in the annex.

Change in forecast vs IPR 2021 — No change \uparrow Acceleration \downarrow Deceleration • N/A¹

THE SHARE OF COAL IN ELECTRICITY GENERATION REMAINS HIGH IN SOME IPR COUNTRIES BUT IS DECLINING IN MOST

Share of coal in total electricity generation, 2020, %



Change in coal's share of total electricity generation, 2018 – 2020, percentage points





Key Insights

4

- Coal-fired power accounts for 50% or more of power generation in 6 IPR countries in 2020.
- China's share of coal in the country's grid has decreased by 3 percentage points between 2018 to 2020.
- Germany and the USA saw the largest decline in coal power between 2018 and 2020, by 12 and 9 % points, respectively.
- Indonesia and Vietnam, two Just Energy Transition Partnership (JETP) countries, are the only IPR countries where coal's share of generation increased between 2018 and 2020.



8 IPR COUNTRIES HAVE ANNOUNCED OR LEGISLATED A TARGET TO PHASE OUT THE USE OF UNABATED COAL FROM THE POWER SECTOR

4 countries have **legislated** a coal power phase out target

France

France has legislated to phase out all coal generation by 2024.

🔶 Canada

Canada has legislated a target to phase out all coal power by 2030.

📕 Germany

Germany has legislated a target to phase out all coal power by 2038 and announced an intention to accelerate this target to 2030.

🗮 UK

The UK has legislated a ban on all unabated coal generation by Oct 2025, with an announcement to accelerate this to October 2024. **4** countries have **announced** or **proposed** coal power phase out targets

Italy

Italy has set a target to phase out coal power by 2025.

USA DEEP DIVE TO FOLLOW

The USA has proposed emissions standards that would phase out all unabated coal power by 2040.

📩 Vietnam

Vietnam has announced a target to phase out coal power by 2050.

Indonesia

Indonesia has announced a target to phase out unabated coal power by 2056 with potential acceleration to 2040 conditional on international funding support through JETP¹. **3** countries have **announced** plans to **reduce** coal use in power

💌 South Korea

South Korea has announced plans to reduce the share of coal from 33% in 2021 to 14% of generation in 2036.

≽ South Africa

South Africa secured a US\$ 8.5bn financial package, under the Just Energy Transition Partnership, to shift away from coal in its power sector.

Japan

Japan's Energy Minister has indicated intentions to reduce reliance on coal, with plans to phase out inefficient plants by 2030. There are plans in place to reduce the share of coal from 32% in 2019 to 19% in 2030. **10** countries have **no policy or strategy** in place to phase out coal from power









🗮 Saudi Arabia

Source: all sources available in policy evidence in the Annex.

1. Just Energy Transition Partnership.



THE EPA HAS PROPOSED NEW EMISSIONS STANDARDS FOR FOSSIL FUEL POWER PLANTS THAT WILL PHASE OUT UNABATED COAL BY 2040 AT THE LATEST

Currently covered by EPA¹

For standards covering existing coal and new natural gas plants

6.

C.f. is capacity factor

Additional with new proposal

The standards extend to cover all coal plants, all new gas plants, and some existing gas plants²



 Complete plant names are as follows: new (existing) coal plants -> New (Existing) Fossil Fuel-Fired Steam Generating EGUs, new (existing) natural gas pants -> New (Existing) Fossil Fuel-Fired Stationary Combustion Turbines

Source: United States Environmental Protection Agency source1, source2; Technical Summary of proposal source.



IN FPS, CHINA RETIRES 800GW OF COAL POWER BY 2045, RETROFITS 100GW WITH CCS, AND HAS 400GW IN RESERVE THAT IS "ECONOMICALLY STRANDED"

IPR's pathway for China's unabated coal fleet from 2020-45, GW



1. IPR coal phase out definition: 97% of dispatched power generation comes from sources other than unabated coal. Coal is considered abated when installed with CCS with a capture rate of 90% or equivalent.

2. Historical retirement age of coal plants has been 20-25 years. Future Chinese coal plant lifetime is modelled to be longer given the higher efficiency of China's existing coal fleet, compared with historically retired plants.

3. Plants which would no longer be economic and would otherwise shut-down without policy incentives to keep them in reserve

Sources: China coal pipeline: GEM, China coal plant lifetime: source, Distribution of China coal plant age: GEM, China modelled reserve capacity in 2050: source, UK coal capacity factor: DUKES, China CCS suitability: IEA, China coal spatial location: IEA, China CCS



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IPR 2023 POLICY FORECAST: CLEAN POWER FORECAST

IDD 2022 forecast for close news

Tier	Country	Survey vs 2021 ²	Change vs 2021	2023 Policy Forecast
Tier 1	🔶 Canada	—	—	
	France	—	—	Policy to deliver 97% clean power by 2035
	UK	1	1	
	Germany	1	^	Policy to deliver 97% clean power by 2040
	USA	—	<u> </u>	Toney to deriver 3770 clean power by 2040
Tier 2	Italy	٠	-	
	🕒 Japan	—	-	Strong policy signal to deliver 97% clean
	🏋 Australia	_	_	power by 2045
	💽 South Korea	•	_	
Tier 3	📩 Vietnam	•	V	
	Argentina	•	—	
	Mexico	•	_	
	📀 Brazil	_	_	
	*> China	-	—	
	≽ South Africa	\checkmark	\checkmark	Strong policy signal to deliver 97% clean
	Indonesia	_	↑	power by 2050
	C* Turkey	•	_	
	Nigeria	٠	-	
	India	_	_	
	Russia	٠	-	Strong policy signal to deliver 97% clean
	🚟 Saudi Arabia	۰	_	power by 2000

Change in forecast vs IPR 2021 — No change \uparrow Acceleration \downarrow Deceleration \bullet N/A¹

...which has 5 changes since IPR 2021

Details on key changes

UK **1 2040 to 2035**

In 2021, the UK set a target to achieve a zero-carbon electricity system by 2035. The UK already has 60% share of renewable electricity generation and survey results indicate an

acceleration.

Germany 1 2045 to 2040

In 2023, the German government announced a target to expand renewables to reach 80% of power consumption by 2030. Germany has legislated a target to phase out all coal by 2038. Germany has a low-carbon share of electricity generation of 56% and survey results also indicates an acceleration.

📩 Vietnam 🛛 🦊 2045 to 2050

In August 2023, Vietnam released a National Energy Master Plan for 2021-2030 which includes a target for 15-20% of energy to come from renewables by 2030 and 80-85% by 2050.

South Africa 👃 2040 to 2050

Coal's share of electricity generation was 90% in 2020 and survey results also indicate a deceleration.

Indonesia 🔺 2060 to 2050

In 2021, Indonesia announced that it aims to build 587 GW of CO2-free power plants by 2060.

1. 12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey Q: What target year will policymakers in the following countries set for achieving a nearly zero-carbon electricity system?

Sources: full forecast evidence base can be found in the annex.

19 OUT OF 21 IPR COUNTRIES INCREASED THEIR SHARE OF LOW-CARBON GENERATION BETWEEN 2018 AND 2020

Share of low-carbon generation by country, 2020, %



Change in share of low-carbon generation by country, 2018 – 2020, percentage points





Key Insights

- Canada, Brazil, and France had more than 80% of their electricity generation from low-carbon sources in 2020.
- 8 countries had less than 30% of their electricity generation from low-carbon sources in 2020. Saudi Arabia has the lowest share at 0%.
- Between 2018 and 2020, five countries saw a 5 percentage point increase in the share of low-carbon generation, with Turkey having the highest change of 10 % points.



4 COUNTRIES HAVE SET A TARGET TO DELIVER CLEAN POWER, AND 17 COUNTRIES HAVE SET TARGETS TO PARTIALLY DECARBONISE THEIR GRID

4 countries have targets in place to deliver clean power

🔶 Canada

Canada has announced a target to achieve a net zero electricity grid nationwide by 2035.

🗮 UK

The UK has announced a target to achieve a zero-carbon electricity system by 2035.

📕 Germany

Germany has announced a target to achieve 80% power from renewable energy sources by 2030 and decarbonise electricity supply by 2035.

USA

The Biden administration set a target for a zero-carbon electricity grid by 2035.

찬 Australia

Australia aims to increase the share of low-carbon power generation to 82% by 2030.

France

France has legislated a target for a 40% share of renewables in power by 2030 as part of its Energy and Climate Act 2019.

📕 Italy

Italy has announced a target for renewables to provide 65% of its electricity generation by 2030.

🔎 Japan

Japan has announced a target of reaching 36-38% renewable generation in the country's power supply by 2030.

🥌 South Korea

South Korea has announced a target to reach a share of 21.6% renewable energy power generation by 2030 and 30.6% by 2036.

17 countries have set interim targets to partially decarbonise their electricity grid

China

China aims to increase the proportion of non-fossil power generation to 29% by 2025.

苎 Saudi Arabia

Saudi Arabia announced that it plans to generate 50% of its electricity from renewables by 2030.

📩 Vietnam

Vietnam's National Energy Master Plan for 2021-2030 includes a target for 15-20% of energy to come from renewables by 2030 and 80-85% by 2050.

🔀 South Africa

South Africa's Low Emission Development Strategy sets targets for wind and solar to account for 35% of the power supply by 2030.

Indonesia

Indonesia announced that it aims to build 587 GW of CO2-free power plants by 2060.

💻 India

India aims to achieve 50% electric power capacity from non-fossil fuel sources by 2030.

C Turkey

Turkey has announced a target for renewables to supply 65.7% of Turkey's installed capacity by 2035.

📀 Brazil

Brazil has indicated that renewable sources are expected to account for around 50% of Brazil's total energy mix between 2021 and 2031.



Russia envisions that hydropower will supply 18% of the country's power by 2035.

Mexico

As part of its NDC, Mexico set a target to achieve 30 additional GW of combined wind, solar, geothermal and hydro electricity capacity by 2030.

Nigeria

As part of its NDC, Nigeria announced a conditional target to achieve 30% of electricity from renewables by 2030.

🔤 Argentina

As part of its NDC, Argentina announced a conditional target to achieve 20% of electricity from renewables by 2025.



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IPR 2023 POLICY FORECAST: PHASE OUT OF LIGHT DUTY VEHICLES WITH CO₂ **EMISSIONS** Change in forecast vs IPR 2021 No change

IPR 2023 forecast for the phase out of LDVs with CO₂ emissions Change vs Survey Tier Country 2023 Policy Forecast vs 2021² 2021 💥 ИК L 97% of new sales are ZEVs from 2030 — Tier 1 🔶 Canada France Germany 97% of new sales are ZEVs from 2035 Italy South Korea China 🗮 Australia Tier 2 USA Vietnam . Argentina • Mexico 97% of new sales are ZEVs from 2040 India Japan Nouth Africa 🚟 Saudi Arabia • C∗ Turkey • 📀 Brazil 97% of new sales are ZEVs from 2045 Tier 3 Nigeria $\mathbf{1}$ Indonesia $\mathbf{1}$ 97% of new sales are ZEVs from 2050 L Russia .

Deceleration • N/A¹ 1 Acceleration

...which has 3 changes since IPR 2021

Details on key changes



Canada has set a target for 100% zero-emissions vehicle sales of new light-duty vehicles by 2035.

France

- 2035 Germany
- Italy

The EU has mandated that all new cars and vans registered in the EU are to have zero CO2 emissions by 2035.

苎 Saudi Arabia ↑ 2050 to 2040

Saudi Arabia has set a target of ensuring that 30% of the cars on its capital city's roads are electric by the end of 2030. In addition, KSA is investing in EV and battery manufacturing.

2040 to 2045 Indonesia

In 2021, the Indonesian government set a goal for 100% sales of new cars to be electrically-powered by 2050.

2045 to 2050 Russia

Russia has not announced policies or targets to phase out the use of CO_2 cars and vans.

12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey Question: What target year will policymakers set for more than 95% of sales of new cars and vans to be zero-CO₂ emissions?

Sources: full forecast evidence base can be found in the annex.

EV SHARE OF NEW CAR SALES IS RISING, REACHING OVER 20% IN CHINA AND PARTS OF EUROPE IN 2022

EVs share of new car sales by country, 2022,¹ %



Change in EVs' share of new car sales by country 2020-2022, percentage points



1. 6 IPR countries are not included due to limited availability of data, including Argentina, Indonesia, Nigeria, Russia, Saudi Arabia, and Vietnam.



Key Insights

In 2022, 4 IPR countries had an EV share of new car sales greater than 20%, with Germany highest at 31%.

- 11 IPR countries saw less than a +10 percentage point increase in share of EVs of new car sales between 2020 and 2022.
- China recorded the highest change in EV share of new car sales between 2020 and 2022, with a 23 percentage point increase.



8 COUNTRIES HAVE ANNOUNCED TARGETS TO FULLY DECARBONISE NEW SALES OF LIGHT DUTY VEHICLES

5 countries target fully decarbonising new LDV sales by 2035

🔶 Canada

Canada has set a target for all new light-duty vehicles to be zero-emission by 2035.

🗮 UK

The UK has announced a ban on sales of cars and vans with CO_2 emissions from 2035.



Italy France

The EU has mandated that all new cars and vans registered in the EU are to have zero-CO2 emissions by 2035.

3 countries target fully decarbonizing new LDV sales beyond 2035

📩 Vietnam

Vietnam has approved a target for net zero emissions in the transport sector by 2050.

Indonesia

Indonesia has set a goal for all sales of new cars to be electrically-powered by 2050.

🔍 South Korea

In June 2022, President Yoon announced a policy agenda which planned to set a goal for a transition to ZEVs by 2035 but did not explicitly commit to a date for phasing out ICE vehicles.

before 2035 to be powered by new energy. Japan¹

system

🛅 Australia

USA 🔤

Mexico

China¹

Electric Vehicle Strategy.

between 2027 and 2032.

Japan has set a target for 100% of car sales to be 'clean energy vehicles' by 2035.

6 countries have announced strategies

to partially decarbonise their transport

Australia aims to expand EV infrastructure and

increase the uptake of EVs as a part of its National

The EPA proposed new fleet-wide emissions standards

for passenger cars and light trucks which would apply

At COP 27 Mexico announced a target for 50% of

China has set a target of 50% of all new cars sold

vehicle sales to be zero-emission vehicles by 2030.

🗮 Saudi Arabia

Saudi Arabia has set a target of ensuring that 30% of the cars on its capital city's roads are electric by the end of 2030.

7 countries **have not set targets** to decarbonise their transport system





🔤 Argentina

 Clean energy vehicles and new energy vehicles include conventional hybrids which does not meet our definition of ZEV. Note: ZEV = BEV, PHEV and FCEV Source: all sources available in policy evidence in the Annex.



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IPR 2023 POLICY FORECAST: PHASE OUT OF HEAVY-DUTY VEHICLES WITH CO₂ **EMISSIONS** Change in forecast vs IPR 2021 — No change

IPR 2023 forecast for the phase out of HDVs with CO₂ emissions

Tier	Country	Survey vs 2021 ²	Change vs 2021	2023 Policy Forecast
Tier 1	💥 ик	\checkmark	\downarrow	
	🔶 Canada	1	1	
	France	÷ -	<u> </u>	
	Germany	-	—	
	Italy	•	-	97% of new sales are ZEVS by 2040
	South Korea	•	—	
	Kina China	—	-	
	Japan	—	-	
Tier 2	USA	—	_	
	📩 Vietnam	•	_	
		•	-	
	Mexico	•	_	
	India	_	_	97% of new sales are ZEVs by 2045
	찬 Australia	-	-	
	≽ South Africa	\checkmark	-	
	Saudi Arabia	•	1	
	C• Turkey	٠	—	
Tier 3	📀 Brazil	\checkmark	\checkmark	
	Nigeria	٠	_	97% of new sales are ZEVs by 2050
	Indonesia	-	\downarrow	
	Russia	•	\downarrow	97% of new sales are ZEVs by 2055

1 Acceleration ↓ Deceleration • N/A¹

...which has 6 changes since IPR 2021

Details on key changes

Russia

🗮 ИК	\checkmark	2035 to 2040
In 2021, the UK a HDVs by 2040.	annou	nced that it will phase out sales of new petrol, diesel, and hybrid
🙌 Canada	1	2045 to 2040
Canada has signo heavy-duty vehic	ed a n cles to	on-binding memorandum of understanding for 30% of medium- and be zero-emission by 2030 and 100% by 2040.
Saudi Arabi	a 🕇	2055 to 2045
Saudi Arabia is in Arabia to phase phasing out LDV	nvesti out H s with	ng in the manufacturing of EVs and batteries. IPR forecasts Saudi DVs with CO_2 emissions 5 years after it achieves IPR's forecast of CO_2 emissions by 2040.
Srazil	\checkmark	2045 to 2050
Brazil has not ar results also indic emissions 5 year by 2045.	noun cate a rs afte	ced policies to end the sale of HDVs with CO ₂ emissions. Survey deceleration. IPR forecasts Brazil to phase out HDVs with CO ₂ r it achieves IPR's forecast of phasing out LDVs with CO ₂ emissions
Indonesia	\checkmark	2045 to 2050
Indonesia has n	ot anr	nounced policies to end the sale of HDVs with CO_2 emissions.
	L	2050 to 2055

Russia has not announced policies to end the sale of HDVs with CO₂ emissions.

12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021. 1.

2. Survey Question: what target year will policymakers set for more than 95% of sales of new heavy-duty vehicles to be zero-CO, emissions?

Sources: full forecast evidence base can be found in the annex.



5 COUNTRIES HAVE COMMITTED TO DEEP DECARBONIZATION OF HEAVY-DUTY VEHICLES

5 countries have **announced strategies or ambitions** to deliver deep decarbonization in HDVs

😹 UK

The UK has announced that it will phase out sales of new petrol, diesel, and hybrid HDVs by 2040.



France

The European Commission has proposed the introduction of stronger CO_2 emission standards for heavy-duty vehicles from 2030 onwards, with a 90% emissions reduction by 2040.

📩 Vietnam

Action program on Green energy Transition and Reducing Emissions in the Transport Sector has set the target for all road vehicles to be electric powered by green energy by 2050. 2 countries have signed non-binding memorandums to achieve deep decarbonization in HDVs

USA

USA has signed a non-binding memorandum of understanding for 30% of new sales of medium-and heavy-duty vehicles to be zero-emission by 2030 and 100% by 2040.

🔶 Canada

Canada has signed a non-binding memorandum of understanding for 30% of new sales of medium-and heavy-duty vehicles to be zero-emission by 2030 and 100% by 2040.

14 countries **have not announced** policies to achieve deep decarbonization in HDVs





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IPR 2023 POLICY FORECAST: PHASE OUT OF NEW FOSSIL FUEL HEATING SYSTEMS Change in forecast vs IPR 2021 — No change

IPR 2023 forecast for ending the sale of fossil fuel heating systems

Tier	Country	Survey vs 2021 ²	Change vs 2021	2023 Policy Forecast
Tier 1	📕 Germany	1	1	Ву 2030
	찬 Australia	—	—	
	[🍁 🛛 Canada	↓	—	07% of now booting color are zero
	France	—	-	carbon by 2035
	Italy	•	—	
	UK	-	-	
	Japan	—	-	
	💽 South Korea	•	-	97% of new heating sales are zero
	USA	—	_	carbon by 2040
Tier 2	Argentina	•	\checkmark	97% of new heating sales are zero carbon
	📒 China	\checkmark	—	by 2045
Tier 3	📕 Russia	٠	_	
	🔀 South Africa	•	\checkmark	97% of new heating sales are zero carbon
	C Turkey	•	—	by 2050
	📀 Brazil	٠	_	
	💶 India	•	_	
	Indonesia	•	_	
	Mexico	•	_	Space heating not used
	Nigeria	•	_	
	Saudi Arabia	•	_	
	Vietnam	•	_	

Acceleration Deceleration • N/A¹

...which has 3 changes since IPR 2021

Details on key changes

Germanv

2035 to 2030

Survey results indicate acceleration in forecast to before 2030. In 2023 the German government approved a bill that bans new oil and gas heating systems in new buildings in areas of residential development from 2024. Enforcement of the rules for existing buildings will come in after municipal authorities submit their decarbonisation heating plans, which are not required until 2028. The bill is still to be finalised at the time of IPR publishing in September 2023.

Argentina 2040 to 2045

Argentina has not set a target and does not have policies in place to end the sale of new fossil fuel heating systems in buildings. IPR forecasts the end of the installation of new fossil heating systems 15 years before net zero given their average lifetime of around 10-15 years. The IPR net zero forecast for Argentina is 2060.

South Africa 👃 2035 to beyond 2050

Survey results indicate deceleration in forecast to beyond 2050. South Africa has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. IPR forecasts the end of the installation of new fossil heating systems 15 years before net zero given their average lifetime of around 10-15 years. The IPR net zero forecast for South Africa is beyond 2065.

12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

Survey Question: What target year will policymakers in the following countries set to end the installation of new fossil heating systems in existing and new buildings? 2.

Sources: Policy evidence base can be found in the annex



10 COUNTRIES HAVE POLICIES IN PLACE TO DECARBONISE BUILDINGS

5 countries have policies in place to fully decarbonise buildings

France

In 2020 the National Low-carbon Strategy set the ambition for buildings to be heated using only carbon-free technologies by 2050.

📕 Germany

In 2023 the German government approved a bill that bans new oil and gas heating systems in new buildings in areas of residential development from 2024. Also in 2023, Germany announced a draft climate action plan which sets a target for 50% of building heat to be produced in a climate neutral way by 2030.

🗮 UK

In 2021 the UK announced a ban on the installation of new gas boilers by 2035 as part of its National Heating and Buildings Strategy. The strategy sets a target to achieve a net zero buildings sector by 2050.

🔶 Canada

Canada's Green Buildings Strategy sets a goal of net zero emissions for buildings by 2050, along with a 37% emissions reduction from 2005 levels by 2030.

📕 📕 Italy

The EU's 2021 Energy Performance of Buildings Directive aims to reduce building sector emissions by at least 60% by 2030 (relative to 2015) and achieve climate neutrality by 2050.

Source: all sources available in policy evidence in the Annex.

1. Space heating is not needed in 7 IPR countries, and therefore not included here: Mexico, Saudi Arabia, India, Brazil, Vietnam, Indonesia and Nigeria

5 countries have policies or strategies in place to partially decarbonise buildings

찬 Australia

The National Construction Code 2022 includes new performance requirements designed to reduce energy consumption and carbon emissions.

🔎 Japan

Japan's 2022 Green Transition Strategy sets a target for new buildings and houses to emit zero-emissions by 2030.

USA

The Inflation Reduction Act provides ~ US\$50bn for clean buildings.

💌 South Korea

The South Korean government subsidises 50% of the cost of installing new renewable energy equipment in residences and buildings as part of the Renewable Energy Act 2022.

China

In 2022, China updated building codes to require all new urban buildings to be constructed in line with green building standards by 2025 and raises the requirement for buildings' utilisation of renewable energy from 6% in 2020 to 8% by 2025.

4 countries have no targets or policies to decarbonise buildings



C Turkey



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IPR 2023 POLICY FORECAST: INDUSTRY FUEL COMBUSTION EMISSIONS REDUCTION Survey responses — Inconclusive • N/A¹

This is a new IPR policy forecast

IPR 2023 forecast for the reduction of industry fuel combustion emissions

Tier	Country Survey ²		2023 Policy Forecast		
Tier 1	Germany		Ву 2050		
	🕒 Japan	2040-50			
	France	2035-40			
	찬 Australia	2045-50	Policy or anticipated policy signals deliver		
	🔶 Canada	2050	97% emissions reduction in industry fuel		
	💦 ИК	2040	combustion by 2055		
	冬 South Korea	•			
	USA	2045-50			
	🔷 Brazil	2050	By 2060		
	Italy	•	By 2000		
Tier 2	Khina China	2050			
	Argentina	٠	Policy or anticipated policy signals deliver 97% emissions reduction in industry fuel combustion by 2070		
	C• Turkey	•			
	📩 Vietnam	•			
	苎 Saudi Arabia	٠			
	Indonesia	Beyond 2050			
Tier 3	≽ South Africa	Beyond 2050			
	Russia	٠	Policy or anticipated policy signals deliver		
	Mexico	•	97% emissions reduction in industry fuel		
	Nigeria	•	combustion beyond 2070		
	India	Beyond 2050			

Information on country tiering system

1

2

3



Germany

2050

2055

2055

The EU ETS covers industry emissions and Germany has a 2045 net zero target. Germany has announced US\$54 bn to support industrial decarbonisation through carbon contacts for difference.

Japan

Japan is trialing an ETS covering industry. Japan has a 2050 net zero target and US\$ 108 bn of investment available to support the development of hydrogen.

USA 📃

The IRA provides US\$ 61bn for clean tech including a tax credit which provides up to US\$ 3 per tonne of clean hydrogen. The USA has a net zero by 2050 target, and several states have carbon pricing covering industrial emissions.

Tier 2: countries with an IPR net zero forecast for 2060 that do not have both an ETS covering industry and hydrogen incentives in place.

China

China has a 2060 net zero target. China is planning to expand its current ETS to cover industry but has not done so yet. China does not have hydrogen incentives in place.

Tier 3: countries with an IPR net zero forecast for later than 2060 that do not have both an ETS covering industry and hydrogen incentives in place.

12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

Survey question: What target year will policymakers in the following countries set for all iron and steel production facilities to be nearly zero-carbon?

Sources: full forecast evidence base can be found in the annex.



7 COUNTRIES HAVE BOTH INDUSTRIAL CARBON PRICING AND HYDROGEN INCENTIVES IN PLACE

7 countries have carbon pricing covering industry and hydrogen incentives in place

📕 Germany

Industry is covered by the EU ETS. Germany has announced US\$54 bn to support industrial decarbonisation through carbon contacts for difference (CCfDs).

🙌 Canada

Industrial emissions are covered by an ETS. Canada has proposed CCfDs to support hydrogen.

🗮 ИК

Industrial emissions are covered by the UK ETS. The UK has a target for 10 GW of hydrogen production by 2030 – supported by a subsidy scheme.

🏝 Australia

215 industrial facilities are covered by an emissions cap. Australia announced US\$1.3 bn in funding for large-scale hydrogen production.

💌 South Korea

Industrial emissions are covered by an ETS. South Korea provides 20-40% tax credits for hydrogen.

France

Industry is covered by the EU ETS. Hydrogen Strategy includes US\$ 7.6 bn for hydrogen to 2030.

🔸 Japan

Japan has launched the first phase of a carbon market. Japan has a target for 12 Mt annual hydrogen production by 2040 – supported by US\$ 108 bn funding. 7 countries have carbon pricing covering industry or hydrogen incentives in place

Hydrogen incentives

USA

The IRA provides US\$ 61bn for clean tech including a tax credit which provides up to US\$ 3 per tonne of clean hydrogen.

💶 India

Producers of green hydrogen fuel are offered incentives worth at least 10% of their cost under a US\$2 bn scheme.

Carbon pricing

📕 📕 Italy

Industrial emissions in Italy are covered by the EU ETS.



China is planning to expand its current ETS to cover industry.

Mexico

Saudi Arabia

signed deals on an

US\$8.4 bn green

hydrogen project.

Saudi Arabia recently

Industrial emissions in Mexico are covered by its ETS.



Industrial emissions in South Africa are covered by its ETS. 2 countries have announced industrial decarbonisation targets

📩 Vietnam

Vietnam has announced targets to reduce industrial emissions 38.3% by 2030 and 84.8% by 2050.

C Turkey

Government have set a target for green hydrogen to cost US\$2.40/kg by 2035 and below US\$1.20/kg by 2053, as well as to install 2 GW of electrolysers by 2030, 5 GW by 2035, and 70 GW by 2053. 5 countries have **no policy or strategy** to decarbonise industrial fuel combustion



💳 Russia



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IPR 2023 POLICY FORECAST: INDUSTRY FUEL PROCESS EMISSIONS REDUCTION

••••••••••••••••••

IPR 204	25 IUTELAST IUT	Survoy		ustry process emissions
Tier	Country	vs 2021 ²	2021	2023 Policy Forecast
Tier 1	Germany	1	↑	By 2060
	찬 Australia	1	—	
	France	1	—	
	冬 South Korea	•	_	Policy or anticipated policy signals deliver
	ΝΚ	1	_	>80% reduction in all industry process
	🕒 Japan	—	_	emissions by 2065
	🔫 Canada	1	_	
	USA	\uparrow	—	
Tier 2	📀 Brazil	1	_	0, 2070
	Italy	٠	_	Ву 2070
Tier 3	Khina China	1	—	_
	Argentina	٠	_	
	C• Turkey	٠	—	
	📩 Vietnam	٠	_	
	Saudi Arabia	٠	_	Policy or anticipated policy signals deliver
	Indonesia	—	—	>80% reduction in all industry process
	≽ South Africa	—	—	emissions beyond 2070
	Russia	٠	—	
	Mexico	٠	—	
	Nigeria	٠	-	
	India	_	_	

Change in forecast vs IPR 2021 — No change \uparrow Acceleration \downarrow Deceleration \bullet N/A¹

...which has 1 change since IPR 2021

Detail on key changes



Beyond 2060 to by 2060

The EU ETS covers industry emissions and Germany has a 2045 net zero target. Germany has announced US\$54 bn to support industrial decarbonisation through carbon contacts for difference. The survey evidence indicates an acceleration in the forecast.

Japan

- Beyond 2060 to by 2065

Japan is trialing an ETS covering industry. Japan has a 2050 net zero target and a target for 6-12MtCO₂ annual CCUS capacity by 2030, which is supported by subsidies.



- Beyond 2060 to by 2065

The IRA provides US\$ 61bn for clean tech including tax credits of up to US\$ 85 per tonne of CO_2 permanently stored from CCS. The USA has several state level carbon pricing schemes that cover industry emissions, and the survey evidence indicates an acceleration in the forecast.

*ⁱ China

Beyond 2060 to by 2070

China has a 2060 net zero target. China is planning to expand its current ETS to cover industry but has not done so yet. China has run large scale CCUS pilot projects but does not have CCUS incentives in place.

1. 12 geographies have survey results. IN/A' is shown for countries without results or with inconclusive: results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey question: what target year will policymakers in the following countries set for all cement production facilities to be nearly zero-carbon?

Sources: full forecast evidence base can be found in the annex.



7 COUNTRIES HAVE INDUSTRIAL CARBON PRICING AND CCUS INCENTIVES IN PLACE

7 countries have carbon pricing covering industry and CCUS incentives in place

📕 Germany

Industry is covered by the EU ETS. Germany has announced US\$54 bn to support industrial decarbonisation through carbon contacts for difference (CCfDs).

🙌 Canada

Industrial emissions are covered by an ETS. Canada has proposed CCfDs and tax credits to support CCUS.

🗮 ИК

Industrial emissions are covered by the UK ETS. The UK has announced US\$ 25 bn of funding to scale CCUS.

찬 Australia

215 industrial facilities are covered by emission cap. Australia has historically provided US\$17m of grants for pilot CCUS projects.

📚 South Korea

Industrial emissions are covered by an ETS. South Korea provides 20-40% tax credits for CCUS.

France

Industry is covered by the EU ETS. France has introduced tax credits to support CCUS.

🔸 Japan

Japan has launched the first phase of a carbon market. Japan has a target for 6- $12MtCO_2$ annual CCUS capacity by 2030, which is supported by subsidies. 6 countries have carbon pricing covering industry or CCUS incentives in

place

CCUS incentives

USA

The IRA provides US\$ 61bn for clean tech including tax credits of up to US\$ 85 per tonne of CO_2 permanently stored from CCS.

Carbon pricing

Industrial emissions in Italy are covered by the EU ETS.

📒 China

China is planning to expand its current ETS to cover industry.

🚟 Saudi Arabia

Saudi Arabia has launched a US\$10.4 bn investment fund for CCUS.

Mexico Industrial emissions in Mexico are covered by its ETS.

≽ South Africa

Industrial emissions in South Africa are covered by its ETS. 1 country has announced other

industry decarbonisation targets

📩 Vietnam

Vietnam has announced targets to reduce industrial emissions 38.3% by 2030 and 84.8% by 2050. 7 countries have **no policy or strategy** to decarbonise industrial processes Brazil





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IPR 2023 POLICY FORECAST: LOW-CARBON AGRICULTURE

IPR 2023 forecast for low carbon agriculture Change vs Survey vs 2021² 2021 Country 2023 Policy Forecast Tier **UK** Tier 1 \mathbf{T} Germany Policy delivers significant nationwide France market incentives to encourage farmers $\mathbf{1}$ to reduce emissions from crop production Italy • and livestock by 2025 Japan 🔶 Canada $\mathbf{1}$ 苎 Australia Tier 2 $\mathbf{1}$ $\mathbf{1}$ USA 📃 Τ \mathbf{T} Policy delivers significant nationwide China market incentives by 2030 South Korea ★ Vietnam 📀 Brazil Mexico Tier 3 • \mathbf{T} C• Turkev Indonesia Russia Policy delivers significant nationwide market incentives by 2035 ≽ South Africa India 💶 Argentina Nigeria Saudi Arabia • Minimal agriculture

Change in forecast vs IPR 2021 — No change \uparrow Acceleration \downarrow Deceleration \bullet N/A¹

...which has 8 changes since IPR 2021

Information on key changes

- 📕 USA 🛛 🎽 Australia
 - 1
- 🔶 (2025 to 2030)

While market incentives to reduce agricultural emissions exist in both the US and Australia, they are limited in scale. Survey evidence indicates a deceleration in forecast relative to IPR 2021 for both countries to 2035.

💽 Brazil 🕺 🔶 (2035 to 2030)

Government has set a target to reduce agricultural emissions by 1 gigaton of CO_2 by 2030, implement 12.5 million hectares of zero tillage, and utilize bio-inputs on 13 million hectares. Survey evidence indicates an acceleration in forecast relative to IPR 2021 for Brazil to 2030.

E China

↓ (2025 to 2030)

Limited funding for agricultural emissions reduction in China. Survey evidence indicates a deceleration in forecast relative to IPR 2021.

South Korea



Limited funding for agricultural emissions reduction in South Korea.

Mexico Curkey

(2030 to 2035)

Limited existing incentives to reduce agricultural emissions and no evidence of strategies in place to implement in future.

1. 12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021.

2. Survey questions: By what year will there be policies in place in the following countries that encourage farmers to significantly reduce emissions from fertiliser and livestock?

Sources: full forecast evidence base can be found in the annex.



10 COUNTRIES HAVE AGRICULTURAL POLICIES IN PLACE TO INCENTIVIZE THE REDUCTION OF EMISSIONS FROM CROP PRODUCTION AND LIVESTOCK

10 countries have **policies in place** to provide market incentives for reducing agricultural emissions

🙌 Canada

Canada provides ~CAD\$600m for agricultural emissions reduction under the 2030 Emissions Reduction Plan.

🗮 υκ

The UK is piloting the Sustainable Farming Incentive (SFI), which provides £20 (US\$25) per ha per year for the first 50 hectares enrolled in SFI actions.



Under the Common Agricultural Policy (CAP), the EU offers direct payments to farmers to encourage and support sustainable agricultural practices.

📚 South Korea

South Korea provides direct payments to farmers to support the adoption of agri-environmental practices.

USA

The Inflation Reduction Act (IRA) offers \$3.2bn to farmers and agricultural producers to support their efforts in reducing emissions.

찬 Australia

The Emission Reduction Fund (ERF) allows farmers to generate tradeable certificates that can be sold to the government as a means of incentivizing the adoption of agricultural emission reduction practices.

📕 Japan

Japan offers direct payments to farmers who participate in activities aimed at combating global warming. These incentives range from US\$6 to \$86 per acre.

China

China has established several provincial-level agricultural funds to support greening initiatives in agriculture.

2 countries have announced policies or targets to reduce agricultural emissions

📩 Vietnam

Vietnam has not implemented subsidies directly linked to emissions reduction in the agriculture sector. However, the country has set a target to reduce agricultural sector emissions 43% by 2030 relative to business-as-usual.



Brazil has announced a target to reduce 1.1bn tCO_2 emissions from agricultural and ranching activities between 2020-2030.

9 countries have no policies to reduce agricultural emissions Russia South Africa Indonesia C Turkey 💶 India Mexico Argentina Nigeria 🖳 Saudi Arabia



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IPR 2023 POLICY FORECAST: ENDING NET DEFORESTATION AND DELIVERING AFFORESTATION OR REFORESTATION AT SCALE Change in forecast vs IPR 2021 — No change

IPR 2023 forecast for ending net deforestation²

Tier	Country	Survey vs 2021 ³	Change vs 2021	2023 Policy Forecast
Tier 1	🛃 Canada	•	-	
	Khina	\downarrow	-	
	France	—	-	
	📕 Italy	•	-	
	💽 Japan	•	-	End net deforestation and deliver
	K UK	—	—	
	USA 📕	\downarrow	-	
	C Turkey	٠	-	
	📩 Vietnam	٠	—	
	찬 Australia	\downarrow	—	End net deforestation by 2025 and deliver
	💻 Germany	↓	-	afforestation or reforestation at scale by 2030
Tier 2	📕 Russia	٠	—	End net deforestation by 2025 and deliver
	💻 India	\downarrow	-	afforestation or reforestation at scale by 2035
	Argentina	٠		
	📀 Brazil	_	-	
	Mexico	•	-	End net deforestation by 2030 and deliver
	🔤 Saudi Arabia	•	_	afforestation or reforestation at scale by 2030
	💽 South Korea	•	\checkmark	
	📒 Indonesia	\checkmark	—	
Tier 3	Nigeria	•	\checkmark	End net deforestation by 2035 and deliver
	🔀 South Africa	\downarrow	\downarrow	afforestation or reforestation at scale by 2035

1 Acceleration Deceleration • N/A¹

... which has 3 changes since IPR 2021

Details on key changes China 2025 Large scale afforestation programmes in place, with forest area increasing between 2010-20. South Korea 🔱 2025 to 2030 South Korea is yet to end net deforestation and has no clear afforestation or reforestation policies or strategy in place. Nigeria 2030 to 2035 Nigeria is yet to end net deforestation and has no clear afforestation or reforestation policies or strategy in place.

Nouth Africa 🤳 2030 to 2035

No clear government ambition to end net deforestation or deliver large-scale afforestation and expert survey results indicate a deceleration in forecast relative to IPR 2021.

12 geographies have survey results. 'N/A' is shown for countries without results or with inconclusive results. Inconclusive: results are randomly distributed with an approx., equal number of results showing an acceleration and deceleration vs FPS 2021. 1.

End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover. 2.

Survey Question: By what year will there be policies in place that encourage farmers to carry out significant afforestation of agricultural land in the following countries? 3.

Sources: Policy evidence base can be found in the annex.

14 OUT OF 21 IPR COUNTRIES HAVE ENDED NET DEFORESTATION¹

Change in forest cover 2010-2020, percentage points



Forest cover as a share of total land area 2020, %



Source: World Bank

1. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.

2. Japan is classified as having reached net zero due to small margin



Key Insights

- In 7 IPR countries, the forest share of land area fell by more than 0.2 % points between 2010-20. Of these countries, Indonesia had the greatest fall at -4 % points of land area.
- Vietnam had the highest increase in forest cover as a share of land area between 2010-20 of IPR countries, at +4 % points.


14 IPR COUNTRIES HAVE ENDED NET DEFORESTATION¹ WHILE A FURTHER 5 COUNTRIES HAVE ANNOUNCED PLANS TO END OR REDUCE NET DEFORESTATION

14 countries have ended net deforestation



2 countries have **announced** an end to (net) deforestation

Mexico

In 2022, Mexico set a target to reach net zero deforestation by 2030.

📀 Brazil

In 2022, Brazil pledged to achieve zero deforestation by 2030.

3 countries have **announced** plans to **reduce** (net) deforestation

💌 South Korea

South Korea signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 which aims to halt deforestation by 2030.

Nigeria

Nigeria signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 which aims to halt deforestation by 2030.

In 2021, Indonesia set a target to halve the deforestation rate over the next three decades. Indonesia signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 which aims to halt deforestation by 2030 2 countries have **no policy or strategy** in place to end (net) deforestation



💶 Argentina

1. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover. Source: all sources available in policy evidence in the Annex.



18 IPR COUNTRIES HAVE AFFORESTATION OR REFORESTATION POLICIES OR STRATEGIES IN PLACE

18 countries have **policy or strategy** in place for delivering afforestation or reforestation

🗮 Australia

Afforestation and reforestation projects can qualify for emissions offsets under the **Emissions Reduction Fund. The government has** allocated AUD\$70m (US\$50m) towards the 20m Trees Programme.

L Canada

Canada announced a US\$3.19 bn fund to support its commitment to 2 billion trees by 2030.

Germany 📕 📕 France 📕 📕 Italy

The EU has enacted market-based mechanisms to promote afforestation, including the lowcarbon certification, a voluntary carbonoffsetting scheme to promote local greenhouse gas reducing projects.

🔍 India

In its NDC, India aims to reach 22% forest cover and create a carbon sink of 2.5-3bn tonnes of CO_2 through forest cover by 2030.

Argentina

Argentina's Green Insurance Initiative aims to increase forest plantation to 2 million ha by 2030.

Mexico

Mexico's 2019 National Development Plan 2019-2024 sets a reforestation target of 1 million hectares.

Srazil

President Lula released an action plan in 2023 including a target to recover native vegetation of at least 12 million hectares of area by 2030.

💥 UK

The UK government has committed to use part of £640m in the Nature Climate Fund to achieve tree planting of 30,000 haper year by 2025.

USA

The 2022 REPLANT Act directs the Forest Service to plant more than a billion trees over the next decade.

China

China has set a target to reach 25% forest coverage by 2030 and to increase forest volume stock by 6 billion cubic meters by 2030 relative to 2005 levels.

Japan

Japan has ended net deforestation and has limited scope for afforestation.

Indonesia

In 2021, Indonesia set a target to reforest 26.2m acres of land by 2050.

Nigeria

Nigeria aims to reduce emissions from forestry by 20% by 2050.

Saudi Arabia

As part of the Saudi Green Initiative, KSA has pledged to plant 100 million trees, including 7 million trees in national parks and forests, to offset 45 million tonnes of CO₂ emissions by 2030.

📩 Vietnam

Prime Minister Nguyen Xuan Phuc has called for 1 billion trees to be planted nationwide by 2025 to help prevent landslides and flooding.

C Turkev

Turkey plans to expand its forest cover by 5% by 2030, taking total forest cover to 30%.

3 countries have **no clear policy** or strategy in place for afforestation or reforestation

South Africa





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This is a new IPR policy forecast

IPR 2023 POLICY FORECAST: 100% DEFORESTATION-FREE SUPPLY CHAINS

IPR 2023 forecast for 100% deforestation-free supply chain

Tier	Country	Survey ²	2023 Policy Forecast
Tier 1	France Germany Italy K UK Australia	2030 2030 • 2035 2030	100% deforestation-free supply chains by 2030
Tier 2	Canada Japan USA Brazil China	2030 2035 — 2030 2030/2035	100% deforestation-free supply chains by 2035
Tier 3	 South Korea Turkey Russia Mexico South Africa Indonesia Vietnam Argentina Nigeria India Saudi Arabia 	Beyond 2035 Beyond 2035 Beyond 2035	100% deforestation-free supply chains beyond 2035

Information on country tiering system

Tier 1 countries have mostly existing mandates for deforestation-free supply
chain policies.

Survey responses — Inconclusive • N/A¹

Germany

The EU requires that products placed on their market are not associated with deforestation in the supply chain for importers of cattle, cocoa, coffee, palm-oil, soya and wood.

Tier 2 countries have not mandated deforestation-free supply chains but do have survey evidence indicating policies will be implemented by 2035 or have a track record of implementing supply chain due diligence regulations.

USA USA

France

1

2

By 2035

By 2030

The USA has not set deforestation-free supply chain regulations at the federal level but has a track record of implementing supply chain due diligence policy, for example in prohibiting the import of goods produced using forced labour.

3 **Tier 3** countries have neither introduced nor announced policies for deforestation-free supply chains and survey evidence indicates this will be implemented beyond 2035.

Mexico

Beyond 2035

Mexico has not set deforestation-free supply chain regulations or announced an intention to do so.

1. 12 geographies have survey results. 'N/A' is shown for countries without results. Inconclusive: results are randomly distributed.

2. Survey question: By what year will policies enter force that require agricultural commodities imports to be deforestation-free in the following countries? Sources: full forecast evidence base can be found in the annex.



ONLY 4 COUNTRIES HAVE PUT IN PLACE REGULATIONS TO MAKE THEIR TRADING ACTIVITIES DEFORESTATION-FREE

4 countries have **introduced** deforestation-free supply chain policy



📕 Germany

📕 Italy

The EU requires that products placed on their market are not associated with deforestation in the supply chain for importers of cattle, cocoa, coffee, palm-oil, soya and wood.

Ж ИК

The UK government introduced due diligence requirements for companies that use 'forest-risk commodities,' requiring companies to ensure their products are free from illegal deforestation and conversion. **5** countries have **introduced other** mandatory supply chain due diligence policy

🖊 Canada

Canada requires all businesses to identify human rights and forced labour risks in their supply chain.

USA 🔤

In the US, the importation of goods and merchandise mined, produced, or manufactured using forced labour, convict labour, or child labour in any foreign country is prohibited.

🏝 Australia

Australia requires companies to report on forced-labour risks in their supply chain and make annual efforts to reduce them.

📕 China 🛛 💿 Brazil

In 2023, China and Brazil issued a joint statement announcing new efforts to combat deforestation linked to illegal trade.

12 countries have **no policy** on deforestation-free supply chains



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IPR 2023 forecast for land protection and restoration

Tier	Country	Survey ²	2023 Policy Forecast
Tier 1	Germany	Before 2030	Ву 2025
	🏋 Australia	2030	
	📀 Brazil	2030	
	France	—	30% protection of all land achieved, and
	Italy	•	30% of degraded land under effective
	🕒 Japan	2035	
	UK	_	
Tier 2	*`China	2030	30% protection of all land achieved, and
	USA	2035	30% of degraded land under effective
	🔶 Canada	2030-2035	restoration or restored by 2035
	- Argentina	٠	
	💿 India	2035	
	Mexico	٠	30% protection of all land achieved, and
	saudi Arabia	•	restoration or restored by 2040
	South Africa	٠	
	🧑 South Korea	٠	
Tier 3	Indonesia	٠	
	Nigeria	٠	20% protection of all land achieved and
	Russia	•	30% of degraded land under effective
	C* Turkey	٠	restoration or restored beyond 2040
	Vietnam	٠	

Survey responses — Inconclusive • N/A¹

Details on country tiering system

INEVITABLE POLICY RESPONSE

This is a new IPR policy forecast

1	Tier 1 countries have an 2030, and increase land achieved to date.	nnounced a target o d restoration rates, v	or strategy to protect 30% land by with at least 20% land protection By 2030	
	The government has contract nature by 2030, and to	mmitted to protect set legally binding t	ing at least 30% of land and sea for argets for nature recovery.	
2	Tier 2 countries have an protection and land res achieved to date.	nnounced a target o toration rates, with	or strategy to increase land less than 20% land protection	
	China		Ву 2035	
	China has set out a seri restoration in a 2020 m	ies of objectives for naster plan but only	national ecological protection and 16% of land is currently protected.	
3	Tier 3 countries have no protection and restorat to date.	o clear policy or stra ion and have less th	ategy in place to increase land nan 15% land protection achieved	
	Indonesia	1	Beyond 2040	
	Indonesia does not hav land protected as of 20	e a target in place to 22.	o increase land protection and has 12%	

1. 12 geographies have survey results. 'N/A' is shown for countries without results. Inconclusive: results are randomly distributed.

2. Survey question: By what year will the following countries achieve the Dec 2022 Biodiversity COP 15 target of protecting 30% of land and marine area?

Sources: Policy evidence base can be found in the annex.

7 IPR COUNTRIES HAVE MORE THAN 20% PROTECTED AREA COVERAGE

Terrestrial and inland waters protected area coverage, 2022, %



Key Insights

2

3

Germany, Japan and Brazil had 30% protected area coverage in 2022.

7 IPR countries had protected area coverage 20% or greater of total terrestrial and inland water in 2022.

6 IPR countries had less than 10% protected areas of terrestrial and inland waters in 2022.

INEVITABLE POLICY RESPONSE



11 COUNTRIES HAVE ANNOUNCED OR ACHIEVED A 30% LAND PROTECTION BY 2030 TARGET

11 countries have **announced or achieved** a 30% land protection by 2030 target

🏝 Australia

🖊 Canada

📕 Germany

🗮 ИК

USA

🔎 Japan

France

📀 Brazil

苎 Saudi Arabia

🔍 South Korea

📕 Italy

4 countries have **announced** plans to increase their protected area %

China

In 2014, China committed to increase its terrestrial protected area coverage to 20% by 2020, which has not yet been reached.

C Turkey

In 2020, Turkey announced plans to increase its protected areas from 2.5% to 17%, by declaring 86 new areas as preserved sites. Mexico

The Ecology Law in Mexico was amended in 2022 to establish a total of eight types of protected areas, six under federal jurisdiction and two under state jurisdiction. Protected area in Mexico is at 15%, up from 11% in 2010.

🔀 South Africa

South Africa established the Protected Areas Act in 2003, which has led to protected areas increasing to 9%.

6 countries have **no clear strategy** in place to **increase land protection**



Global: All parties of the Convention on Biological Diversity are required to update their national biodiversity strategies ahead of CBD COP 16 in 2024, detailing how they intend to contribute to the Global Biodiversity Framework targets



19 IPR COUNTRIES HAVE LAND RESTORATION TARGETS OR FUNDING IN PLACE

19 countries have announced land restoration targets or funding

苎 Australia

The Australian Government invested AUD100m into the Environment Restoration Fund from 2019-2023.

France 💻 Germany 📘 Italy

The EU Nature Restoration Law, part of the European Green Deal, which sets legally binding targets to rehabilitate degraded habitats and lost species.

Ж ИК

Under the Environment Act 2021, the UK Government has committed to setting legally binding targets for nature recovery. Defra¹ have consulted on a target to create or restore 500,000 hectares of wildlife rich habitat outside of protected areas by 2042.

📩 Vietnam

Vietnam's Vision to 2030 document states that 25% of degraded ecosystems of international significance will be restored by 2030.

🔶 Canada

Canada has pledged to restore 19 million hectares of degraded and deforested land by 2030.

1. DEFRA is the Department for Environment, Food and Rural Affairs Source: all sources available in policy evidence in the Annex.

China

In 2020, China issued a 'Master Plan for the Protection and Restoration of Important National Ecosystems (2021-2035)', laying out a series of objectives for national ecological protection and restoration.

USA

In 2022, the US announced a US\$1.4 billion investment in ecosystem restoration efforts over the next five years under the Bipartisan Infrastructure Law.

Mexico

In 2021, the Mexican Alliance for Ecosystem Restoration was launched aiming to restore 1 million hectares of forest by 2030.

In 2019, the government created the National Plan for the Restoration of Native Forests through Resolution 267/2019, which seeks to restore 20 million ha of native forest per year by 2030.

Indonesia

In 2020, the national government of Indonesia announced its aim to rehabilitate 600,000 ha of mangrove between 2020 and 2024.

South Korea

South Korea's 5th National Biodiversity Strategy covering 2024-2028 will be finalised by the end of 2023. The strategy is being designed to help South Korea meet its Global Biodiversity Framework restoration targets.

≽ South Africa

South Africa has committed to restore 3.6m ha by 2030 through it's Land Degradation Neutrality Targets.

苎 Saudi Arabia

Saudi Arabia plans to rehabilitate 8 million hectares of degraded land by 2030.

Nigeria

Nigeria has announced plans to rehabilitate 10.5m ha of cropland showing early signs of declining land productivity by 2030.

C Turkey

In 2019, the government unveiled an 11-year action plan seeking to convert 1/3 of its total degraded area by 2023.

💶 India

India has set a target to restore 26 million hectares of degraded land by 2030.

📀 Brazil

Brazil has pledged to restore 22million ha by 2030.

2 countries have no clear targets in place to restore degraded **land**

🚃 Russia

🔎 Japan

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IPR 2023 POLICY FORECAST: NATURE INCENTIVES

IPR 2023 forecast for nature incentives

Tier	Country	Survey ²	2023 Policy Forecast
Tier 1	France	2030	Policy delivers significant market
	UK	2035	incentives to landowners to preserve
	찬 Australia	2035	nature by 2025
	E Germany	2030	
	Italy	•	
	💌 Canada	2030	
	USA 📕	—	Policy delivers significant market
	Khina	2040	incentives to landowners to preserve
	📩 Vietnam	•	nature by 2030
	📀 Brazil	—	
	🔎 Japan	2040	
	👀 South Korea	•	
Tier 2	Indonesia	2040	
) South Africa	-	Policy delivers significant market
	Argentina	•	nature by 2035
	Mexico	•	
	Nigeria	٠	
Tier 3	C Turkey	•	Policy delivers significant market
	India	Beyond 2035	incentives to landowners to preserve
	Russia	٠	nature beyond 2035
	苎 Saudi Arabia	•	

Survey responses — Inconclusive • N/A¹

This is a new IPR policy forecast

INEVITABLE POLICY RESPONSE

Information on country tiering system

1

2

Tier 1 countries that have a national biodiversity market in place by 2025 under
current proposals.

France 🗮 UK 2025

The UK and France are collaborating to create an international biodiversity market which is scheduled to be ready by COP 16 in Turkey in 2024.

Tier 2 countries are those that have announced intentions to develop market incentives to preserve nature but have not announced national biodiversity markets

2035

Argentina

Argentina has implemented a voluntary national-level payment for eco-system services (PES) program but has not announced a national biodiversity market with significant incentives.

3 **Tier 3** countries have neither introduced nor announced incentives for nature and survey evidence indicates forecast beyond 2035 where it exists.

🔤 India

Beyond 2035

India has not implemented market incentives for nature conservation and the survey evidence indicates that such policies may be introduced beyond 2035.

1. 12 geographies have survey results. 'N/A' is shown for countries without results. Inconclusive: results are randomly distributed

2. Survey question: By what year will there be compliance mechanisms in place that require most businesses (>80%) with a significant impact on nature to offset nature damages they cause e.g. biodiversity loss, or pay for ecosystem services? Sources: full forecast evidence base can be found in the annex.



3 COUNTRIES ARE DEVELOPING NATIONAL BIODIVERSITY MARKETS, WHILE 13 OTHERS HAVE NATURE INCENTIVES IN PLACE

3 countries are **developing** a national biodiversity nature market



The UK and France are collaborating to create an international biodiversity market which is scheduled to be ready by COP 16 in Turkey in 2024.

🗮 UK

The UK has legislated a biodiversity net gain plan mandating developers to seek planning authority approval prior to commencement.

찬 Australia

Australia has tabled a Nature Repair Market Bill 2023 in parliament that aims to establish a national voluntary framework for projects to enhance or protect biodiversity.

13 countries have either announced other nature market incentives

or are planning to introduce nature incentives



USA and Canada have active compensation schemes targeting the protection of fish habitats, wetland and stream ecosystems and endangered species.



na 🛛 🔀 Vietnam



China, Vietnam, and Argentina have implemented national-level payment for ecosystem services (PES) programs to conserve nature.

📕 Germany 🛛 🚺 Italy

The EU has announced US\$65m funding that will go into supporting nature projects.

📀 Brazil

Brazil is considering the implementation of the New Carbon Credit Bill, which includes plans to auction forestry concessions.

Japan

Japan has announced the Satoyama Initiative which aims to introduce market mechanisms for nature conservation.

🔀 South Africa

South Africa has a national payment for ecosystem services scheme to conserve the country's water resources.

👀 South Korea 🛛 🚺 Nigeria

South Korea and Nigeria have announced a National Biodiversity Strategy And Action Plan (NBSAP) that supports nature projects.

5 countries have not announced nature market incentives Indonesia Russia Turkey Saudi Arabia India



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NET ZERO TARGETS: POLICY EVIDENCE BASE

Country	Policy Evidence
Kaustralia	In September 2022, Australia's government legislated its 2050 net zero target. The law also includes a pledge to cut emissions by 43% compared to 2005 levels by 2030.
🔶 Canada	The Government of Canada legislated its 2050 net zero greenhouse gas emissions target in the Canadian Net-Zero Emissions Accountability Act, in June 2021.
France	In 2019 France legislated its 2050 net zero emissions target. France's near-term climate commitment is a target to reduce greenhouse gas emissions by at least 50% by 2030.
Germany	In 2021 Germany legislated its net zero target to reach GHG neutrality by 2045. Under the Climate Change Act 2021, Germany's near-term commitment focuses on reducing greenhouse gas emissions by at least 65% by 2030 relative to 1990 levels.
India	In 2021, the Indian government pledged to achieve net zero emissions by 2070 in an announcement by the Prime Minister at COP26. In 2022 India updated its NDC to include a commitment to reduce the emissions intensity of its GDP by 45% by 2030.
Italy	In 2019 Italy announced its target of net zero emissions by 2050. In March 2021 Italy announced that it plans to cut its carbon emissions by around 60% by 2030.
South Korea	South Korea legislated a 2050 carbon neutrality target in 2021. As part of its latest NDC announced in 2021, South Korea set a target to reduce GHG emissions by 40% by 2030 relative to 2018 levels.



NET ZERO TARGETS: POLICY EVIDENCE BASE

Country	Policy Evidence		
Mexico	Mexico has not set a target and does not have policies in place to reach net zero.		
Argentina	In November 2021, Argentina announced a target under its NDC to not exceed net emissions of 349 million tonnes of CO ₂ by 2030. They have also set an intention of being net-zero by 2050.		
📀 Brazil	As part of its latest NDC Brazil announced in 2022, Brazil set a target to reduce emissions by 50% between 2005 and 2030. This target is in line with Brazil's indicative target of reaching climate neutrality by 2050.		
UK UK	The UK has legislated to meet a net zero target for 2050 that includes all greenhouse gasses. In 2021 the UK announced that it aims to reduce greenhouse gas emissions by 78% by 2035 based on 1990 levels.		
USA USA	The Biden Administration has issued an executive order to achieve net zero by 2050 for federal operations. The US also set out pathways to achieving 2050 net zero in the 2021 policy document, 'The Long-term Strategy of the United States – Pathways to Net-Zero Greenhouse Gas Emissions by 2050'.		
Khina	China has announced a target to peak CO ₂ emissions by 2030 and achieve carbon neutrality by 2060. This target was reaffirmed by President Xi in October 2022.		
Japan	In 2020 Japan announced a carbon neutrality target for 2050. As part of its latest NDC, Japan has committed to a near-term target of reducing GHG emissions by 46% in 2030, compared with 2013 levels.		



NET ZERO TARGETS: POLICY EVIDENCE BASE

Country	Policy Evidence
≽ South Africa	South Africa announced a GHG net zero target for 2050 in February 2020. In September 2021, the South African government updated its NDC by setting an emissions cap of 350-420 Mt of CO ₂ in 2030 compared to its previous cap of 398-440 Mt of CO2.
C• Turkey	Turkey under its NDC announced a target of 41% emissions reduction and will aim for net zero by 2053.
★ Vietnam	Vietnam announced a target to reach net zero by 2050 during COP26 in 2021. In 2023, Vietnam released a National Energy Master Plan for 2021-2030 which states an aim to cut GHG emissions by 17-26% by 2030 and 90% by 2050, both compared to "normal development scenarios".
Russia	In October 2021, Russia announced that the country would aim for net zero by 2060. Russia's NDC (announced in November 2020) aims for a 30% reduction emissions below 1990 levels by 2030.
Indonesia	In 2021, Indonesia published a potential pathway to reach net zero emissions by 2060 as part of its updated Long-Term Strategy. In 2022 Indonesia updated its NDC to target 32% GHG emission reduction for its unconditional target and 43% reduction for its conditional target, both by 2030.
Nigeria	In 2021, Nigeria legislated its target to reach net zero emissions by 2060. In its latest NDC in 2021, Nigeria reiterated its unconditional target of 20% below BAU by 2030 (submitted in the 2017 NDC) and increased its conditional target from 45% to 47% below BAU by 2030.
Saudi Arabia	In 2021, Saudi Arabia pledged to reduce 278 Mtpa CO ₂ emissions by 2030 relative to 2019 levels and reach net zero by 2060.



CARBON PRICING: POLICY EVIDENCE BASE

Country	Policy Evidence
🔶 Canada	Canada's federal government has established a national minimum price on carbon emissions, which will increase each year from 2023-2030 to reach CAD\$170 (US\$ 131) in 2030. Canada's federal government has launched a consultation to introduce a cap on emissions from the oil and gas sector.
France	The EU ETS carbon price covers sectors including power, industry, and aviation with an expansion to shipping planned for 2024. The overall ambition of emission reduction through the EU ETS has increased to 62% from 55% by 2030 compared to 2005 levels.
Germany	The EU ETS carbon price covers sectors including power, industry, and aviation with an expansion to shipping planned for 2024. The overall ambition of emission reduction through the EU ETS has increased to 62% from 55% by 2030 compared to 2005 levels.
Italy	The EU ETS carbon price covers sectors including power, industry, and aviation with an expansion to shipping planned for 2024. The overall ambition of emission reduction through the EU ETS has increased to 62% from 55% by 2030 compared to 2005 levels.
UK	The UK introduced the UK ETS in 2021 , replacing the country's participation in the EU ETS. The UK ETS applies to energy intensive industries, the power generation sector, and aviation . The UK ETS will have a 5% reduction in the emissions cap that would have been set under the EU ETS. Beginning in 2024, the cap on emissions will be reduced over time such that covered sectors will be required to reduce emissions in line with the UK's net zero goals. The ETS price was £80 (US\$103.7) in Jan 2023.
USA	The US has no federal carbon pricing scheme. However, multiple states have introduced carbon pricing initiatives, including California's CaT and the Regional Greenhouse Gas Initiative (RGGI) in several north-eastern states. New York is also currently developing a state-wide carbon market.
<section-header></section-header>	In March 2023, Australia passed the Safeguard Mechanism Amendment Bill , which places an emissions cap on the country's largest polluting facilities between 2021 and 2030 with requirements to reduce emissions. Australia also operates the Emissions Reduction Fund which is a national voluntary carbon crediting scheme. Also in 2023, Australia's federal government announced that it is examining a new import tariff on GHG intensive materials such as steel, aluminium, and cement.



CARBON PRICING: POLICY EVIDENCE BASE

Country	Policy Evidence
China	China introduced an ETS for power generation in 2021. China plans to eventually expand its ETS to other sectors beyond power, including iron and steel, construction materials, petroleum, chemical and non-ferrous metals. The timeline for this ETS expansion is currently unclear.
Japan	Since 2021, Japan has had a carbon tax on upstream distributors of fossil fuels. In addition, In April 2023 Japan launched the trial phase of its new ETS, the GX League, which will begin as a voluntary market with plans to transition to a compliance market in 2026.
South Korea	South Korea's ETS has been active since 2015. The ETS covers 684 of the country's largest emitters, which account for ~70% of national GHG emissions. The carbon price covers the waste, domestic aviation, transport, buildings, industry, and power sectors. The traded price of carbon was KRW 28,000 (US\$21.7) in August 2022.
India	India does not currently have any form of carbon pricing. In December 2022, India passed the Energy Conservation Amendment Bill with guidelines for establishing a carbon market. The system is expected to operate as a compliance market for some sectors (e.g., energy) with a voluntary mechanism open to other sectors.
Mexico	In 2020, Mexico introduced an ETS covering direct CO ₂ emissions from fixed sources in the energy and industry sectors emitting at least 100,000 tCO ₂ per year. Roughly 40% of total emissions are covered by this scheme.
South Africa	The South African Government implemented a carbon price in 2019 which covers roughly 80% of GHG emissions. The scheme covers emissions across industry, power, buildings and transport. The carbon price will continue to rise from US\$9/tCO2e in 2022 to US\$20 by 2026, US\$30 by 2030 and US\$120 by 2050.
C• Turkey	Turkey does not currently have any form of carbon pricing. However, In 2022, Turkey's President approved a recommendation to launch a pilot ETS in 2024, with future allowance auction revenues to be devoted to green transformation.



CARBON PRICING: POLICY EVIDENCE BASE

Country	Policy Evidence
Argentina	In 2018, Argentina launched a carbon price on petrol and petroleum coke which covers roughly 17.2% of the country's emissions. The price in 2023 is approximately US\$3/tCO2.
Srazil	Brazil does not currently have any form of carbon pricing. The Brazilian government has proposed the establishment of a regulated carbon market for major emitters based on a cap-and-trade scheme. The proposal states the following: caps would be placed on companies emitting more than 25,000 tons of CO ₂ annually; and the sectors included would be oil and gas, meatpackers, steel, cement, and aluminium.
Indonesia	In 2023, the Indonesian government launched a carbon trading scheme covering coal facilities with a capacity of more than 100MW. The government plans to expand the current carbon pricing scheme to cover oil and gas-fired power stations and the remaining coal-fired power plants between 2025 and 2030.
★ Vietnam	Vietnam does not currently have any form of carbon pricing. However, Vietnam's government has been evaluating options for implementing a carbon credit market in Vietnam, stating that a carbon credit pilot could begin in 2025 with full trading potentially beginning in 2028.
Nigeria	Nigeria does not currently have any form of carbon pricing. However, in 2022, the Nigerian Minister of the Environment announced that the country had begun activities to develop a national ETS.
Russia	Russia does not currently have any form of carbon pricing.
Saudi Arabia	Saudi Arabia does not currently have any form of carbon pricing.



NEW COAL PHASE-OUT: POLICY EVIDENCE BASE

Country	Policy Evidence
찬 Australia	Australia has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation at the federal level.
🛃 Canada	Canada has committed to phasing out unabated coal by 2030, making new coal economically unviable . Amendments to the 2012 regulations on Reductions of Carbon Dioxide Emissions from Coal-fired Generation of Electricity will expedite the closure of conventional coal-fired electricity units by December 31, 2029.
France	France passed The Energy and Climate Act in 2019, which mandated all coal power plants to cease operations by 2022 through emissions restrictions. In August 2023, the French government granted permission for the country's two remaining coal plants to operate until the end of 2024.
Germany	The Coal Exit law in 2020 ends unabated coal-fired electricity from coming online from 2020.
India	In 2023 India amended its draft National Electricity Plan indicating an intention to stop building new coal-fired power plants apart from those already in the pipeline.
Italy	The Italian government has set a target to phase out all coal by 2025 as a part of its National Energy Strategy 2017, making new coal economically unviable, however this is non-binding.
South Korea	South Korea has not set a target to phase out unabated coal-fired electricity generation. South Korea's 10th Basic Energy Plan 2023, envisions that the coal fired-power will contribute 14.4% of the country's power needs by 2036, down from 33% in 2021.



NEW COAL PHASE-OUT: POLICY EVIDENCE BASE

C οι	intry	Policy Evidence
۲	Mexico	Mexico has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
•	Argentina	Argentina has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
	Brazil	Brazil has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
	UK	The UK has legislated a ban on all unabated coal generation by Oct 2025, with an un-legislated acceleration to Oct 2024.
	USA	In 2015 the US' Environmental Protection Agency (EPA) announced a policy that prevents new unabated coal from coming onto the system by requiring new plants to partially capture their emissions with CCUS.
*)	China	China has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation. They have continued to permit new coal plants in 2022 and 2023. In September 2021, China confirmed they would stop financing international coal projects.
	Japan	Japan's Environment Minister indicated intentions to reduce reliance on coal-fired generation, with plans to phase out inefficient plants by 2030. The Japanese government has announced an aim to reduce the share of coal from 32% in 2019 to 19% in 2030.



NEW COAL PHASE-OUT: POLICY EVIDENCE BASE

Country	Policy Evidence
) South Africa	South Africa secured a US \$8.5bn financial package, under the Just Energy Transition Partnership (JETP) to shift away from coal in its power sector . The package includes concessional finance from France, Germany, the UK, the US, and the EU of 3-5 years to accelerate the retirement of coal plants and deploy renewable energy.
C Turkey	Turkey has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
📩 Vietnam	In May 2023, a government document restated Vietnam's commitment to phase out all coal-fired power by 2050. The document also projects that there will be 30 GW of coal-fired power capacity operating in 2030. In 2022, Vietnam also reached an agreement with the G7 countries to finance the transition away from coal via JETP.
Russia	Russia has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
Indonesia	In 2021, Indonesia set a target to phase out unabated coal-fired electricity generation by 2056. This target will be accelerated to 2040, conditional on countries providing funding to support this transition. In 2022, Indonesia also reached an agreement with the G7 countries to finance the transition away from coal via JETP.
Nigeria	Nigeria has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
Saudi Arabia	Saudi Arabia does not use coal for power generation.



ALL COAL PHASE-OUT: POLICY EVIDENCE BASE

Country	Policy Evidence
찬 Australia	Australia has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation at the federal level.
💌 Canada	Canada has committed to phasing out unabated coal by 2030 . Amendments to the 2012 regulations on Reductions of Carbon Dioxide Emissions from Coal-fired Generation of Electricity will expedite the closure of conventional coal-fired electricity units by December 31, 2029.
France	France passed The Energy and Climate Act in 2019, which mandated all coal power plants to cease operations by 2022. In August 2023, the French government granted permission for the country's two remaining coal plants to operate until the end of 2024.
Germany	The Coal Exit law in 2020 commits to the phase out of coal-fired electricity generation by 2038 latest. In 2022 the German government announced an ambition to bring forward the phase out of all coal generation to 2030 but it remains unclear what the plan to achieve this is.
India	India has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
Italy	The Italian government has set a target to phase out all coal by 2025 as a part of its National Energy Strategy 2017, however this is non-binding. This is reaffirmed by Italy's National Energy and Climate Plan 2020 that sets a target for renewables to provide 55% of its electricity generation by 2030.
South Korea	South Korea has not set a target to phase out unabated coal-fired electricity generation. South Korea's 10th Basic Energy Plan 2023, envisions that the coal fired-power will contribute 14.4% of the country's power needs by 2036, down from 33% in 2021. South Korea's government approved scenarios that phase out coal by 2050.



ALL COAL PHASE-OUT: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	Mexico has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
Argentina	Argentina has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
Srazil	Brazil has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
UK	The UK has legislated a ban on all unabated coal generation by Oct 2025, with an un-legislated acceleration to Oct 2024.
USA	In 2023 the EPA proposed expanding existing emissions standards to include existing coal fired plants. Plants that will operate beyond 2040 must install CCUS with a 90% capture rate in 2030; plants that retire before 2040 must co-fire with 40% natural gas by 2030.
China	China has not set a target and does not have policies in place to phase out new unabated coal-fired electricity generation.
• Japan	Japan's Environment Minister indicated intentions to reduce reliance on coal-fired generation, with plans to phase out inefficient plants by 2030. The Japanese government has announced an aim to reduce the share of coal from 32% in 2019 to 19% in 2030.



ALL COAL PHASE-OUT: POLICY EVIDENCE BASE

Country	Policy Evidence
South Africa	South Africa secured a US\$ 8.5bn financial packaged, under the Just Energy Transition Partnership (JETP) to shift away from coal in its power sector. The package is from France, Germany, the UK, the US, and the EU of 3-5 years to accelerate the retirement of coal plants and deploy renewable energy.
C• Turkey	Turkey has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
★ Vietnam	In May 2023, a government document restated Vietnam's commitment to phase out all coal-fired power by 2050. The document also projects that there will be 30 GW of coal-fired power capacity operating in 2030. In 2022, Vietnam also reached an agreement with the G7 countries to finance the transition away from coal via JETP.
Russia	Russia has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
Indonesia	In 2021, Indonesia set a target to phase out unabated coal-fired electricity generation by 2056. This target will be accelerated to 2040, conditional on countries providing funding to support this transition. In 2022, Indonesia also reached an agreement with the G7 countries to finance the transition away from coal via JETP.
Nigeria	Nigeria has not set a target and does not have policies in place to phase out unabated coal-fired electricity generation.
Saudi Arabia	Saudi Arabia does not use coal for power generation.



CLEAN POWER: POLICY EVIDENCE BASE

Country	Policy Evidence
🙌 Canada	Canada set a target to achieve a net zero electrical grid nationwide by 2035. The formal regulation (called the Clean Energy Regulation) is currently under development.
France	The French government set the objective for a 40% share of renewables in power by 2030 as part of its Energy and Climate Act in 2019. In 2023, France adopted the Renewable Energy Acceleration Law which includes targets to increase solar capacity to 100GW by 2050 and double onshore wind capacity to 40GW by 2030. France, also adopted a bill to accelerate nuclear power development in 2023, removing an earlier law that nuclear would be limited at 50% of the country's power mix in 2050.
🔀 South Africa	South Africa approved a US\$8.5bn investment plan to support transition away from coal towards low-carbon sources. In addition, South Africa's Low Emission Development Strategy sets targets for wind and solar to collectively account for 35% of the power supply by 2030 .
USA USA	The Biden administration set a target for a zero-carbon electricity grid by 2035 but this target has not been legislated. In 2023, the EPA proposed expanding existing carbon emissions standards for fossil fuel power to include existing coal-fired plants that will come into effect between 2030-2040. The Infrastructure Bill passed in 2022 also includes US\$180bn for clean power grants and loans. In 2022 the US also announced a US\$ 6 billion plan to resuscitate nuclear plants closing early due to declining economics (rather than permits expiring).
Germany	Germany set a target for achieving 80% of power from renewable energy sources by 2030 as part of its Renewable Energy Sources Act 2023 (EEG 2023). This Act represents an increase in ambition compared to the country's previous 2021 target of 65% renewable energy by 2030. In 2023, as a part of its Renewable Energy Act reform Germany is aiming for a largely decarbonised electricity supply by 2035. Also in 2023, Germany set out a strategy to increase onshore wind capacity to 160GW by 2035 and proposed €12.6 bn in renewable energy subsidies - a final decision on the funding is expected in Dec 2023.
Italy	In 2023, Italy updated its 2020 National Energy and Climate Plan to set targets for renewables to provide 65% of its electricity generation and 30% of the country's total energy consumption by 2030 . In August 2023, the Italian government opened a consultation on a new RES X plan which would see 67 GW of renewables tendered between 2024 and 2028. Also in 2023, the Government passed two motions stating that it would consider nuclear power as a viable option for the country's power mix.



CLEAN POWER: POLICY EVIDENCE BASE

Country	Policy Evidence
• Japan	In 2021, Japan's government set the target of reaching 36-38% renewable generation in the country's power supply by 2030 in its Sixth National Energy Plan. This plan also includes a target of reaching a 20-22% share of nuclear power in the electricity supply by 2030. In Japan's GX strategy released in 2023, Japan set a target of installing 10GW of offshore Wind Power and 104-118GW of solar power by 2030.
South Korea	In 2023, South Korea announced a target for the share of power generation from renewables to reach 21.6% in 2030 and 30.6% in 2036 in its 10th Basic Energy Plan. The Korean government also set a target to reduce emissions in the power sector by 45.9% by 2030 compared to 2018 levels.
\star Vietnam	In August 2023, Vietnam released a National Energy Master Plan for 2021-2030 which includes a target for 15-20% of energy to come from renewables by 2030 and 80-85% by 2050.
Argentina	As a part of its NDC, Argentina announced a condition target to achieve 20% of electricity from renewables by 2025.
<section-header> Australia</section-header>	Australia aims to increase the share of low-carbon power generation to 82% by 2030 , a target which was announced by the Labour Party in November 2021 in its Powering Australia Plan. In January 2023, Australia's government launched the 'Rewiring the Nation' program with AUD\$20 billion in funding to modernise the grid.
📀 Brazil	Brazil's Energy Expansion Plan indicates that renewable sources are expected to account for around 50% of Brazil's total energy mix between 2021 and 2031.
China China	China aims to increase the proportion of non-fossil power generation to 39% by 2025 according to the country's 14th Five-Year Plan. In 2022, China's National Development and Reform Commission stated that renewable energy should supply at least 50% of the country's additional energy consumption by 2025 . The plan also sets a target for 70GW of nuclear capacity by 2025, up from 51GW in 2020.
UK UK	In October 2021, the UK set a target to achieve a zero-carbon electricity system by 2035 . The UK has also set a target to get 25% of electricity form nuclear power capacity of 24GW by 2050.



CLEAN POWER: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	As part of its 2022 NDC update at COP27, Mexico set a target to achieve 30 additional GW of combined wind, solar, geothermal, and hydroelectricity capacity by 2030 . Mexico announced a preliminary investment plan to implement its renewable goal detailing up to USD\$48 bn of investments.
Nigeria	As part of its latest NDC released in 2021, Nigeria announced a conditional target to achieve 30% of electricity from renewables by 2030.
C• Turkey	Turkey's National Energy Plan sets the target for renewables to supply 64.7% of Turkey's installed capacity by 2035 . Turkey also aims to increase solar energy capacity more than fivefold to reach 52.9GW, wind capacity to reach 29.6GW and hydrogen capacity to reach 35.2GW. In 2023, Turkey announced a new feed-in tariff subsidy for renewable energy projects including solar, onshore wind and offshore wind.
💽 India	India aims to achieve 50% electric power capacity from non-fossil fuel sources by 2030 , a target announced in the country's 2022 Long-term Strategy for Low-carbon Development. In 2023, India's Union Ministry of State Science & Technology announced an intention to increase nuclear capacity to 22 GW by 2031.
Indonesia	In 2022, Indonesia announced that it aims to build 587 GW of CO₂-free power plants by 2060 . In addition, Indonesia's Just Energy Transition Partnership plan (which is contingent on international financing) includes a power sector emissions reduction pathway to net zero by 2050 and peak emissions by 2030.
— Russia	Russia's 2020 Energy Strategy envisions that hydropower will supply 18% of the country's power by 2035 , with other renewable energies accounting for a total of 4%. The country plans for nuclear generation capacity to provide around 20% of electricity generation by 2035.
Saudi Arabia	In 2021, Saudi Arabia announced that it plans to generate 50% of its electricity from renewables and 50% from natural gas by 2030.



LIGHT-DUTY VEHICLE 100% ZEV SALES: POLICY EVIDENCE BASE

Country	Policy Evidence
Ж ик	In 2020, the UK announced a ban on sales of cars and vans with CO₂ emissions from 2035 . Between 2030 and 2035, new cars and vans can be sold if they have the capability to drive a significant distance with zero emissions (such as plug-in hybrid vehicles and full hybrids).
💌 Canada	Canada's 2030 Emissions Reduction Plan, announced in 2022, includes a target for 100% zero-emissions vehicle (ZEV) sales of new light-duty vehicles by 2035. Canada's 2030 Emissions reduction plan also includes interim sales targets of 20% new light-duty vehicles sales to be zero-emissions by 2026, 60% by 2030.
* China	In October 2020, China set a sales target of 50% of all new cars sold before 2035 to be powered by new energy (plug-in hybrid electric vehicle, battery electric vehicle and hydrogen fuel-cell vehicle).
France	In 2022, the EU mandated that all new cars and vans registered in the EU should have zero CO₂ emissions by 2035. The new CO ₂ standards will also require average carbon emissions of new cars to come down by 55% by 2030.
Germany	In 2022, the EU mandated that all new cars and vans registered in the EU should have zero CO₂ emissions by 2035. Germany's government pushed for this mandate to include a derogation for e-fuels in ICE vehicles, which was ultimately incorporated into the final regulation. The new CO ₂ standards will also require average carbon emissions of new cars to come down by 55% by 2030.
Italy	In 2022, the EU mandated that all new cars and vans registered in the EU should have zero CO₂ emissions by 2035. The new CO ₂ standards will also require average carbon emissions of new cars to come down by 55% by 2030.
South Korea	In June 2022, President Yoon's government announced a policy agenda which planned to set a goal for a transition to ZEVs by 2035 but did not explicitly commit to a date for phasing out ICE vehicles.



LIGHT-DUTY VEHICLE 100% ZEV SALES: POLICY EVIDENCE BASE

Country	Policy Evidence
Argentina	Argentina has not legislated any policies or targets to phase out the use of CO ₂ cars and vans. In October 2021, the Government proposed a bill which would ban sales of ICE vehicles from 2041 onwards, but this bill has not yet been passed.
🗮 Australia	In April 2023, Australia published its National Electric Vehicle Strategy which aims to expand EV infrastructure and increase the uptake of electric vehicles. The strategy includes a commitment to introduce a fuel efficiency standard on carmakers' fleet-wide average emissions.
India	India has not announced any policies or targets to phase out the use of CO ₂ cars and vans.
Indonesia	In 2021, the Indonesian government set a goal for 100% of sales of new cars to be electrically-powered by 2050. The Government also set a target for the domestic automotive industry to produce 600,000 electric vehicles by 2030 (which would be less than 5% of Indonesia's current fleet size of 17 million passenger vehicles).
Japan	Japan has set a target to reach 100% Clean Energy Vehicle (CEVs) sales of cars by 2035 . Japan's definition of CEVs includes battery electric vehicles (BEVs), hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEVs).
Mexico	At COP27 in 2022, Mexico announced a target for 50% of vehicle sales to be zero-emissions vehicles by 2030.
≽ South Africa	South Africa has not announced any policies or targets to phase out the use of CO ₂ cars and vans.



LIGHT-DUTY VEHICLE 100% ZEV SALES: POLICY EVIDENCE BASE

Country	Policy Evidence
C• Turkey	Turkey has not announced any policies or targets to phase out the use of CO ₂ cars and vans.
USA USA	In 2023, the EPA proposed new fleet-wide emissions standards for passenger cars and light trucks which would apply between 2027 and 2032. In 2021, the US president signed an executive order that 50% of new vehicles should be zero emission vehicles, including battery electric, plug-in hybrid electric, or fuel cell electric vehicles by 2030. Some states have introduced targets to ban the sale of carbon-emitting cars and vans, such as California which has passed a ban on new gasoline cars by 2035.
★ Vietnam	In July 2022, Vietnam's Government approved a target for net zero emissions in the transport sector by 2050 . The plan also includes banning the import and manufacturing of light-duty vehicles using fossil fuels beginning in 2040.
📀 Brazil	Brazil has not announced any policies or targets to phase out the use of CO ₂ cars and vans.
Nigeria	Nigeria has not announced policies or targets to phase out the use of CO ₂ cars and vans.
Russia	Russia has not announced policies or targets to phase out the use of CO ₂ cars and vans.
Saudi Arabia	In 2021, Saudi Arabia announced a target to ensure 30% of vehicles on the roads of Riyadh are electric by 2030. In addition, they invested big in electric vehicles and batteries, in November 2022, Saudi Arabia launched Ceer, the country' first electric vehicle maker.



PHASE OUT OF HEAVY-DUTY CO₂ VEHICLES: POLICY EVIDENCE BASE

Country	Policy Evidence
Kustralia	Australia has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions. New South Wales, Victoria, and Queensland governments announced a tri-state collaboration on a renewable hydrogen refuelling network for heavy transport and logistics.
🛃 Canada	At COP26, Canada signed a non-binding memorandum of understanding for 30% of medium- and heavy-duty vehicles to be zero-emission by 2030 and 100% by 2040.
France	In 2023 the European Commission proposed the introduction of stronger CO ₂ emissions standards for heavy-duty vehicles from 2030 onwards, reaching 90% of emissions reduction by 2040 compared to 2019 levels. ²
Germany	In 2023 the European Commission proposed the introduction of stronger CO ₂ emissions standards for heavy-duty vehicles from 2030 onwards, reaching 90% of emissions reduction by 2040 compared to 2019 levels. ²
💼 India	India has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Italy	In 2023 the European Commission proposed the introduction of stronger CO ₂ emissions standards for heavy-duty vehicles from 2030 onwards, reaching 90% of emissions reduction by 2040 compared to 2019 levels. ²
South Korea	South Korea has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.



PHASE OUT OF HEAVY-DUTY CO_2 VEHICLES: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	Mexico has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Argentina	Argentina has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
📀 Brazil	Brazil has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
UK UK	In 2021, the UK announced that it will phase out sales of new petrol, diesel, and hybrid heavy-duty vehicles by 2040. Some low emission trucks are eligible for a government subsidy that covers 20% of their purchase price.
USA USA	At COP27, the US signed a non-binding memorandum of understanding for 30% of medium- and heavy-duty vehicles to be zero-emission by 2030 and 100% by 2040. California approved a ban on the sale of diesel trucks and buses by 2036.
China	China has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Japan	Japan has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.



PHASE OUT OF HEAVY-DUTY CO_2 VEHICLES: POLICY EVIDENCE BASE

Country	Policy Evidence
South Africa	South Africa has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
C• Turkey	Turkey has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
★ Vietnam	Action Program on Green Energy Transition and Reducing Emissions in the Transport Sector has set the target for all road vehicles to be electric or powered by green energy by 2050, but it is unclear whether this refers to cars and vans alone or also includes heavy-duty vehicles.
Russia	Russia has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Indonesia	Indonesia has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Nigeria	Nigeria has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.
Saudi Arabia	Saudi Arabia has not set a target and does not have policies in place to end the sales of heavy-duty vehicles with CO ₂ emissions.



PHASE OUT OF FOSSIL FUEL HEATING: POLICY EVIDENCE BASE

Country	Policy Evidence
찬 Australia	Australia has not set a federal target and does not have policies in place to end the sale of new fossil heating systems in buildings. The National Construction Code 2022 includes new performance requirements designed to reduce energy consumption and carbon emissions. In 2023, the Government of Victoria announced a ban on gas connections to all new homes and government buildings from 1st Jan 2024.
🔶 Canada	Canada has not set a target to end the sale of new fossil heating systems in buildings. Canada's Green Buildings Strategy sets a goal of net zero emissions for buildings by 2050, along with a 37% emissions reduction from 2005 levels by 2030.
France	In 2020 the National Low-carbon strategy set the ambition for buildings to be heated using only carbon-free technologies by 2050. The 2020 National Energy and Climate plan sets a target to reduce final energy consumption in the building sector by 14.6% by 2028 relative to 2016 levels. In 2023, the French government announced €7 billion of public funding to support the green transition, including energy renovations in buildings, starting in 2024. The EU's 2021 Energy Performance of Buildings Directive aims to reduce building sector emissions by at least 60% by 2030 (relative to 2015) and achieve climate neutrality by 2050.
Germany	In 2023 the German government approved a bill that bans new oil and gas heating systems in new buildings in areas of residential development from 2024. Enforcement of the rules for existing buildings will come in after municipal authorities submit their decarbonisation heating plans, which are not required until 2028. Also in 2023, Germany announced a draft climate action plan which sets a target for 50% of building heat to be produced in a climate neutral way by 2030. The German cabinet proposed €18.9 bn to decarbonise the buildings sector. The funding is for both renovations and new construction, with a final decision expected in Dec 2023. The EU's 2021 Energy Performance of Buildings Directive aims to reduce building sector emissions by at least 60% by 2030 (relative to 2015) and achieve climate neutrality by 2050.
Italy	Integrated National Energy and Climate Plan 2019 targets a "33.9% renewables share in the heating sector (includes cooling)" by 2030. Subsidies for zero- carbon heat installations including heat pumps, biomass boilers and solar thermal under Conto Termico 2.0. The EU's 2021 Energy Performance of Buildings Directive aims to reduce building sector emissions by at least 60% by 2030 (relative to 2015) and achieve climate neutrality by 2050.

Sources: Australia: Australian Government, Australian Government, Guardian, Canada: Government of Canada, Government of Canada, EU: European Commission, France: French Government, French Government, Eurativ, Germany: Argus, Clean Energy Wire, Reuters, Reuters, Italy: Italian Government, IEA


PHASE OUT OF FOSSIL FUEL HEATING: POLICY EVIDENCE BASE

Country	Policy Evidence
Russia	Russia has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings.
- Argentina	Argentina has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings.
South Korea	South Korea has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. The South Korean government subsidises 50% of the cost of installing new renewable energy equipment in residences and buildings as part of the Renewable Energy Act 2022.
₩	In 2021 the UK announced a ban on the installation of new gas boilers by 2035 as part of its National Heating and Buildings Strategy. The strategy sets a target to achieve a net zero buildings sector by 2050.
USA	The USA has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. The IRA provides ~ US\$50bn for clean buildings. In 2023, New York announced a ban on fossil fuel equipment in new construction starting in 2026.
China	China has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. In 2022, China updated building codes to require all new urban buildings to be constructed in line with green building standards by 2025 and raises buildings' utilisation of renewable energy from 6% in 2020 to 8% by 2025.
Japan	Japan has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. As part of its Green Transition Strategy in 2022, Japan set a target for new buildings and houses to be zero-emissions by 2030.



PHASE OUT OF FOSSIL FUEL HEATING: POLICY EVIDENCE BASE

Country	Policy Evidence
South Africa	South Africa has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings.
C• Turkey	Turkey has not set a target and does not have policies in place to end the sale of new fossil heating systems in buildings. Turkey's 2019 National Climate Change Adaptation Strategy and Action Plan recognises regional heating implementations with geothermal energy as important tools in climate change adaptation
Mexico	No space heating needed.
India	No space heating needed.
📀 Brazil	No space heating needed.
📩 Vietnam	No space heating needed.
Indonesia	No space heating needed.
Nigeria	No space heating needed.
Saudi Arabia	No space heating needed.



INDUSTRY EMISSIONS REDUCTION: POLICY EVIDENCE BASE

Country	Policy Evidence
UK UK	In its H2 Strategy, the UK doubled its target for low carbon hydrogen production to 10GW by 2030. The target is supported by a hydrogen subsidy scheme . The UK announced £20 bn to scale CCUS to support its aim of capturing 20-30 MtCO ₂ per year across the economy by 2030 . The UK Government's 2021 Industrial Decarbonisation Strategy states that emissions from industry will need to fall by 67% by 2035 and by 90% by 2050 if the UK is to meet its net zero by 2050 target. Industrial emissions are covered by the UK ETS.
🛃 Canada	The 2023 budget proposes investment tax credits for CCUS. The budget also includes CCfDs which would see the government sign long-term deals for carbon credits and other commodities (including hydrogen) at fixed prices. Canada's 2030 Emissions Reduction Plan includes an estimate that heavy industry emissions will be reduced by 39% by 2030 from 2005 levels but doesn't include this as a formal target. Industrial emissions are covered by an ETS.
France	Industry is covered by the EU ETS which aims to reduce emissions by 62% by 2030 , relative to 2005. National Hydrogen Strategy includes €7 billion for Hydrogen to 2030 . The 2020 National Energy and Climate Plan sets a target to reduce final energy consumption in the industrial sector by 15.7% by 2028, relative to 2016. France offers tax credits for low-carbon investments which are expected to generate US\$22 bn of private investment . In 2023, France announced a CCUS strategy targeting 4 - 8.5 million tons of CO₂ captured a year by 2030 and 15 - 20 million tons a year by 2050 . France has also announced plans to launch carbon contracts for difference to support CCUS.
Germany	Germany has announced €50 bn to support industrial decarbonisation through carbon contacts for difference. Industry is covered by the EU ETS which aims to reduce emissions by 62% by 2030, relative to 2005. The European Commission approved €900 million to support renewable hydrogen production in Germany. In 2023, the German cabinet updated its hydrogen strategy to include a target for 10GW of electrolysers by 2030. Climate Action Programme 2030 indicates that emissions from heavy industry should fall by 45 million tonnes a year from current levels to reach 2030 targets.
Italy	Industry is covered by the EU ETS which aims to reduce emissions by 62% by 2030, relative to 2005. The EU Commission has approved a €450 million Italian scheme to support the production of renewable hydrogen. In 2023, Italy updated its National Energy and Climate Plan to include a target for clean hydrogen to provide 42% of industrial hydrogen needs by 2030 .



INDUSTRY EMISSIONS REDUCTION: POLICY EVIDENCE BASE

Country	Policy Evidence
Argentina	In 2023, Argentina proposed a bill which includes several provisions to encourage hydrogen production . E.g., 0% tax rate on revenues generated from green and pink (nuclear) hydrogen for the first 10 years after the legislation is passed and a 1.5% tax rate on blue hydrogen. Some industrial emissions are covered by a carbon price.
Kustralia	The Australian Parliament passed a bill which places a cap on the emissions of the country's largest polluting facilities requiring them to reduce their emissions by 30% by 2030. The Government announced US\$1.3 billion in funding for large-scale hydrogen production. Australia has previously provided grants of up to US\$17 million for pilot CCUS projects.
India	India offers producers of green hydrogen fuel incentives worth at least 10% of their cost under a \$2billion scheme. An Indian planning body has proposed a CCUS policy which could result in India reaching 750 million Mt/year of CCUS capacity by 2050. India has a carbon market under development but not to cover industry.
Indonesia	Indonesia does not have polices in place to support emissions reduction in industry.
Japan	Japan plans to invest US\$ 108 bn over the next 15 years to increase hydrogen supply , of which roughly half would come from government. It has targets for CO₂ storage capacity of 6-12MtCo2/year by 2030 (supported by subsidies) and to produce 12Mt of hydrogen a year by 2040 . Japan has selected 7 CCUS sites which will collectively store 13 million MtCO2/year in Japan and abroad by 2030. Japan has targets to expand the supply of green steel to 10m tonnes, cut CO ₂ emissions from the steel industry by 30% compared to 2013 levels, and expand the supply of carbon neutral cement to 2m tonnes – all by 2030. Japan

has a carbon market under development.



INDUSTRY EMISSIONS REDUCTION: POLICY EVIDENCE BASE

Country	Policy Evidence
C Turkey	In 2023, Turkey released a target for green hydrogen to cost \$2.40/kg by 2035 and below \$1.20/kg by 2053. It also targets the installation of 2GW of electrolysers by 2030 and 5GW by 2035, rising to 70GW by 2053. Turkey has an ETS under consideration.
USA USA	The IRA provides US\$ 61bn for clean industry. The IRA incudes a Hydrogen Production Tax Credit which provides up to US\$ 3 per tonne of clean hydrogen produced and extends 45Q tax credits which provide up to US\$ 85 per tonne of CO ₂ permanently stored. US has set a target to produce 50 million metrics tonnes of clean hydrogen a year by 2050.
★ Vietnam	Vietnam's National Climate Change Strategy to 2050, which was approved in July 2022, sets targets for emission reductions in industrial processes including a 38.3% cut by 2030 and an 84.8% cut by 2050, both compared to its business-as-usual scenario. Vietnam has an ETS under consideration.
📀 Brazil	In 2022 Brazil announced a National Hydrogen Programme which aims to support the roll out of hydrogen production in the country. Brazil has an ETS under consideration.
Nigeria	Nigeria does not have polices in place to support emissions reduction in industry.
Russia	Russia does not have polices in place to support emissions reduction in industry.
Saudi Arabia	Saudi Arabia aims to capture >27m tonnes of CO₂ emissions by producing four million tonnes of clean hydrogen per year. Saudi Arabia has launched a US\$10.4 bn investment fund for CCUS. Saudi Arabia recently signed deals on a US\$8.4bn green hydrogen project.



INDUSTRY EMISSIONS REDUCTION: POLICY EVIDENCE BASE

Country	Policy Evidence
China	In 2022, China released a plan to achieve peak emissions by 2030 in carbon-intensive industries. China targets low-carbon hydrogen production of between 0.1 - 0.2 million tons per year by 2025 as part of its Medium and Long-term Plan for Hydrogen Energy Industry Development (2021-2035). China is planning to expand its current ETS to cover industry.
South Korea	South Korea has set a target to reduce emissions in industry by 11.4% by 2030 compared to 2018 levels . In 2022, South Korea released a target to source 7.1% of the country's energy mix from hydrogen by 2036 . South Korea announced a plan to develop a CCUS value chain and to secure 1 billion tonnes of CO₂ storage by 2030 . The government offers tax credits of 20-40% for technologies including CCUS and hydrogen. Industrial emissions are covered by an ETS.
South Africa	South Africa's Just Energy Transition Investment Plan includes an aspirational target contingent on international financing of 60 GW of green hydrogen electrolyser capacity as part of the development goals for achieving the country's emissions reduction commitments. Industrial emissions are covered by a carbon price.
Mexico	Mexico has proposed a bill to promote green hydrogen . Announced in 2020, Mexico's Strategy to Promote the Use of Cleaner Technologies and Fuels aims to "develop the regulatory framework and regulations that allow carbon capture and storage projects." Industrial emissions are covered by an ETS.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

 Country
 Policy Evidence

 ■ USA
 • The Inflation Reduction Act provides subsidies to support conservation activities by agricultural producers, farmers, ranchers, and forest landowners e.g. the Conservation Stewardship Program (CSP) has a funding package of \$3.25bn that provides farmers payments for enhancing soil carbon, reducing nitrogen losses, and sequestering CO₂ and CH₄ emissions associated with agricultural production.



• The Emissions Reduction Fund provides subsidies to encourage farmers to reduce emissions through in the agricultural sector.

Canada

As part of Canada's 2030 Emissions Reductions Plan, the country introduced new funding for emissions reductions in agriculture, including:

- \$470 million to the Agricultural Climate Solutions: On-Farm Climate Action Fund.
- \$150 million for a resilient agricultural landscapes program to support carbon sequestration, adaptation and address other environmental co-benefits.

In 2020, Canada announced to set a national fertilizer emission reduction target of 30% below 2020 levels by 2030.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

Country	Policy Evidence
Germany	• The European Commission announced a target in May 2020 to reduce fertiliser use by at least 20% by 2030.
	 Additionally, The EU aims to adopt the Farm to Fork Strategy by the end of 2023. This strategy will promote the transition to sustainable food systems through the adoption of environmentally friendly and climate-smart food production practices.
France	 In 2021, Germany passed the Climate Change Act that provides for a reduction of annual emissions in agriculture to 56 MtCO2e by 2030. The German Sustainability Strategy for 2021 sets out an agreement to limit nitrogen surplus to 70 kg/ha of agricultural land in the five-year average from 2028-2032.
	• The EU provides direct payments to farmers promoting sustainable agricultural practices under the Common Agricultural Policy (CAP).
Italy	
South Korea	 South Korea provides direct payments to farmers, through domestic policies, supporting adoption of agri-environmental practices, eco-friendliness and land preservation.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

Country	Policy Evidence
Japan	 Since 2011, Japan has provided direct payments to farmers who engage in activities that effectively combat global warming and/or conserve biodiversity while reducing the use of synthetic fertilizers and pesticides by over 50% compared to conventional farming practices in the region. The financial support ranges from 800 to 12,000 Yen (equivalent to US\$6 to US\$86) per acre.
	 Additionally, in 2022, the Ministry of Agriculture, Forestry, and Fisheries released 2030 targets for its "Green Food System Strategy," which include a 10.6% reduction in carbon dioxide emissions, a 20% reduction in the use of chemical fertilizers, and a 10% reduction in the use of chemical pesticides.



Vietnam has not yet introduced subsidies linked to emissions reduction, but it has set target caps for agriculture sector emissions. In July 2022, the country
approved its National Climate Change Strategy for 2050, which includes targets for emissions reductions in all sectors, including agriculture. The target for
agriculture is to reduce emissions by 43% by 2030 and 63.1% by 2050, both compared to its business-as-usual scenario.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

Country	Policy Evidence
📀 Brazil	 Though Brazil does not have specific subsidies in place to incentivise the reduction of agricultural emissions, in 2022, the Brazilian government rolled out a new nationwide initiative to help the country reduce carbon emissions in agriculture and ranching for the period of 2020 to 2030 by 1.1bn tCO2. The goal is to recover 30 million hectares of degraded pastures; cultivate up to 12.5 million hectares in no-tillage systems; implement 10.10 million hectares in integrated production systems; plant 4 million hectares of forest; and use bio-inputs on 13 million hectares.
DK UK	 In 2023, the UK are currently piloting the Sustainable Farming Incentive (SFI) which is part of the Environmental Land Management Scheme, a move away from the EU CAP.
	 The SFI will pay £20 per ha management payment per year, for up to the first 50 ha entered into SFI actions. This will represent a maximum payment of up to £1,000 per year.
	• In addition, the UK set a target to decarbonise agriculture emissions by a total of up to 6 million tCO2e per annum by the Sixth Carbon Budget (2033-2037).
China	China announced financial incentives geared toward reducing agricultural related emissions with partnerships from The World Bank. In April 2023, China
	committed \$4.1bn to support the greening of agriculture and rural development. The program will reduce greenhouse gas (GHG) emissions from crop and livestock farming, increase carbon sequestration in farmlands, and improve biodiversity protection and restoration in agricultural ecosystems.

 Additionally, in July 2022, China's National Development & Reform Commission and Ministry of Agriculture & Rural Affairs released an action plan to reduce carbon emissions in agriculture.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	 Mexico's Climate Change Mid-Century Strategy (2016) sets an objective 'to implement agricultural policies orientated towards the better use of fertilisers, a more calculated application of fertilisers, producing and applying biofertilisers, as well as efficiently using nitrogenates' and 'to establish livestock production programs that reduce emissions'.
C• Turkey	 In its 2015 Nationally Determined Contribution, Turkey set the objective for 'controlling the use of fertilisers and implementing modern agricultural practices'.
💼 India	 In 2023, India introduced the Lok Sabha bill to develop domestic carbon markets - the bill can benefit the adoption of sustainable farming practices, create a tangible ecosystem for the development of voluntary carbon markets and improve agricultural output.
Nigeria	Nigeria has not announced or legislated market incentives linked to emissions reductions in agriculture.
Argentina	Argentina has not announced or legislated market incentives linked to emissions reductions in agriculture.



LOW-CARBON AGRICULTURE: POLICY EVIDENCE BASE

Country	Policy Evidence
Indonesia	Indonesia has not announced or legislated market incentives linked to emissions reductions in agriculture.
South Africa	South Africa has not announced or legislated market incentives linked to emissions reductions in agriculture.
Saudi Arabia	Saudi Arabia has not announced or legislated market incentives linked to emissions reductions in agriculture.



NET DEFORESTATION¹: POLICY EVIDENCE BASE

Country	Policy Evidence
찬 Australia	Australia has ended net deforestation . Afforestation and reforestation projects can qualify for emissions offsets under the Emissions Reduction Fund. The government has allocated AUD\$70m (US\$50m) towards the 20m Trees Programme. Australia signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation.
🙌 Canada	Canada has ended net deforestation . Canada signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation. Canada announced a US\$3.19 bn fund to support its commitment to 2 billion trees by 2030.
France	France has ended net deforestation . The government has set ambitions to achieve restoration of degraded sites but has not set a target to achieve this. The EU has enacted market-based mechanisms to promote afforestation , including the low-carbon certification, a voluntary carbon-offsetting scheme to promote local greenhouse gas reducing projects.
Germany	Germany has ended net deforestation . Germany released a Forest Strategy 2050 including action plans for forest adaption and conservation. The EU has enacted market-based mechanisms to promote afforestation , including the low-carbon certification, a voluntary carbon-offsetting scheme to promote local greenhouse gas reducing projects.
India	India has ended net deforestation. In its NDC, India aims to reach 22% forest cover and create a carbon sink of 2.5-3bn tonnes of CO ₂ through forest cover by 2030. The Government provides funding for afforestation and protection of ecosystems under the 2016 Compensatory Afforestation Fund Act.
Italy	Italy has ended net deforestation . The EU has enacted market-based mechanisms to promote afforestation , including the low-carbon certification, a voluntary carbon-offsetting scheme to promote local greenhouse gas reducing projects.
1. End of deforestation	is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.



NET DEFORESTATION¹: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	In 2022, Mexico set a target to reach net zero deforestation by 2030. Mexico's 2019 National Development Plan 2019-2024 sets a reforestation target of 1 million hectares. Payments to forest communities of \$10-\$40 per hectare per year to conserve forests.
Argentina	Argentina released a plan in 2018 outlining a goal of 20,000 annual ha of native forest restored by 2023. Green Insurance Initiative gives 1% of motor insurance premiums to activities such as forest implementation, management, irrigation, and protection - aiming to increase forest plantation to 2 million ha by 2030.
📀 Brazil	At COP27 in 2022, President Lula pledged to achieve zero deforestation by 2030 – President Lula released an action plan in 2023 detailing how this will be achieved. There is a target to recover native vegetation of at least 12 million hectares of area by 2030. President Lula reinstated the Amazon Fund, a \$1.2 billion fund to protect of the world's largest rainforest, after a three-year period of inactivity.
UK	The UK has ended net deforestation . The UK government has committed to use part of £640m in the Nature Climate Fund to achieve tree planting of 30,000 ha per year by 2025.
USA USA	The US has ended net deforestation . In 2022, President Biden signed an executive order which commits that the US will help deliver on global goals to end natural forest loss by 2030, while restoring at least an additional 200 million hectares of forests and other ecosystems. The 2022 Replant Act directs the Forest Service to plant more than a billion trees over the next decade and removes a cap of \$30 million.
China China	China has ended net deforestation . China signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation. China has a target to reach 25% forest coverage by 2030 and to increase forest volume stock by 6 billion cubic meters by 2030 relative to 2005 levels.

1. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.

Sources: USA: The White House, US Department of Agriculture, Mexico: NDC, Tecma Group, Convention on Diversity, Argentina: UN-REDD, Jduspra, UK: UK Government, Brazil: Government of Brazil, Brasilia, Politico, Reuters, China: UNFCCC, UNFCCC



NET DEFORESTATION¹: POLICY EVIDENCE BASE

Country	Policy Evidence
C Turkey	Turkey has ended net deforestation. Turkey plans to expand its forest cover by 5% by 2030. This would take total forest cover to 30%.
★ Vietnam	Vietnam has ended net deforestation and increased forest cover by 4 percentage points between 2010 and 2020. Prime Minister Nguyen Xuan Phuc has called for 1 billion trees to be planted nationwide by 2025 to help prevent landslides and flooding. Vietnam signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation. In August 2023, Vietnam issued an action plan detailing how it will implement this pledge. National Climate Change Strategy to 2050 targets 70% emissions reductions in forestry and land-use by 2030 and 90% by 2050, both compared to its business-as-usual scenario. Target to increase sequestration from LULUCF by 30% by 2050.
Russia	Russia has ended net deforestation. Russia signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation.
Indonesia	In 2021, Indonesia set a target to halve the deforestation rate over the next three decades as well as to reforest 26.2m acres of land by 2050. Indonesia signed the 'Glasgow Leaders' Declaration on Forests and Land Use' in November 2021 to halt deforestation but have since questioned this.
Nigeria	Nigeria signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation. There is an aim to reduce emissions from forestry by 20% by 2050.
Japan	Japan has ended net deforestation and has limited scope for afforestation. Japan signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation.

1. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover. Sources: Turkey: <u>UNCCD</u>, Vietnam: <u>UNFCCC</u>, <u>S&P Global</u>, <u>USDA</u>, <u>Mongabay</u>, <u>LuatVietnam</u> Russia: <u>UNFCCC</u>, Nigeria: <u>UNFCCC</u>, <u>Climate Action Tracker</u>, Japan: <u>UNFCCC</u>, Indonesia: <u>UNFCCC</u>, <u>The Guardian</u>



NET DEFORESTATION¹: POLICY EVIDENCE BASE

Country	Policy Evidence
≽ South Africa	National Forests Act 1998 protects all natural forests (i.e., forests with predominantly indigenous trees) from being cut, damaged, and destroyed.
South Korea	South Korea signed the 'Glasgow Leaders' Declaration on Forests and Land Use by 2030' in November 2021 to halt deforestation.
Saudi Arabia	Saudi Arabia currently does not have forest cover and therefore has ended net deforestation . As a part of the Saudi Green Initiatives, KSA has pledged to plant 100 million trees, including 7 million trees in national parks and forests to offset 45 million tonnes of CO₂ emissions by 2030.

1. End of deforestation is defined as a reduction in average annual deforestation by more than 95% versus the 1990-2020 level alongside net increase in forest cover.

Sources: South Korea: UNFCCC, South Africa: South African Government, Saudi Arabia: KSA Government



DEFORESTATION FREE SUPPLY CHAINS: POLICY EVIDENCE BASE

Country	Policy Evidence
찬 Australia	Australia has not set a target to mandate deforestation-free supply chains.
🝁 Canada	Canada has not set a target to mandate deforestation-free supply chains. Representatives of the Canadian government raised concerns with the EU's proposed Regulation on deforestation-free supply chains, stating it could disrupt Canadian exports of forest products from Canada to the EU.
France	The EU Deforestation Regulation requires importers of cattle, cocoa, coffee, palm-oil, soya and wood, to carry out due diligence on their supply chains to ensure their products have not resulted in deforestation and other unsustainable impacts. The regulation will also apply to derived products including chocolate, furniture, and printed paper. The regulation is expected to come into force in mid-2023.
Germany	The EU Deforestation Regulation requires importers of cattle, cocoa, coffee, palm-oil, soya and wood, to carry out due diligence on their supply chains to ensure their products have not resulted in deforestation and other unsustainable impacts. The regulation will also apply to derived products including chocolate, furniture, and printed paper. The regulation is expected to come into force in mid-2023.
India	India has not set a target to mandate deforestation-free supply chains.
Italy	The EU Deforestation Regulation requires importers of cattle, cocoa, coffee, palm-oil, soya and wood, to carry out due diligence on their supply chains to ensure their products have not resulted in deforestation and other unsustainable impacts. The regulation will also apply to derived products including chocolate, furniture, and printed paper. The regulation is expected to come into force in mid-2023.



DEFORESTATION FREE SUPPLY CHAINS: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	Mexico has not set a target to mandate deforestation-free supply chains.
Argentina	Argentina has not set a target to mandate deforestation-free supply chains.
Srazil	Brazil has not set a target to mandate deforestation-free supply chains. In 2023, China and Brazil issued a joint statement announcing new efforts to combat deforestation linked to illegal trade agreeing to collaborate on measures including sharing technologies and best practices related to forest conservation.
UK	As part of the Environment Act 2021, the UK government introduced due diligence requirements for companies that use 'forest-risk commodities,' requiring companies to ensure their products are free from illegal deforestation and conversion.
USA USA	The US has not set a target to mandate deforestation-free supply chains. In 2023, the New York Senate approved the Tropical Deforestation-Free Procurement Act in which the state of New York would require its contractors to ensure that any soy, beef, palm oil, coffee, cocoa, wood pulp, paper, and wood products are not sourced from land where deforestation or forest degradation occurred after January 1st, 2023.
China	China has not set a target to mandate deforestation-free supply chains. In 2023, China and Brazil issued a joint statement announcing new efforts to combat deforestation linked to illegal trade agreeing to collaborate on measures including sharing technologies and best practices related to forest conservation.
South Korea	South Korea has not set a target to mandate deforestation-free supply chains.



DEFORESTATION FREE SUPPLY CHAINS: POLICY EVIDENCE BASE

Country	Policy Evidence
C• Turkey	Turkey has not set a target to mandate deforestation-free supply chains.
★ Vietnam	Vietnam has not set a target to mandate deforestation-free supply chains.
Russia	Russia has not set a target to mandate deforestation-free supply chains.
Indonesia	Indonesia has not set a target to mandate deforestation-free supply chains.
Nigeria	Nigeria has not set a target to mandate deforestation-free supply chains.
• Japan	Japan has not set a target to mandate deforestation-free supply chains.
) South Africa	South Africa has not set a target to mandate deforestation-free supply chains.
Saudi Arabia	Saudi Arabia has not set a target to mandate deforestation-free supply chains.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
🏝 Australia	Policy currently protects 20% of land
	 The Australian Government has committed to protect 30% of Australia's land and seas by 2030 within Australia's Strategy for Nature 2019-2030 and is estimated to require an additional 60 million ha of land protected. Australia is launching a process to recognise Other Effective Area Conservation Measures (OECMs) as it attempts to increase options available to reach its targets.
	• The Australian Government invested AUD100m into the Environment Restoration Fund from 2019-2023.
🔶 Canada	Policy currently protects 13% of land
	 Canada has announced a target to conserve 25% of it's land by 2025, and 30% by 2030.
	 Canada has pledged to restore 19 million hectares of degraded and deforested land by 2030.
France	Policy currently protects 38% of land in Germany, 28% in France and 22% in Italy while an EU proposal currently under consideration will make restoration
Germany	a legal requirement if passed
Italy	 The EU Nature Restoration Law, part of the European Green Deal, which sets legally binding targets to rehabilitate degraded habitats and lost species passed through parliament in July 2023 but has further steps in the EU's legislative process at the time IPR published in September 2023.
	• The law sets out legally-binding targets in seven specific topics, that put together should cover at least 20% of the EU's land and sea areas by 2030.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
UK	Policy currently protects 28% of land
	 In 2020, the UK government committed to protect at least 30% of land and sea for nature by 2030.
	 Under the Environment Act 2021, the UK Government has committed to setting legally binding targets for nature recovery. The Department for Environment Food and Rural Affairs have consulted on a 'long-term wider habitats' target to create or restore 500,000 hectares of wildlife rich habitat outside of protected areas by 2042.
USA	Policy currently protects 13% of land
	 In 2021, the US committed to the goal of conserving at least 30% of lands by 2030 through Executive Order 14008.
	• In 2022, the US announced a \$1.4 billion investment in ecosystem restoration efforts over the next five years under the Bipartisan Infrastructure Law.
	 In 2022, America the beautiful challenge was launched, providing up to \$1bn to support and accelerate locally led conservation and restoration projects.
Japan	Policy currently protects 30% of land
	 In 2022, Japan established a 30x30 roadmap, outlining necessary actions to achieve it's 30x30 target, including certification of conserved areas to be identified as OECMs, and launching a 30x30 Alliance for Biodiversity made up of local governments, businesses and NGOs.
	• With 68% forest cover, Japan has more restricted scope to restore land on domestic soil, but is contributing funding other countries for conservation.

Japan's Minister for the Environment has also announced 117 bn yen (approximately \$890 million) in funding for conservation from 2023 to 2025, a \$638
million contribution to the Global Environment Facility, and \$17 million for the Japan Biodiversity Fund.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
 B razil	Policy currently protects 30% of land
	 Brazil has just over 30% protected area coverage to date and has pledged to restore 22million ha by 2030.
	 Brazil established the National System of Protected Areas in 2000, and in its 2015 commitment to the Paris Agreement, Brazil became the first country to pledge the restoration of 12 million hectares of natural areas by 2030, most of which is located in the Atlantic Forest. Brazil joined the 20x20 initiative in 2018 and pledged to restore 22million ha by 2030.
	 However, more than half of deforestation in the Brazilian Amazon has taken place within rural private properties, despite these properties being located in conservation areas covered by the national conservation forest policy.
China	Policy currently protects 16% of land
	 In 2014, China committed to increase its terrestrial protected area coverage to 20% by 2020, which has not yet been reached.
	 In 2020, China issued a 'Master Plan for the Protection and Restoration of Important National Ecosystems (2021-2035)', laying out a series of objectives for national ecological protection and restoration, while announcing 9 major projects on ecological protection and restoration.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
south	Policy currently protects 17% of land
Korea	 South Korea has confirmed its 5th National Biodiversity Strategy covering 2024-2028 will be finalised by the end of 2023. The strategy will be designed to help South Korea meet its commitments under the Global Biodiversity Framework - including 30x30 land protection and restoration targets. The full strategy won't be finalised until the end of the year.

Policy currently protects 15% of land

- In 2021, the Mexican Alliance for Ecosystem Restoration was launched as part of the U.N. Decade for Ecosystem Restoration, aiming to restore 1 million hectares (2.5 million acres) of forest by 2030.
- In 2014, Mexico's National Forestry Commission (CONAFOR) set a target of beginning to restore 1 million hectares by the end of 2018.
- The Ecology Law in Mexico established a total of eight types of protected areas, six under federal jurisdiction and two under state jurisdiction. Protected area in Mexico is at 15% as of 2022, up from 11% in 2010.

Source: Global: Protected Planet, South Korea: South Korea, Mexico: Mexico

^{1.} Based on IPR Quarterly Forecast Tracker Definitions. FPS gap - no policy announced that matches the forecast but sets a target date that is later than forecasted in IPR2023; Supportive - policy announced that moves in the direction of forecast but does not definitively meet it (e.g., announcements of intent, without policy to support it); Confirmatory - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and sets a target date that is earlier than forecasted in IPR2023.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
E India	Policy currently protects 8% of land
	 India has committed to increasing it's forest cover from 25% to 33%, and to restoring 26 million hectares by 2030 through it's national commitment on land degradation neutrality.
	• India currently has less than 8% of area protection coverage under the WDPA database, although India reports having more than 20% under conservation.
	 India has set a target to restore 26 million hectares of degraded land by 2030.
E Argentina	Policy currently protects 9% of land
	 In 2019, the government created the National Plan for the Restoration of Native Forests through Resolution 267/2019, which seeks to restore 20 million hectares of native forest per year by 2030.
	 Argentina's Native Forest Law, passed in 2007, established a minimum annual federal budget for environmental protection, enrichment, restoration, conservation, and sustainable management of native forests and the environmental services they provide.
South	Policy currently protects 9% of land
Africa	• South Africa has committed to restore 3.6 million ha by 2030 through it's Land Degradation Neutrality Targets.
	 South Africa established the Protected Areas Act in 2003.
	 South Africa's National Environmental Management: Biodiversity Act (2004) and National Biodiversity Institute provide the basis for biodiversity conservation.

Source: Global: Protected Planet, India: India, Argentina: Argentina, South Africa: South Africa

^{1.} Based on IPR Quarterly Forecast Tracker Definitions. FPS gap - no policy announced; Deceleration - policy announced that matches the forecast but sets a target date that is later than forecasted in IPR2023; Supportive - policy announced that moves in the direction of forecast but does not definitively meet it (e.g., announcements of intent, without policy to support it); Confirmatory - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and sets a target date that is earlier than forecasted in IPR2023.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
★ Vietnam	Policy currently protects 8% of land
	 By 2030, 9% of the land area and 3-5% of the marine and coastal areas of the country shall be protected, under Vietnam's National Biodiversity Strategy and Action Plan.
	 Vietnam's Vision to 2030 document states that by 2030, 25% of degraded ecosystems of international significance will be restored, and biodiversity will be conserved and used sustainably.
500 Caudi	Policy currently protects 5% of land
Arabia	 Under the Saudi Green Initiative (SGI), Saudi Arabia has committed to protecting 30 percent of its terrestrial and marine area by 2030. Its targets include emissions reduction, afforestation, and land and sea protection, with 77 initiatives activated. To date, 66,000 sq. km of land and sea are currently protected, and over 1,200 animals have been rewilded.
	• Saudi Arabia has announced plans to plant 450 million trees and rehabilitate 8 million hectares of degraded land by 2030.

^{1.} Based on IPR Quarterly Forecast Tracker Definitions. FPS gap - no policy announced; beceleration - policy announced that matches the forecast but sets a target date that is later than forecasted in IPR2023; Supportive - policy announced that moves in the direction of forecast but does not definitively meet it (e.g., announcements of intent, without policy to support it); Confirmatory - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and sets a target date that is earlier than forecasted in IPR2023.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
- Indonesia	Policy currently protects 12% of land
	• In 2020, the national government of Indonesia announced its aim to rehabilitate 600,000 ha of mangrove between 2020 and 2024.
	 The Government of Indonesia is currently formulating a new set of national protected area targets as part of its efforts to update its National Biodiversity Strategy and Action Plan 2015–2020 in response to the post-2020 GBF.
	 The 2015-2020 strategy and action plan contained limited detail on plans for restoration or protection and many past restoration programmes have not achieved their objectives.
	Policy currently protects 14% of land
	 In 2021, Nigeria announced its commitment to protect at least 30% of the globe's land and ocean by 2030.
	 Target in place to rehabilitate 10.5m ha of cropland showing early signs of declining land productivity by 2030.
Russia	Policy currently protects 12% of land
	 In 2017, Russia announced plans to enlarge its protected areas to 18% of state territory by 2025.

Source: Global: Protected Planet, Indonesia: Indonesia, Nigeria: Nigeria, Russia: Russia

^{1.} Based on IPR Quarterly Forecast Tracker Definitions. FPS gap - no policy announced; Deceleration - policy announced that matches the forecast but sets a target date that is later than forecasted in IPR2023; Supportive - policy announced that moves in the direction of forecast but does not definitively meet it (e.g., announcements of intent, without policy to support it); Confirmatory - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and sets a target date that is earlier than forecasted in IPR2023.



LAND PROTECTION AND RESTORATION: POLICY EVIDENCE BASE

Country	Policy Evidence
C Turkey	Policy currently protects 7% of land
	 In 2019, the government unveiled an 11-year action plan to fight against desertification and started working on projections and mapping areas most likely to be affected by drought and desertification, seeking to convert 1/3 of its total area by 2023.
	 In 2020, the Ministry of Environment and Urbanization announced plans to increase Turkey's protected areas from 2.5% to 17%, by declaring 86 new areas as preserved sites, while protected areas remain at 7% in 2023.
	 <u>12 million hectares</u> of agricultural land are degraded annually due to erosion, improper soil management, excessive use of chemical fertilizers, use of pesticides for agricultural purposes, excessive and incorrect irrigation, and pollution.

Source: Global: Protected Planet, Tukery: Turkey

^{1.} Based on IPR Quarterly Forecast Tracker Definitions. FPS gap - no policy announced; beceleration - policy announced that matches the forecast but sets a target date that is later than forecasted in IPR2023; Supportive - policy announced that moves in the direction of forecast but does not definitively meet it (e.g., announcements of intent, without policy to support it); Confirmatory - policy announced that matches the forecast and is in line with what was forecasted in IPR 2023; Acceleration - policy announced that matches the forecast and sets a target date that is earlier than forecasted in IPR2023.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
Argentina	 Argentina has legislated a nature-based compensation mechanism that provides financial resources to landowners to sustainably manage their land. The Native Forest Law passed in 2007, allows the federal government to set general requirements for environmental protection and funds a national-level PES program that distributes funds to the provinces.
	 The Forest Law stipulates financial compensation for each participating province based on the amount of land in each land-use category and to individual program participants who voluntarily enrol their land in the payment program. Between 2019 and 2021, three biodiversity conservation corridors were designed covering at least 4 million hectares.
Kustralia	 Australia has tabled a Nature Repair Market Bill 2023 in parliament that aims to establish a national voluntary framework for projects to enhance or protect biodiversity. This voluntary market is intended to encourage private sector investment in long-term nature repair. The main requirement under the Bill is for projects to be registered in compliance with an approved 'methodology determination' or method, which sets out the requirements for undertaking certain biodiversity projects.
	 Additionally, In 2016 as part of the Biodiversity Conservation Act, NSW Biodiversity Offsets Scheme was set up to ensure no net loss of biodiversity from developments.
China	 Since 2014, China has implemented eco-compensation schemes that primarily target water quality and flooding mitigation services, that support biodiversity conservation i.e. plants, animals and microorganisms. These schemes are part of the government's policies and programs to protect and restore

Source: Australia, Argentina, China

the environment.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Ρ	olicy Evidence
Germany	•	The EU has set up a joint instrument, the Natural Financing Facility (NCFF), with European Investment Bank (EIB) that supports biodiversity projects and nature-based adaptation to climate change. It has committed close to €60m (US\$65m) in funding and technical assistance.
Italy	•	In EU member states, the EU Directives that relate to compensation – the Habitats Directive, the Birds Directive, the EIA Directive and the Environmental Liability Directive – have forced member states to consider legislation on ecological compensation and its implementation.
	•	Germany doesn't have a national offset program for biodiversity conservation and protection, however, they have policies that call for accountability for biodiversity conservation by all sectors. The Impact Mitigation Regulations (IMR) aim to ensure 'no net loss' by first avoiding damage and then requiring restoration and compensation for residual unavoidable impacts.
France	•	Italy does not currently have a national offset program specifically dedicated to biodiversity conservation or protection. However, the country has national legislation on forestry which explicitly mandates "compensatory reforestation" for any felling activity that exceeds a certain acreage.
	•	France is collaborating with the UK to create an international biodiversity market which is scheduled to be ready by COP 16 in Turkey in 2024.
	•	France's national offset guidance is currently under development, it has five biodiversity bank pilots that are currently being supported by the Ministry of Ecology in partnership with local public and private organizations.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
📀 Brazil	 Brazil is set to submit a New Carbon Credit Bill by the end of June 2023 that seeks to create a regulated carbon market with Para state in the north of the country planning to hold an auction for forestry concessions in the second half of this year. The state plans initially to offer 4mn ha of public forest to the
	private sector. The state also plans to sell concessions for replanting and recovering up to 20,000ha of degraded land.

Lenada

• Canada's compensation programs are focused on fish habitat and wetland compensation. The programs are driven by a combination of compliance with federal and provincial policies, with varying levels of implementation. Six programs exist in Canada, with one in development. These programs cover five ecosystem/species types and protect around 180 ha per year. Regional investment totals \$6-\$145 million annually, and there are currently 17 active and soldout banks.

South South Africa

• South Africa is in the process of developing its biodiversity offset program. The principles of biodiversity offsetting and the importance of avoiding negative impacts on biodiversity were initially included in the 1998 National Environmental Management Act. Additionally, South Africa has a national payment for ecosystem services scheme to conserve the country's water resources.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
🔀 ИК	• The UK is collaborating with France to create an international biodiversity market which is scheduled to be ready by COP 16 in Turkey in 2024.
	 The Environment Act 2021 sets out that development subject to mandatory Biodiversity Net Gain (BNG) will be required to submit a biodiversity gain plan for planning authority approval and the planning authority is required to approve it prior to commencement. BNG calculations are made by assessing the size of habitat parcel, distinctiveness, condition and strategic significance.
	 Additionally, the UK government has stated that an indicative credit price will be published 6 months in advance of BNG becoming mandatory. It is expected that most sites will come under the mandatory Biodiversity Net Gain requirements by November 2023, with sites that are small or under exemption delayed until April 2024. It is estimated that the market price for each biodiversity unit could be between £9,000 (US\$11,400) and £15,000 (US\$19,100) per unit and as much as £25,000 (US\$31,800) in local planning authority areas where units are scarce.
USA	 Both federal-level announcements and a few state regulations have been introduced to promote voluntary compensation schemes for biodiversity offsetting.
	 The US has seven active programs and three in development. The two national statutes that allow for offsetting are the Clean Water Act (CWA) and the Endangered Species Act (ESA), both requiring compensatory mitigation, as well as the federal EIA guidelines which set up the wetland and stream ecosystems and endangered species national offset programs. Annual payments from the schemes total US\$1.5-\$2.4 bn. Around 700,000 cumulative acres (283,280 ha) have been restored or protected through US programs.
	 Additionally, the two largest offsetting programs, wetland and species mitigation, offer three mechanisms for achieving compensation: do it yourself, pay into a fund, or buy a third-party credit.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
South Korea	 Cabinet approved the National Biodiversity Strategies and Action Plans (NBSAP) for the period 2019-2023 which focuses on five key strategies: mainstreaming biodiversity, managing threats to biodiversity, strengthening biodiversity conservation, promoting benefit sharing and sustainable use of biodiversity, and establishing the necessary groundwork for effective implementation.
Nigeria	 Nigeria is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by \$500 billion annual harmful government subsidies.
★ Vietnam	 In Vietnam, a Payment for Ecosystem Services (PES) was initiated in 2009, generating a total revenue of USD\$4 million in its first year. Under this scheme, households are contracted to manage approximately 20 hectares of forest, with a participation of 3,400 households in the program. Currently, the program operates on a voluntary basis, but the government is contemplating the possibility of making "payment for forest ecosystem services" mandatory in the future.
	 In its 10+ years of implementation, PFES has generated revenues of over VND 16,476 billion (approximately US\$ 720.6 million). This revenue has been used to protect over 6.5 million hectares of forests while providing incomes to over 250,000 households.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
Mexico	 In 2003, Mexico's National Forestry Commission (CONAFOR) launched the Payment for Hydrological Services Program (or PSA, for its Spanish acronym). The PSA provides communities with economic incentives to conserve and manage forests. Deforestation and forest degradation are critical challenges in Mexico, which lost nearly 8 percent of its forest cover between 1990 and 2010.
	 The PSA grants to communities on average roughly USD \$24 per hectare of land enrolled, with a cap of 3,000 hectares.
India	 India is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by US\$500 billion annual harmful government subsidies.
C• Turkey	 Turkey is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal

Turkey
 Turkey is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by US\$500 billion annual harmful government subsidies.



NATURE INCENTIVES: POLICY EVIDENCE BASE

Country	Policy Evidence
 Japan 	 Japan is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by \$500 billion annual harmful government subsidies.
	 Indonesia is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by \$500 billion annual harmful government subsidies.
n Russia	 Russia is a signatory of COP15 adopted Kunming-Montreal Global Biodiversity Framework" (GBF) that aims to protect 30% of Earth's lands, oceans, coastal areas, inland waters and reduce by \$500 billion annual harmful government subsidies.



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ACKNOWLEDGEMENT OF IPR'S 2023 EXPERT SURVEY CONTRIBUTORS

IPR's 2023 policy forecasts are informed by expert survey responses from 108 climate policy experts¹

Daniel Williams

- Louise Kessler
- Anna Pegels
- Lutz Weischer
- Peter Taylor
- Nick Robins
- Robert Ritz
- Tim Benton
- Christian Zauner
- Harsha V. Rao
- Richard Folland
- Ximena Aristizabal
- Lican Liu
- Maarten Hage

- Harry Benham
- Steve Pye
- David McNeil
- Will Martindale
- Simon Dietz
- John Reilly
- Ken Alex
- Michael MacCracken
- Rob Schuwerk
- Rob Youngs
- Jake Stevens
- Diane Davis
- Alan Calcott
- Kavita Srinivasan

- Vaibhav Pratap Singh
- Md Tariq Habib
- Disha Agarwal
- Shubhashis Dey
- Vivek Sen
- Albertus Siagian
- Fadhila El Discha
- Evelyn Holland
- Yoshiki Kato
- Manabu Sakaguchi
- Emily Tyler
- Alexander Child
- Brett Cohen

- Jack Lowenstein
- Emma Aisbett
- Anna Malos
- Erwin Jackson
- John Connor
- Andrew Higham
- Emilio Lebre La Rovere
- Joe Capp
- Tasso Azevedo
- Cristina Leme Lopes
- Dale Beugin
- Dr. Amelia Clarke
- Jorrit Gosens


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IPR FPS AND 1.5C RPS POLICY FORECASTS: PHASE OUT OF EXISTING UNABATED COAL GENERATION

		2020	2025	2030	2035	2040	2045	2050	2055	2060
*)	China				RPS		FPS			
	United States			RPS	FPS					
	India						RPS			FPS
	Russia						RPS			FPS
	Japan				RPS		FPS			
	Germany			RPS	FPS					
* •*	South Korea				RPS		FPS			
	Indonesia						RPS	FPS		
5,213	Saudi Arabia						n/a			n/a
*	Canada		RPS	FPS						
	Brazil				RPS		FPS			
C*	Turkey						Both			
	South Africa				RPS			FPS		
۲	Mexico				RPS	FPS				
**	Australia			RPS		FPS				
	United Kingdom		RPS	FPS						
*	Vietnam						RPS	FPS		
	Italy			Both						
	France			Both						
•	Argentina				RPS		FPS			
	Nigeria						Both			

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: CLEAN POWER

2020 2025 2030 2035 2040 2045 2050 2055 2060 China RPS FPS **United States** RPS FPS India RPS FPS Russia RPS FPS Japan RPS FPS Germany RPS FPS ***** South Korea RPS FPS Indonesia RPS FPS Saudi Arabia \$2963 RPS FPS * Canada RPS FPS Brazil RPS FPS Turkey C* RPS FPS South Africa RPS FPS ۲ Mexico RPS FPS ₩ Australia RPS FPS **United Kingdom** Both Vietnam * RPS FPS Italy RPS FPS France Both Argentina RPS FPS Nigeria RPS FPS

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: PHASE OUT OF POLLUTING LIGHT-DUTY VEHICLES

		2020	2025	2030	2035	2040	2045	2050	2055	2060
*1	China			RPS	FPS					
	United States				RPS	FPS				
	India				RPS	FPS				
	Russia					RPS		FPS		
	Japan				RPS	FPS				
	Germany			RPS	FPS					
	South Korea			RPS	FPS					
	Indonesia				RPS		FPS			
5/2/3	Saudi Arabia					Both				
 	Canada			RPS	FPS					
	Brazil					RPS	FPS			
C *	Turkey				RPS	FPS				
	South Africa				RPS	FPS				
3	Mexico				RPS	FPS				
**	Australia				RPS	FPS				
	United Kingdom			Both						
*	Vietnam				RPS	FPS				
	Italy			RPS	FPS					
	France			RPS	FPS					
•	Argentina				RPS	FPS				
	Nigeria						Both			

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: PHASE OUT OF POLLUTING HEAVY-DUTY VEHICLES

		2020	2025	2030	2035	2040	2045	2050	2055	2060
*1	China				RPS	FPS				
	United States					RPS	FPS			
	India					RPS	FPS			
	Russia						RPS		FPS	
	Japan				RPS	FPS				
	Germany				RPS	FPS				
	South Korea				RPS	FPS				
	Indonesia					RPS		FPS		
\$39933 	Saudi Arabia						Both			
*	Canada					Both				
	Brazil					RPS		FPS		
C*	Turkey					RPS	FPS			
	South Africa					RPS	FPS			
۲	Mexico					RPS	FPS			
**	Australia					RPS	FPS			
	United Kingdom				RPS	FPS				
*	Vietnam					RPS	FPS			
	Italy				RPS	FPS				
	France				RPS	FPS				
•	Argentina					RPS	FPS			
	Nigeria							Both		

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: ZERO CARBON HEATING

_	2020	2025	2030	2035	2040	2045	2050	2055	2060
China					RPS	FPS			
United States				RPS	FPS				
India	n/a								
Russia					RPS		FPS		
Japan				RPS	FPS				
Germany			Both						
South Korea				RPS	FPS				
Indonesia	n/a								
Saudi Arabia	n/a								
Canada			RPS	FPS					
Brazil	n/a								
Turkey					RPS		FPS		
South Africa			RPS				FPS		
Mexico	n/a								
Australia			RPS	FPS					
United Kingdom			RPS	FPS					
Vietnam	n/a								
Italy			RPS	FPS					
France			RPS	FPS					
Argentina				RPS		FPS			
Nigeria	n/a								

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: INDUSTRY DECARBONISATION

	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	>2070
China								RPS				FPS
United States							RPS			FPS		
India								RPS				FPS
Russia								RPS				FPS
Japan							RPS			FPS		
Germany							RPS		FPS			
South Korea							RPS			FPS		
Indonesia								RPS				FPS
Saudi Arabia								RPS				FPS
Canada							RPS			FPS		
Brazil								RPS			FPS	
Turkey								RPS				FPS
South Africa							RPS					FPS
Mexico								RPS				FPS
Australia							RPS			FPS		
United Kingdom							RPS			FPS		
Vietnam								RPS				FPS
Italy							RPS				FPS	
France							RPS			FPS		
Argentina								RPS				FPS
Nigeria								RPS				FPS
	China United States India Russia Japan Germany South Korea Indonesia Saudi Arabia Canada Brazil Turkey South Africa Mexico Australia United Kingdom Vietnam Italy France Argentina Nigeria	2020ChinaUnited StatesIndiaRussiaJapanGermanySouth KoreaIndonesiaSaudi ArabiaCanadaBrazilTurkeySouth AfricaMexicoAustraliaUnited KingdomVietnamItalyFranceArgentinaNigeria	20202025ChinaUnited StatesIndia	202020252030ChinaUnited StatesIIndiaIIRussiaIIJapanIIGermanyIISouth KoreaIIIndonesiaIISaudi ArabiaIICanadaIIBrazilIITurkeyIISouth AfricaIIMexicoIIAustraliaIIUnited KingdomIIVietnamIIItalyIIFranceIIArgentinaIINigeriaII	2020202520302035ChinaUnited StatesIIUnited StatesIIIIndiaIIIRussiaIIIJapanIIIGermanySouth KoreaIIIndonesiaIIISaudi ArabiaIIICanadaIIIBrazilIIITurkeyIIISouth AfricaIIIMexicoIIIAustraliaIIIUnited KingdomIIIVietnamIIIItalyIIINigeriaIII	20202025203020352040ChinaUnited StatesIndiaRussiaJapanGermanySouth KoreaIndonesiaSaudi ArabiaCanadaBrazilTurkeySouth AfricaMexicoAustraliaUnited KingdomVietnamItalyFranceArgentinaNigeria	202020252030203520402045ChinaUnited StatesIndiaRussiaJapanGermanySouth KoreaIndonesiaSaudi ArabiaCanadaBrazilTurkeySouth AfricaMexicoAustraliaUnited KingdomVietnamItalyFranceArgentinaNigeria	2020 2025 2030 2035 2040 2045 2050 China United States RPS RPS India RPS India India India India RPS RPS Ingan India India India RPS RPS Germany India India RPS RPS RPS South Korea Indonesia Indonesia RPS RPS Saudi Arabia Indonesia Indonesia RPS RPS Brazil Intrkey Intrkey	2020 2025 2030 2035 2040 2045 2050 2055 China	2020 2025 2030 2035 2040 2045 2050 2055 2060 China	2020 2025 2030 2035 2040 2045 2055 2050 2065 China	2020 2025 2030 2035 2040 2045 2055 2060 2065 2070 China

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: LOW-CARBON AGRICULTURE

	2020	2025	2030	2035	2040	2045	2050	2055	2060
China			FPS	RPS					
United States		RPS	FPS						
India			RPS	FPS					
Russia		RPS		FPS					
Japan		Both							
Germany	RPS	FPS							
South Korea		RPS	FPS						
Indonesia			RPS	FPS					
Saudi Arabia	n/a								
Canada		Both							
Brazil		RPS	FPS						
Turkey			RPS	FPS					
South Africa			RPS	FPS					
Mexico		RPS		FPS					
Australia		RPS	FPS						
United Kingdom		Both	9.						
Vietnam			Both						
Italy	RPS	FPS							
France	RPS	FPS							
Argentina		RPS		FPS					
Nigeria				Both					

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
- IPR's forecasted policy outcomes



IPR FPS AND 1.5C RPS POLICY FORECASTS: ENDING NET DEFORESTATION AND DELIVERING AFFORESTATION AT SCALE

		2020	2025	2030	2035	2040	2045	2050	2055	2060
*1	China		RPS	FPS						
	United States		both	a.						
6	India		RPS	FPS						
	Russia		RPS	FPS						
	Japan	RPS	FPS							
	Germany		RPS	FPS						
*• *	South Korea	RPS		FPS						
	Indonesia		RPS	FPS						
5983	Saudi Arabia	RPS		FPS						
*	Canada	RPS	FPS							
	Brazil		RPS	FPS						
C *	Turkey		Both	a.						
	South Africa		RPS		FPS					
۲	Mexico		RPS	FPS						
*	Australia		RPS	FPS						
	United Kingdom	RPS	FPS							
*	Vietnam		Both							
	Italy		Both							
	France		Both							
•	Argentina		RPS	FPS						
	Nigeria		RPS		FPS					

RPS

- Required Policy Response (RPS)
- Models a policy scenario that is in line with a 1.5C outcome

- Forecasted Policy Response (FPS)
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IPR Contacts:

Investor Enquiries: Julian Poulter, Head of Investor Relations julian.poulter@et-advisers.com

Media Enquiries: Andrew Whiley, Communications Manager Andrew.Whiley@inevitablepolicyresponse.org

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