

- Inevitable Policy Response 2021
Policy Forecast
Executive Summary

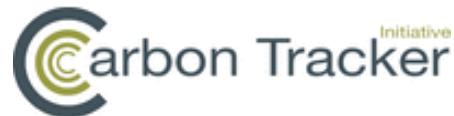
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Preparing financial markets for climate-related policy and regulatory risks

March 2021

Consortium partners

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The Inevitable Policy Response (IPR) seeks to drive better investor action to avoid and manage climate-related policy risks

While a policy response to climate change is highly likely, financial markets are not adequately prepared

- The need to act on climate is rising up the policy agenda.
- Climate action will create substantial shifts in global investment needs, driving down demand for assets that increase emissions, and driving up demand for assets that avoid or reduce them.
- Financial markets today have not adequately prepared for the likely policy response to climate change.

Guidance on likely evolution of climate policy and its impacts on markets is limited

- Future energy scenarios typically provide either business-as-usual trends or idealized futures in which climate action is immediate, gradual, and coordinated.
- While investors agree that the policy response will be delayed, abrupt and disruptive, few scenarios map out the implications of such a future.

The Inevitable Policy Response (IPR) seeks to drive better investor action to avoid and manage these climate-related policy risks

- A high-conviction policy-based forecast of forceful policy response to climate change and implications for energy, agriculture and land use
- Identifies key sources of climate policy-driven opportunity and risk in these sectors
- Prepares investors to better manage exposure to these risks in their portfolios

IPR2021 top ten policy forecasts: 1-5

Carbon pricing	1.	Carbon Border Adjustments Mechanisms (CBAMs) for carbon will become increasingly a policy option. This could lead the United States to announce a national carbon pricing system as early as 2023, and we forecast by 2025, and signal a strong carbon price path to reach a backstop of \$65 by 2030.
	2.	The European Union's evolving commitments will deliver substantial carbon prices. By 2030, we expect EU policy to backstop an EU ETS carbon price of \$75/tCO ₂ to ensure long-term action toward decarbonization in heavy emitting sectors.
Coal	3.	In India, rapidly evolving Indian policy and prospects for market reforms and pricing has already ended further investment in new coal.
	4.	China will end construction of new coal fired power production after 2025, driven by new policies to facilitate its 2060 net zero target and ongoing market liberalisation.
	5.	The United States will end all coal-fired power generation by 2030, through a combination of emission performance standards and carbon pricing at the Federal and State levels, combined with market forces.

IPR2021 top ten policy forecasts: 6-10

Clean power	6. The United States will implement a binding and credible 100% clean power standard for 2040, ending unabated fossil electricity generation.
Zero emission vehicles	7. China, France, Germany, Italy and Korea will end the sale of fossil fuel cars and vans in 2035. Jointly these large markets will accelerate the auto industry transition to electric drive, and precipitate further policy action internationally.
Industry	8. All major industrial economies including the US, Germany, Japan and China will require all new industrial plants, led by steel and cement, to be low-carbon by 2040, through a combination of emissions performance standards and carbon pricing.
Agriculture	9. The US, Canada, Australia and other major agricultural producers will have comprehensive mitigation policy in place by 2025 to reduce emissions from production of crops and livestock.
Land use	10. Major tropical forest countries will end deforestation by 2030, with domestic policy responding to international climate finance and corporate supply chain pressures.

Growing awareness and momentum on climate issues makes a near term, forceful policy response more likely

Extreme weather events

Counting the cost 2020
A year of climate breakdown

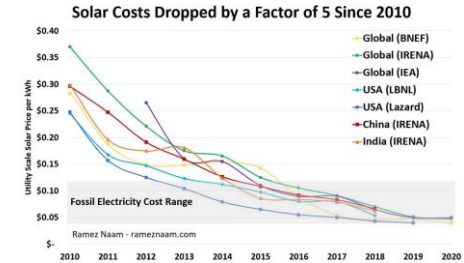
December 2020



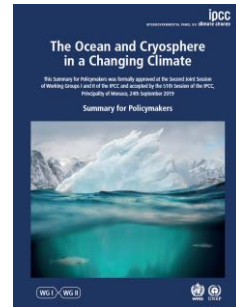
Impacts on security



Cheaper renewable energy



New climate research



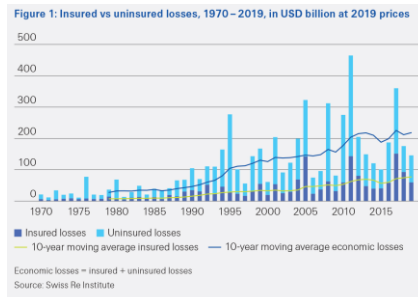
Civil society action



Financial regulator warnings on stability



Uninsurable world



Influence shifting

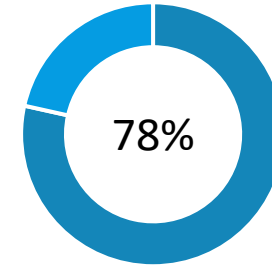
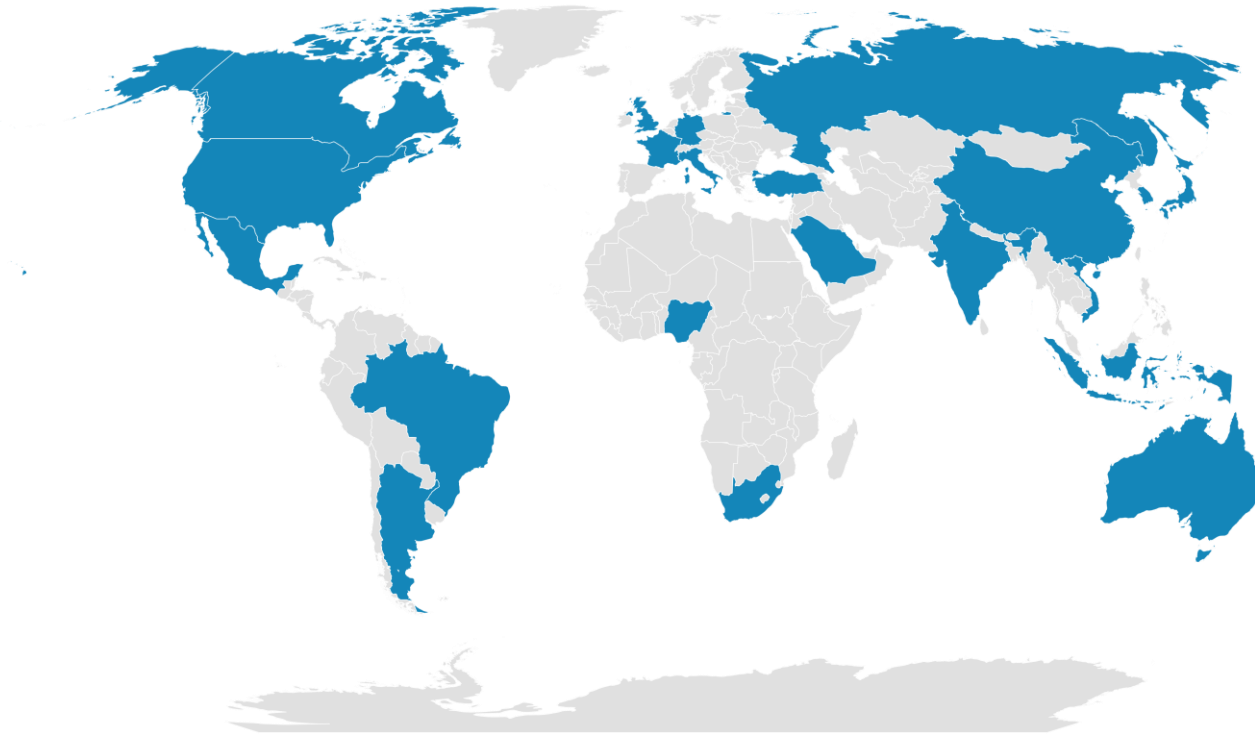


New geopolitics of energy

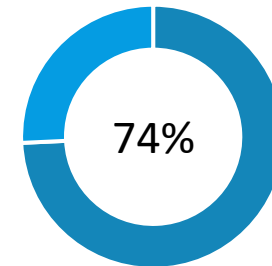


The IPR policy forecast covers 21 major economies accounting for the majority of world economic activity, energy use and CO2 emissions

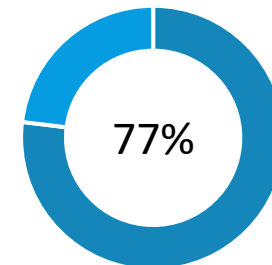
IPR Policy Forecast country coverage



of economic activity



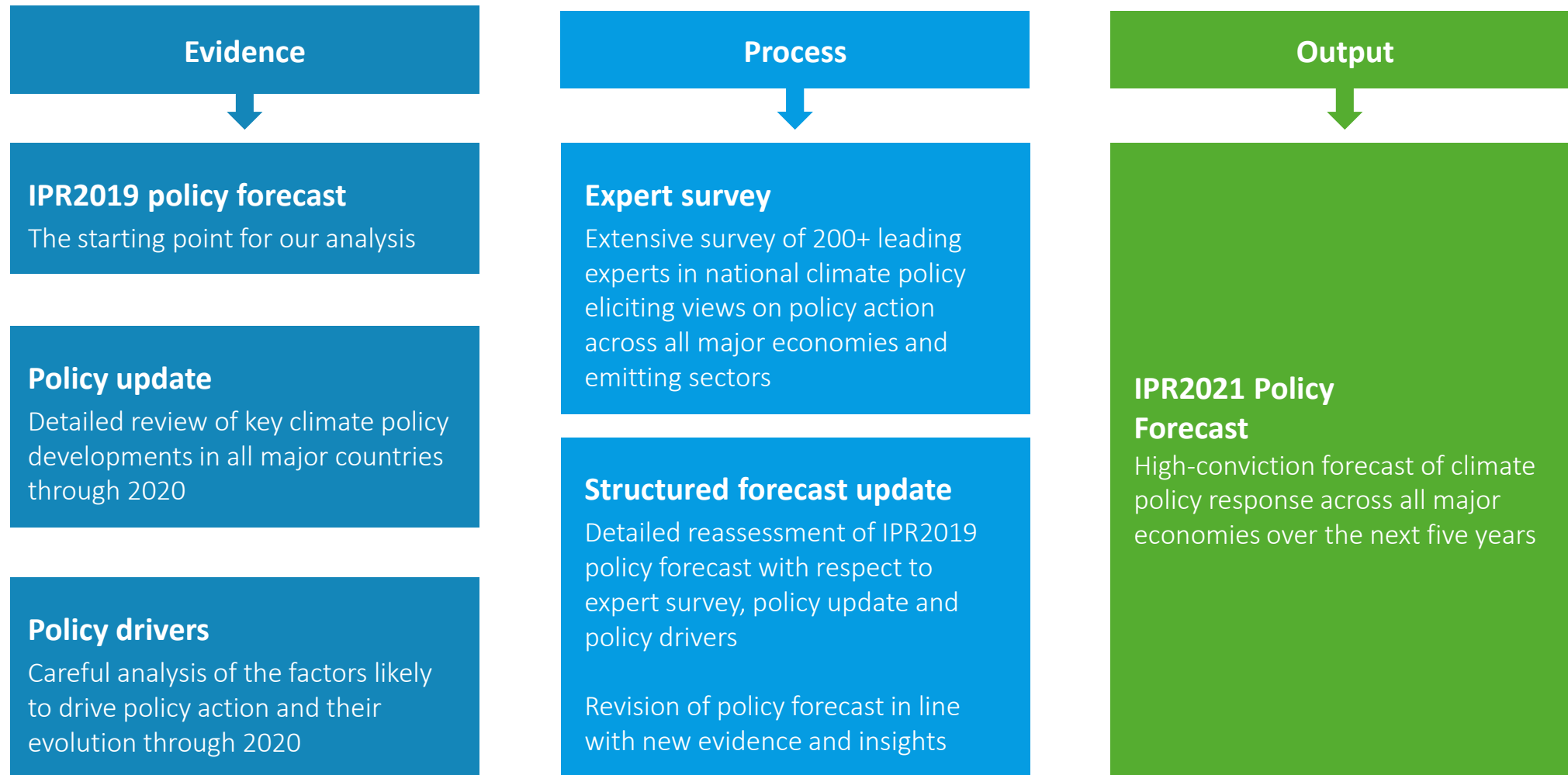
of energy use



of CO2 emissions

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The IPR2021 Policy Forecast was informed by a rigorous evidence review and large-scale survey of country climate policy experts



What drives our forecast (1)



Current policy ambition

Current long-term targets, decarbonisation strategies and emissions reduction policies. Progress in these areas is an indicator of current policy commitment to climate action and likelihood of further policy action.



Track record of policy action

Historical track record of setting long-term targets, developing and implementing decarbonisation strategies and implementing policies to reduce emissions. A track record in these areas is an indicator of sustained policy commitment to climate action.



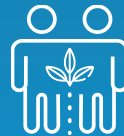
Status of transition

Historical track record of rolling out climate solutions and reducing emissions. Progress in these areas is an indicator of policy commitment to climate action and likelihood of further policy action.



Investment pipeline

Current pipeline of new fossil investments that are planned or under construction. Investment pipeline is an indicator of policy commitment to phase out new fossil investments.



Civil society

Direction and magnitude of citizen attitudes towards climate action, indicating civil society support for new policies



Consumer preferences

Size and trends in early adopter market for new energy technologies. High consumer demand for new energy technologies suggests likely consumer support for policy action, while low consumer demand suggests likely consumer resistance.

What drives our forecast (2)



Techno-economics

The likely economic costs and benefits of policy action, driven by the cost and maturity of available climate solutions



Just transition

Likely socio-economic impacts of policy action, and prospects to support communities affected by these impacts. Presence of traditional energy and energy-intensive sectors creates social challenges for climate action.



Industrial strategy

Prospects for policy action to support internationally competitive export industries in new energy technologies. Policy action can support domestic industries to achieve success in international markets for climate solutions.



Industrial competitiveness

Relative risks of policy action reducing the competitiveness of traditional energy and energy-intensive sectors. Substantial economic contribution of traditional energy and energy-intensive sectors creates political and economic challenges for climate action



Trade exposure

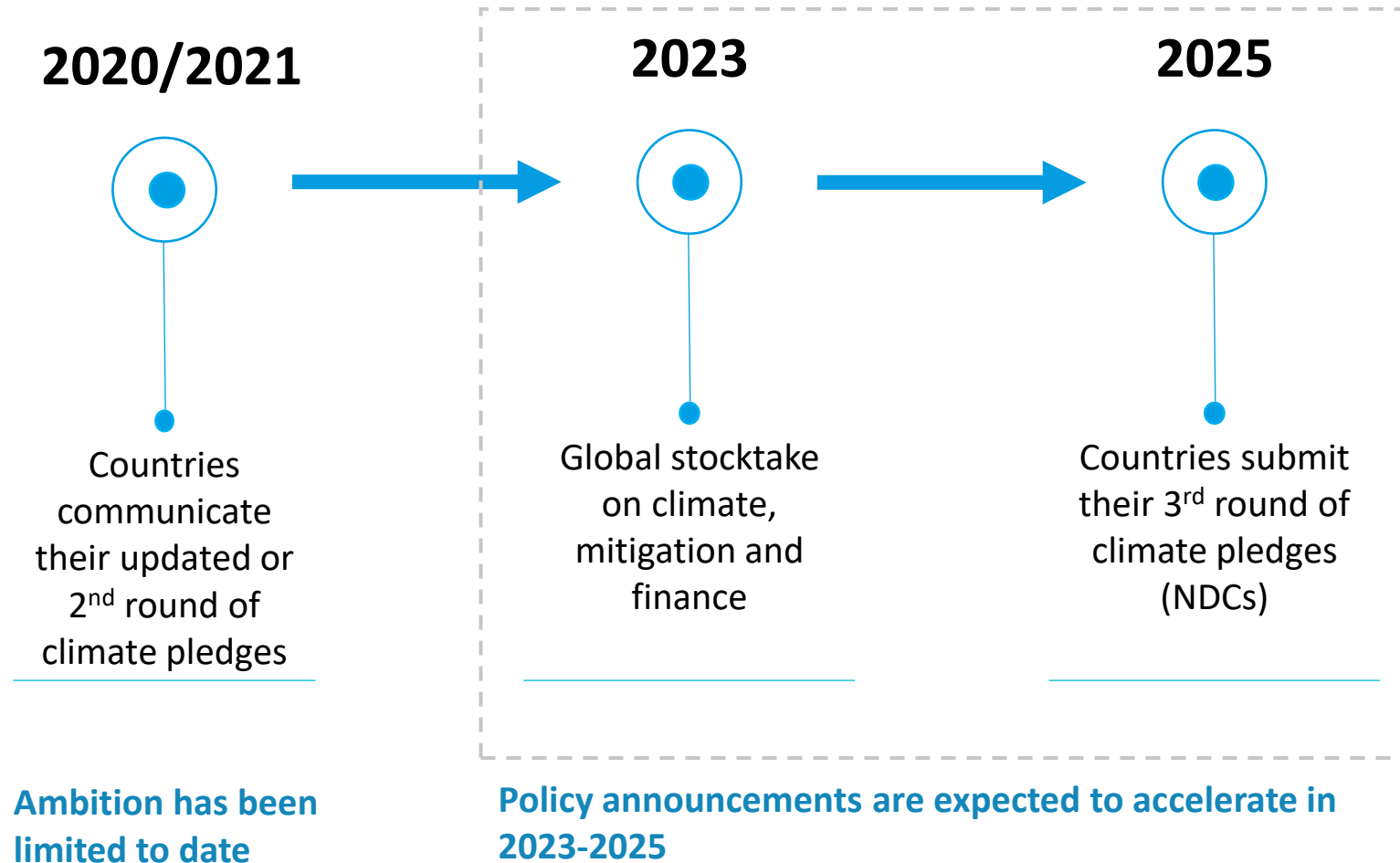
Trading patterns with countries forecast to take leading action to safeguard competitiveness and prevent carbon leakage. High reliance on leading countries for export markets increases incentives to take action domestically.



Energy security

Relative reliance on domestic production and import of fossil fuels to secure current energy needs. Strong climate action typically reduces reliance on imported fossil fuels.

Timing: Paris Ratchet process triggers a cumulating policy response by 2025
Growing awareness of climate issues and an international framework for accelerating action, makes a near term, forceful policy response more likely



Since 2019, major net zero commitments and new climate measures in leading countries have raised prospects for an accelerated policy response

Net zero targets

At the time of publication of IPR 2019, two G20 jurisdictions had announced net zero targets

France



UK



By March 2021, a further eight G20 jurisdictions have announced net zero targets¹

Canada



Germany



China



South Africa



Japan



Korea



Brazil



Argentina



EU



New climate measures

Overall

- Widespread investment in climate solutions under COVID-19 stimulus

Carbon pricing

- China launches National ETS
- Canada sets ambition for \$130 carbon price in 2030
- Mexico launches pilot ETS
- Vietnam issues preparatory legislation for future ETS

Power

- UK brings coal phase out forward to 2024
- Germany publishes coal exit law with phase out by 2038
- Biden pledges to achieve 100% clean power by 2035

Transport

- France announces objective to decarbonise transport by 2050
- 14 US states sign an MOU to achieve 30% zero emissions truck sales by 2030

Industry

- UK allocates \$1.1m CCS infrastructure fund to develop two CCS clusters
- France announces objective for 81% cut in industry emissions by 2050

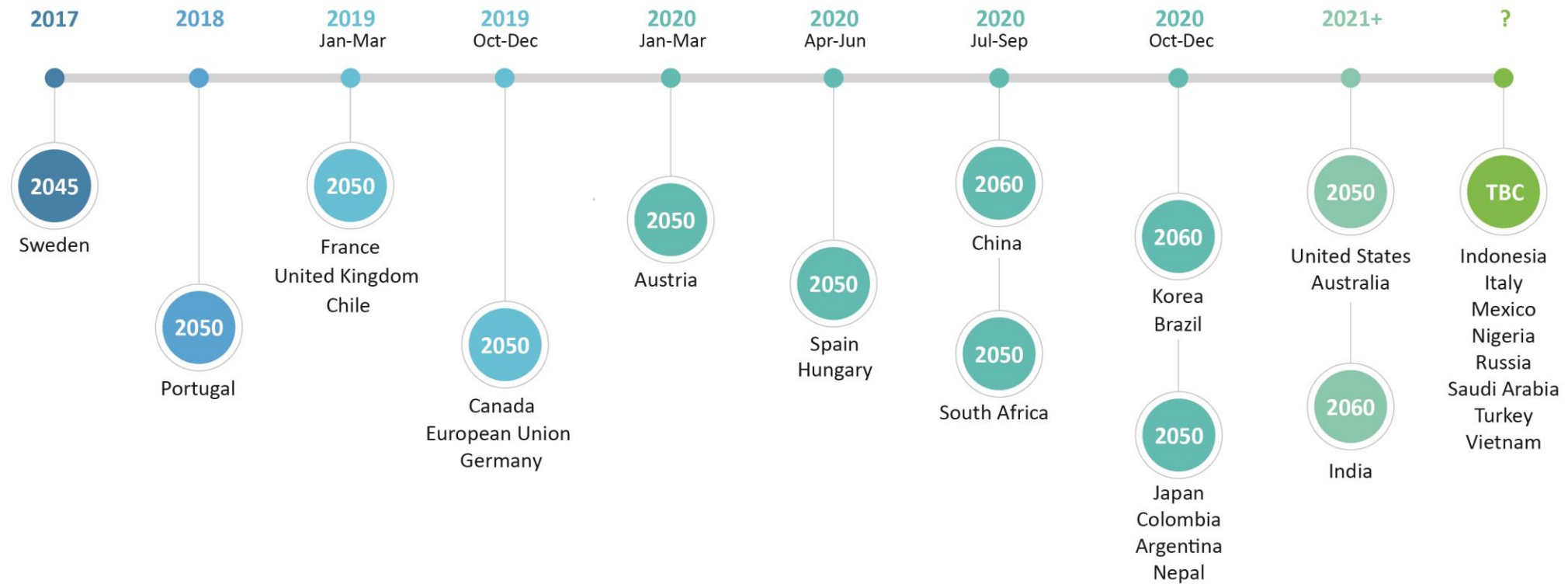
Other

- France announces objective to decarbonise buildings by 2050
- UK - 30,000 hectares of tree planting by 2025

¹The number of cities with net zero targets has also increased, from 100 in 2019 to over 900 in 2020

Following a wave of announcements in 2020, we forecast the United States, India and Australia will announce their net zero emissions targets by 2023

Announcement timeline for net zero emissions targets



Leading companies have also increased commitments to net zero emissions and decarbonizing their processes and supply chains

Bold climate action



- At the time IPR2019 was published, 720 companies had signed up to at least a 2 degrees target with the Science Based Targets Initiative (SBTi)
- By March 2021, at the time IPR2021 was published, 1040 companies had signed up to at least a 2 degrees target with the Science Based Targets Initiative (SBTi), with 542 having had targets approved. 41% of companies with approved targets were 1.5 degrees aligned



- 1400 businesses have signed up to Race to Zero, a global campaign to rally leadership and support from businesses, cities, regions and investors for a zero carbon recovery

Major corporate climate announcements since 2019

Overall

- Widespread focus on net zero targets, decreasing energy and CO₂ footprints, electrification of auto fleet, support for carbon pricing

Renewable energy

- 292 companies across all sectors have committed to RE100, 100% renewable energy use
- 125 companies across all sectors have committed to EP100, an initiative to increase energy efficiency

Agriculture

- 7 companies have committed to 'climate smart agriculture' in the food, beverage and agriculture sector

Fleet electrification

- 167 companies have signed up to EV100, committing to electric vehicles in the fleet or supply chain by 2030

Driving action through supply chains

- Nestle, Ikea, Unilever, BT Group have committed to work with their suppliers to halve emissions before 2030








Negative emissions

- Microsoft and other leading tech companies have set the goal of removing all carbon emitted since they were founded

Industry decarbonisation

- 8 companies have committed to SteelZero, a public commitment to procure 100% Net Zero Steel by 2050

IPR2021 forecasts higher policy ambition across eight key policy levers

 Carbon pricing <ul style="list-style-type: none">• Carbon taxes• Emissions trading systems• Border carbon adjustments	 Coal phase-out <ul style="list-style-type: none">• Prohibiting regulations• Emissions performance standards• Electricity market reforms	 100% clean power <ul style="list-style-type: none">• 100% clean power targets• Renewables capacity auctions and other support policies	 Zero emission vehicles <ul style="list-style-type: none">• 100% zero emission vehicle (ZEV) sales legislation• Manufacturer ZEV obligations• ZEV consumer subsidies
 Low-carbon buildings <ul style="list-style-type: none">• Prohibiting regulations for fossil heating systems• Purchase subsidies for low-carbon heating systems• Thermal efficiency regulations for new build and retrofit• Minimum energy performance standards for new appliances	 Clean industry <ul style="list-style-type: none">• Emissions performance standards for industrial plant• Subsidy for new or retrofit clean industrial process	 Low-emissions agriculture <ul style="list-style-type: none">• Methane or nitrous oxide emissions tax or cap-and-trade system• Subsidy for low-emissions agricultural practices and technologies• Farmer education and technical assistance programmes	 Forestry <ul style="list-style-type: none">• Strong policy action against deforestation, such as monitoring and penalties, supported by consumer pressure• Incentives for reforestation and afforestation via domestic action and carbon markets

 'Just Transition' lens to ensure social and political feasibility

Increase in ambition is expected in eight main policy areas (1)



Carbon pricing

- All major economies will have carbon pricing schemes covering emissions in power and industry by 2030.
- Policy ambition and backstop signal prices of \$60-85 by 2030 in leading countries, \$35-50 elsewhere.
- Beyond 2030, policy ambition continues to put upward pressure on prices, with carbon border adjustment mechanisms driving convergence with leading countries



Coal phase out

- Policy signals and market reforms make new unabated coal uninventable by 2021-2025 in almost all countries
- Leading countries end all unabated coal generation by 2030
- Other major countries follow by 2040s



Clean power

- Strong policy framework to end all unabated fossil generation in leading countries by 2040
- Other major countries follow by 2050.



ICE sales bans

- Early sales ban for first mover countries by 2030-2035.
- Other countries follow suit as automotive industry reaches tipping point.

Increase in ambition is expected in eight main policy areas (2)



Low-carbon buildings

- All countries implement new building and product standards targeting an end to the sale of fossil-based appliances, phasing out use of fossil fuels in heating and cooking
- Countries with ambitious net zero targets end the sale of fossil-based appliances by 2035-40
- Other major countries follow by 2050



Clean industry

- Countries with ambitious net zero targets end the installation of new unabated fossil-based industrial plant by 2040, putting energy-intensive industry on a clear decarbonisation pathway.
- Other major countries are slower to act on new plant due to competitiveness concerns



Low-emissions agriculture

- New policies drive low-emissions practices for crops and livestock.
- Comprehensive policy in place in leading countries by 2025, and in all countries by 2035.



Forestry

- Forestry policies include comprehensive protected area designation, payments for ecosystem services, and strong enforcement.
- Early movers end remaining deforestation and encourage large-scale afforestation by 2025
- Remaining countries implement policies to end deforestation and encourage afforestation by 2030, driven by international climate finance and corporate supply chain pressures.



Changes to 2019 policy Forecasts and new policy forecasts

Overall we forecast substantially higher policy ambition relative to IPR2019

Revisions to previous forecasts

- Overall, we forecast higher policy ambition, with higher ambition accounting for almost 50% of forecasts and lower ambition for under 10%

	Number of forecasts		
	Lower ambition	Unchanged	Higher ambition
Carbon pricing	0	1	20
Coal phase out (new)	2	12	6
Coal phase out (all)	4	6	10
ICE phase out (LDVs)	1	16	4
ICE phase out (HGVs)	0	16	5
Ending deforestation	0	7	14
% of policies	6%	47%	48%

New policy areas

Clean power

- Policy framework to end all unabated fossil generation

Low-carbon buildings

- New building and product standards targeting an end to the sale of fossil-based appliances, phasing out use of fossil fuels in heating and cooking

Clean industry

- Ending installation of new unabated fossil-based industrial plant, putting energy-intensive industry on a clear decarbonisation pathway.

Low-emissions agriculture

- New policies driving low-emissions practices for crops and livestock.



IPR2021 carbon price policy forecast

Tier	Country	Forecast Policy Response	Change from IPR2019	
			Survey	IPR2021
Tier 1	Canada	Signal or backstop of US\$85 by 2030	▲	▲
	France			
	Germany	US\$75 by 2030		
	Italy			
	UK			
	USA	US\$65 by 2030		
	China			
Tier 2	Australia	US\$60 by 2030		
	Japan			
	Korea			
	India			
Tier 2	Mexico	US\$50 by 2030	▲	▲
	South Africa		▲	▲
	Turkey		▲	▲
Tier 3	Argentina			
	Brazil	US\$45 by 2030		
	Indonesia			
	Vietnam			
	Nigeria			
	Russia	US\$35 by 2030		
	Saudi Arabia			

- Carbon pricing is forecast to apply to the power and industry sectors
- Relative to IPR2019, expected price signals in leading countries are \$15 higher in 2030, with comparable increases elsewhere.
- Canada has signaled the intention to apply a >\$100 carbon price by 2030.
- South Africa and Turkey prices upgraded to tier 2. South Africa’s ambition driven by net zero target, while Turkey’s driven by trading relationship with EU.
- Ambition for US and China in line with IPR2019 though are no longer among the most ambitious countries

Legend ▲ higher ambition ▼ lower ambition ● no change

Notes: carbon prices are in real 2020 US Dollars (US\$)



IPR2021 coal phase-out forecast: ending construction of new unabated coal

Tier	Country	Forecast Policy Response	Change from IPR2019	
			Survey	IPR2021
Tier 1	Australia	Actual and anticipated policy signals (bans, EPS, carbon pricing), and market reforms end new coal build from 2020		
	Canada			
	France			
	Germany			
	India		●	▲
	Italy			
	Korea		●	▲
	Mexico			
	Argentina		▲	▲
	Brazil		▲	▲
	UK			
USA				
Tier 2	China	Policy signals and market reforms targeting 2025	▼	▼
	Japan		▼	▼
	South Africa		▲	▲
	Turkey		▲	▲
	Vietnam		▼	●
Tier 3	Russia	Policy and reforms targeting 2030		
	Indonesia		▼	▼
	Nigeria			
	Saudi Arabia	No coal in use or expected		

- Relative to IPR2019, India and Korea upgraded to tier 1.
- A number of countries upgraded to tier 2 in line with expert expectation that policy will strengthen ambition in these countries.
- Japan downgraded from tier 1 to 2 due to challenges phasing out coal.
- Indonesia downgraded from tier 2 to 3 due to substantial coal in pipeline.

Legend ▲ higher ambition ▼ lower ambition ● no change



IPR2021 coal phase-out forecast: ending unabated coal generation

Tier	Country	Forecast Policy Response	Change from IPR2019	
			Survey	IPR2021
Tier 1	France	Strong policy signal that coal generation will be made unlawful or unprofitable before 2030	▲	▲
	UK		▲	▲
	Italy		▲	▲
	Canada USA	Coal to be made unlawful or unprofitable by 2030		
Tier 2	Germany	Strong policy signal that coal generation will be made unlawful or unprofitable by 2038-2040	▼	▼
	Australia		▼	▼
	South Africa		▲	▲
	Mexico		▼	▼
	Argentina		▲	▲
	Brazil	▲	▲	
	Korea			
	China	Coal to be made unlawful or unprofitable by 2045		
	India			
	Indonesia			
	Japan		▼	▼
	Nigeria		▲	▲
	Russia		▲	▲
	Turkey		▲	▲
	Vietnam		▲	▲
	Saudi Arabia	No coal in use or expected	▲	▲

- France and UK upgraded to before 2030 in line with existing policies; Italy upgraded due to EU pressure, in line with expert expectations
- Germany downgraded to tier 2 in line with 2038 phase-out policy
- Australia and Mexico downgraded to tier 2 in line with survey evidence and limited stated ambition to phase-out coal
- Japan downgraded from 2030 due to challenges phasing out coal
- All tier 3 countries upgraded to tier 2 due to expert expectation that policy would aim for phase-out before 2045

Legend ▲ higher ambition ▼ lower ambition ● no change



IPR 2021 clean power forecast

Tier	Country	Forecast Policy Response
Tier 1	France	Policy to deliver 100% clean power by 2035
	Canada	
	UK	Policy to deliver 100% clean power by 2040
	USA	
South Africa		
Tier 2	Germany	Strong policy signal to deliver 100% clean power by 2045
	Italy	
	Japan	
	Korea	
	Vietnam	
Tier 3	Australia	Strong policy signal to deliver 100% clean power by 2050
	Mexico	
	China	
	India	
	Indonesia	
	Russia	
	Turkey	
	Brazil	
	Argentina	
	Nigeria	
	Saudi Arabia	



Countries with strong commitments towards net zero emissions in power and more widely, and/or facing few challenges in decarbonising power



Countries with moderate commitments towards net zero emissions in power and more widely, or facing greater challenges in decarbonising power



Countries with weaker commitments towards net zero emissions in power and more widely



IPR2021 ICE phase out forecast: light duty vehicles

Tier	Country	Forecast Policy Response	Change from IPR2019		
			Survey	IPR2021	
Tier 1	UK	100% ZEV sales from 2030	▲	▲	
	China				
	France				
	Germany		100% ZEV sales from 2035		
	Italy				
	Korea			▲	▲
Tier 2	Argentina	100% ZEV sales from 2040			
	Australia				
	Canada				
	India				
	Indonesia				
	Japan				
	Mexico				
	South Africa		▲	▲	
	Turkey		▲	▲	
	USA				
Vietnam					
Tier 3	Brazil	100% ZEV sales from 2045	▼	▼	
	Nigeria				
	Russia				
	Saudi Arabia				

- The UK has announced an end to the sale of fossil cars and vans by 2030.
- South Korea upgraded to tier 1, with increase in ambition expected given requirements of 2050 net zero target.
- South Africa and Turkey upgraded to tier 2; ambition in South Africa driven by net zero target, and in Turkey by proximity to EU vehicle market.

Legend ▲ higher ambition ▼ lower ambition ● no change



IPR2021 ICE phase out forecast: heavy goods vehicles

Tier	Country	Forecast Policy Response	Change from IPR2019		
			Survey	IPR2021	
Tier 1	UK	100% ZEV sales from 2035	▲	▲	
	China				
	France				
	Germany		100% ZEV sales from 2040		
	Italy				
	Japan			▲	▲
	Korea			▲	▲
Tier 2	Argentina	100% ZEV sales from 2045			
	Australia				
	Brazil				
	Canada				
	India				
	Indonesia				
	Mexico				
	South Africa		▲	▲	
	Turkey		▲	▲	
	USA				
Vietnam					
Tier 3	Nigeria	100% ZEV sales from 2050			
	Russia				
	Saudi Arabia				

- Ambition on heavy duty vehicles is expected to follow light duty: decarbonisation presents a greater challenges, but technological progress is strongly driven by progress in light duty vehicles, and policy drivers are comparable
- UK and Korea are upgraded to tier 1 in line with light duty vehicles
- Japan upgraded to tier 1 with similar ambition to light duty vehicles, as strong national push for hydrogen favours decarbonisation of heavy vehicles
- South Africa and Turkey upgraded to tier 2

Legend ▲ higher ambition ▼ lower ambition ● no change



IPR2021 low-carbon buildings forecast: zero carbon heating

Tier	Country	Forecast Policy Response
Tier 1	UK	100% zero carbon heating sales from 2035
	Germany	
	France	
	Italy	
	Canada	
	South Africa	100% zero carbon heating sales from 2040
	Australia	
	USA	
	Japan	
	Argentina	
Korea		
Tier 2	China	100% sales from 2045
Tier 3	Russia	100% zero carbon heating sales from 2050
	Turkey	
	Mexico	Space heating not needed in these countries
	India	
	Indonesia	
	Vietnam	
	Brazil	
	Nigeria	
	Saudi Arabia	

← Countries with clear or forecast 2050 net zero targets, requiring low-carbon heating to be phased in from 2035 due to typical heating system lifetimes

← 2060 net zero target, and existing support schemes

← Countries without net zero targets and limited incentives to shift to low-carbon heating systems



IPR2021 clean industry forecast

Tier	Country	Forecast Policy Response
Tier 1	UK	100% new zero carbon production facilities from 2040
	Germany	
	France	
	Italy	
	USA	
	Canada	
	Japan	
	Korea	
	South Africa	
	Australia	
Argentina		
Tier 2	China	100% new zero carbon production facilities from 2050
	Brazil	
	India	
Tier 3	Mexico	No clear policy to phase-out conventional iron and steel, chemicals and cement production
	Indonesia	
	Vietnam	
	Russia	
	Turkey	
	Nigeria	
Saudi Arabia		

← Countries with clear or forecast 2050 net zero targets, requiring early progress phasing in low-carbon manufacturing processes due to typical plant lifetimes

← 2060 net zero target

← Countries without net zero targets and limited incentives to shift to low-carbon manufacturing processes



IPR2021 low-carbon agriculture forecast

Tier	Country	Forecast Policy Response
Tier 1	UK	Nationwide market incentives to encourage farmers to reduce emissions from crop production and livestock from 2025
	Germany	
	France	
	Italy	
	USA	
	Canada	
	Australia	
	Japan	
	China	
	Korea	
Tier 2	Mexico	Nationwide incentives from 2030
	India	
	Vietnam	
	Turkey	
Tier 3	Indonesia	Nationwide incentives from 2035
	Russia	
	South Africa	
	Brazil	
	Argentina	
	Nigeria	
	Saudi Arabia	Minimal agriculture

← Countries with objectives to reduce emissions from agriculture and moderate barriers to reducing emissions in this sector

← Countries with objectives to reduce emissions from agriculture but with strong barriers to reducing emissions in this sector

← Countries without objectives to reduce emissions from agriculture



IPR2021 land use and forestry forecast

Tier	Country	Forecast Policy Response
Tier 1	Korea	End net deforestation by 2025 Deliver afforestation at scale by 2025
	Canada	
	France	
	Germany	
	Italy	
	Japan	
	UK	
	USA	
	China	
	Turkey	
	Vietnam	
Australia		
Tier 2	Russia	End net deforestation by 2025 Deliver afforestation at scale by 2030
Tier 3	Nigeria	End net deforestation by 2030 Deliver afforestation at scale by 2030
	India	
	Argentina	
	Brazil	
	South Africa	
	Mexico	
	Indonesia	
Saudi Arabia	Minimal potential for forestry	

← Countries with low or minimal deforestation and strong climate targets or track record on afforestation

← Minimal deforestation but limited climate targets or track record on afforestation

← Countries with substantial current deforestation

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