The Inevitable Policy Response Under Biden's Climate Plan – The Stage Is Set

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INEVITABLE POLICY RESPONSE

Acknowledgements

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Executive Summary with Investor Implications

The Inevitable Policy Response: the stage is set

Investors should look to Act Now

As we write shortly after the US election, the result is still to be settled but the current status suggests:

- Joe Biden is the President-Elect of the United States and Democrats continue to hold control of the House of Representatives.
- The Senate is closely contested, and the runoffs in Georgia will determine the final result in January, although present consensus opinion is that Republicans are in the best position.
- Climate has appeared to be an important factor in exit polls[1] and was cited by President-Elect Joe Biden as a key policy plank in his acceptance speech, but it has not proven to be a decisive factor in critical swing states (Deane & Gramlich, 2020).
- Global leaders congratulating President-Elect Biden have cited cooperation on climate(Macias, 2020). There is common ground for an ambitious COP26 next year in Glasgow.
- This comes on top of China announcing a 2060 Net Zero target and phase out of non-hybrid ICE by 2035. Japan has also announced a Net Zero 2050 target and the EU remains strong in its commitments and has raised the prospect of a carbon border tax adjustment (Droege, 2020; Rozès Moscovenko, 2020).

The outcome of this US election has an important bearing on climate policy in the next four years and to the Inevitable Policy Response project that forecasts a forceful policy response to climate by 2025 which is the focus of this paper:

- The incoming Biden Administration will provide substantially greater positive momentum around climate policy expectations and outcomes in the US and globally through renewed US leadership. Simply by using executive powers combined with state and local action, a forceful Inevitable Policy Response to climate looks achievable in the US.
- The composition of the Senate is an important additional factor. If the Democrats were to hold the balance of power in the Senate, then a Biden Administration combined with Democrat Congress would be far more impactful.
- However, a Senate with a Democratic control of the balance of power currently is seen less likely than divided power. This would mean a check on the full ambitions of the Biden climate plan, although a significant increase in climate action is still very likely through direct executive action, enabling of state-level action, and federal legislative action which better balances a Democratic agenda.

[1] Exit polls appear to show that his messages on climate change broke through with voters. Morning Consult found that 74% of Biden voters described climate change as "very important" to their vote, a sign that lack of action would potentially affect the new president's base. Another exit poll by Fox News and the Associated Press determined that 67% of voters—not just those who cast ballots for Biden—supported "increasing government spending on green and renewable energy.

- Combining new impetus in the US with recent comments from President Xi Jinping on targeting Net Zero 2060 in China, Japan and Korea announcing a 2050 target and continued high ambition in Europe, global policy momentum is gathering pace.

In terms of the Biden climate plan, we believe that the key points outlined below would be addressed fully if a unified democratic government were confirmed and, even without the Senate, many of the initiatives below should get enacted given Executive powers (the EPA being crucial), support from states, and a new stimulus package that reflects a compromise more favorable to the Democrats' agenda:

1. Re-join the Paris Agreement – This can be achieved without Congress (as was initially the case).

2. Seek greater global action through diplomatic, trade and financial channels – Expect global engagement on climate. The executive has wide-reaching diplomatic authority. Relationships with the EU and China will be crucial relationships to leverage on climate.

3. Net zero emissions target by 2050 – This can be announced unilaterally by the administration. However, a credible commitment will require policy pathways including via legislature support, which is dependent on sufficient support in the Senate.

4. Zero carbon electricity system by 2035 – This can be regulated without consent of congress (Mass. vs. EPA) via New Source Performance Standards (NSPS) and other Clean Air Act regulatory authority vested in the Environmental Protection Agency (EPA). The signal of strong intent will itself have some impact on markets, but implementation will take time, and legal challenges can disrupt the process.

5. Clean energy oriented interstate energy transmission regulation, permits and leasing of public lands – Federal permits and land leases for infrastructure, oil & gas development and offshore wind will favor clean energy, hampering Oil & Gas, while unlocking renewable energy, and the Federal Energy Regulatory Commission (FERC) can deploy its wider array of powers to more broadly support state-led action.

6. Tighter fuel economy standards and enabling state action – More ambitious fuel economy standards that incentivize a shift to electric vehicles will replace the Trump administration's rules, and states seeking to set zero emission vehicle rules with mandatory ICE phase out – starting with California – will not face resistance.

7. Major clean energy innovation program – The Department of Energy (DoE) can set efficiency standards that might spur innovation; and some budget funds could be reallocated where not earmarked to support this. New funding will require legislation, but this is an area that has historically garnered broader bipartisan support.

8. Reduce the carbon footprint of the national building stock by 50% by 2035 – Further study is required to determine whether this is achievable without legislation. The DoE has regulatory authority to set some efficiency standards without congressional approval. States are also active here. Contributing to achieving this objective, President-Elect Biden has committed on day one to ensure through Executive action that all U.S. government installations, buildings, and facilities are more efficient and climate-ready.

9. Program of economy-wide decarbonisation policies supported by substantial Federal spending – President-Elect Joe Biden has committed to large fiscal spending to create jobs and support the net zero transition across the infrastructure, automotive, transit, power, buildings and agriculture sectors. While legislation will be required – with difficulties expected in the Congress – Biden could achieve some success in pushing these policies within stimulus packages where policies are popular in red states, and more broadly through public procurement rules.

10. We would add that many economists and business leaders have called for a carbon market potentially with Border Cost Adjustments (BCAs) – The US EPA can regulate GHGs, however, a full package including a tax and BCAs requires full Congressional approval. It is possible that border cost adjustments

could be done through some emergency power granted to the president by congress previously. This would be difficult, but there are some potential pathways.

Other factors that merit further review following the election are:

Financial policy and regulation - The executive branch has wide-reaching authority over financial supervision, policy, and regulation. Signals from the Federal Reserve and U.S. Securities and Exchange Commission show increasing attention to much greater consideration of climate in financial oversight.

- The Federal Reserve has requested to join the NGFS
- Four more years of ongoing investor engagement with companies and capital recycling
- The continued fall in green technology costs

A full review of IPR's policy forecasts is underway by the IPR consortium and will be available in Q1 2021.

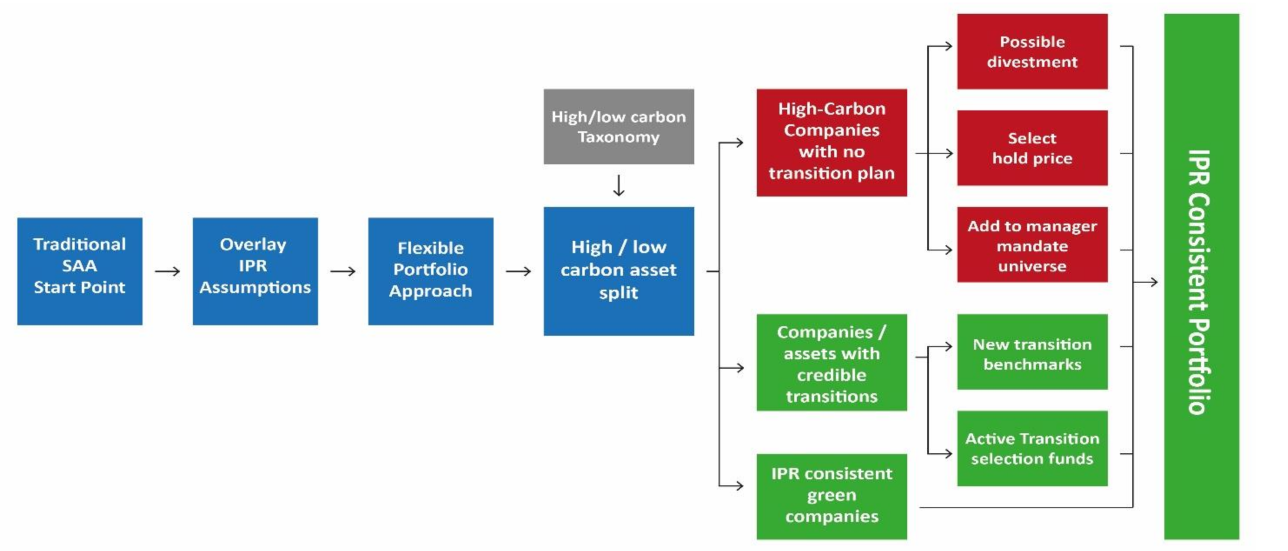
Investors ACT NOW

Covid-19 has already caused a great deal of volatility in financial markets in 2020. The five sectors in public equity markets identified as key in The Inevitable Policy Response Equity Market Results were:

- Oil and Gas
- Utilities
- Transport
- Non-energy materials
- Industrials

With so many variables in play regarding what might be priced into markets in term of climate policy driven value, we think that some stability is first required beyond the current volatility before we can more accurately assess the market pricing issue. Once the current political dynamics and COVID expectation have settled it will be easier for investors to view the climate thematic. However, we believe that the underlying principles of the IPR methodology are still valid in terms of the thematic implications for portfolio construction.

Figure 1 Asset Owner Thematic Strategy



Source: Energy Transition Advisers

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1 The Inevitable Policy Response (IPR) Context

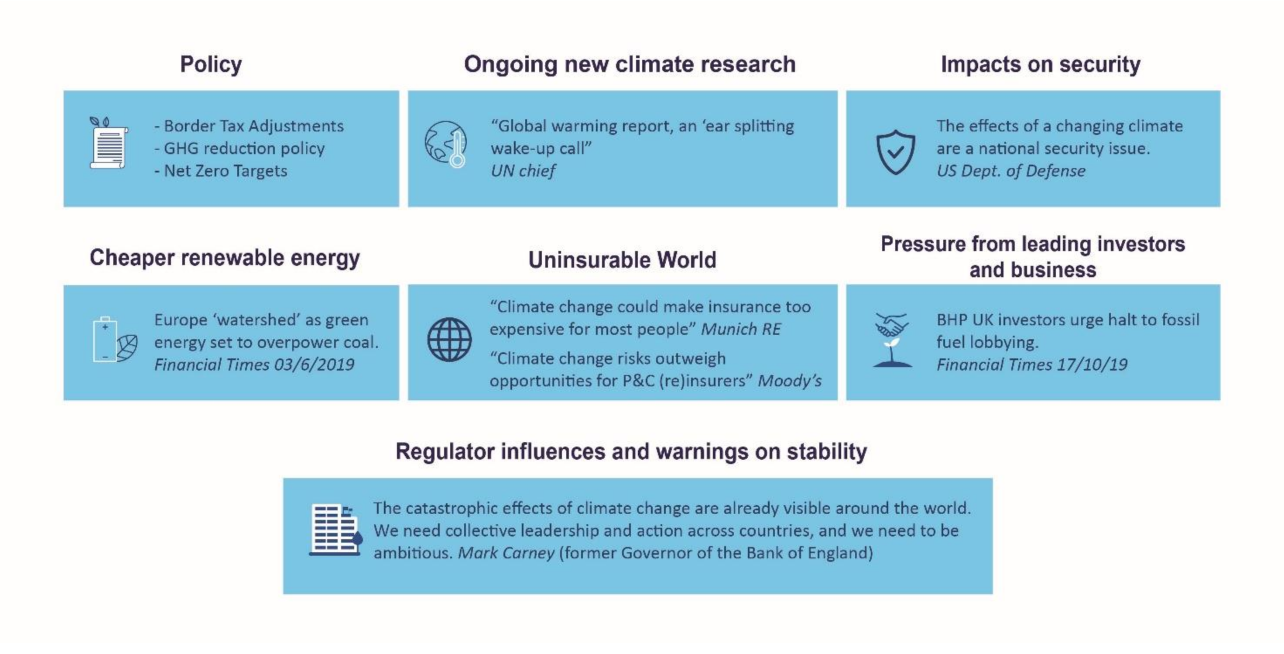
The Inevitable Policy Response (IPR) commissioned by PRI and researched by a consortium led by Energy Transition Advisers and Vivid Economics is predicated on a set of forceful policy responses to climate change across the world and announced by the 2025 Paris Ratchet. The leaders in any attempt to reduce global emissions have to be China, the US and Europe. The US election therefore is an important event as it affects the next four to five years.

Government action to tackle climate change has so far been insufficient to achieve the commitments made under the Paris Agreement. Yet as the realities of climate change become increasingly apparent, it is inevitable that governments will be forced to act more decisively than they have so far.

The question for investors now is not if governments will act, but when they will do so, what policies they will use and where the impact will be felt. The IPR project forecasts policy responses announced by 2025 that will be forceful, abrupt, and disorderly because of the delay we have seen in recent years.

The policy response is driven by the factors laid out in figure 2 and figure 3 below:

Figure 2 Momentum Based Drivers



Source: Energy Transition Advisers

Figure 3 Fundamental, High-impact Triggers

Extreme weather events

Civil society action & young voters

US Leadership
President-Elect Joe Biden

Source: Energy Transition Advisers

PRI, Vivid Economics and Energy Transition Advisers are in the process of updating the detailed policy forecasts as laid out in IPR Policy Forecasts expected to be announced by the 2025 Paris Ratchet and mostly implemented by 2030-35.

The US election plus other recent announcements puts more focus on COP26 in December 2021 to accelerate climate policy and this is a key consideration for a forecast such as IPR.

Figure 4 Forecast Policy Levers

Coal phase-out	ICE sales bans	Carbon pricing	CCS and industry decarbonisation	Enabling a green economy
The UK has committed to phase out unabated coal use by 2025, and support for a just transition is starting to emerge	All new cars to be emissions-free in the Netherlands by 2030, and other countries have announced intentions	57 carbon pricing initiatives around the world cover 20% of global emissions and discussion of BCAs	Only two large scale CCS power projects in operation at the end of 2018, and no proven policies ready for ensuring scale-up	
Zero-carbon power	**Energy efficiency**	**Land use-based greenhouse gas removal**	**Agriculture**	'Just Transition' lens to ensure social and political feasibility
Nuclear, hydro, solar PV, wind and other renewables represented 36% of electricity generation globally in 2018	A coalition of 8 European cities have pledged to completely decarbonise their existing building stocks by 2050	National and bilateral payment systems trialled and planned to support nature-based solutions, including re/afforestation and bioenergy production	Historic rates of agricultural improvement very high, and large investment in agricultural technologies and infrastructure remains a priority	

Source: Vivid Economics

2 Prospects for climate policy and action under a Biden administration

Section two lays out in detail the Biden climate plan, the highlights of which are:

1. Re-join the Paris Agreement
2. Seek greater global action through diplomatic, trade and financial channels
3. Net zero emissions target by 2050
4. Zero carbon electricity system by 2035
5. Clean energy oriented interstate energy transmission regulation, permits and leasing of public lands
6. Tighter fuel economy standards and enabling state action
7. Major clean energy innovation program
8. Reduce the carbon footprint of the national building stock by 50% by 2035.
9. Program of economy-wide decarbonisation policies supported by substantial Federal spending
10. We would add that many economists and business leaders have called for a carbon market with Border Cost Adjustments (BCA)

The ease with which these can be implemented depends on the structure of the whole government and some of the key rules as to how it operates.

2.1 Importance of Congress – legislation is important

For climate policy and action at the Federal level, the composition of the Congress is important. The House remains Democrat, so the big question is whether the Senate swings Democrat as well. This depends on the outcome of the Georgia senate run-offs which take place on January 5th where the consensus seems to be the Republicans are more likely to win at least one of the two seats.

A clean sweep by the Democrats of the White House, House of Representatives and Senate would be a good start to seeing all of the Biden plan listed above being addressed. However, the Senate Filibuster would need to be eliminated for this to be more certain and even then, there would be challenges to elements through the courts.

Indeed, the ambitious plans outlined by Biden, especially for 100% renewable energy by 2035, would be significantly aided by the type of support only Congress can give via tax and spending policies. As remains the key issue for any President, getting both the House and Senate to act in unison is never easy and often ends up in complex negotiations, bargaining or concessions. **The stimulus packages that are expected to be a key feature of 2021 will be a test for this.**

Looking to the future, if a Biden Administration was to consider a carbon price with a Border Carbon Adjustment, broadly supported by US economists (*Border Adjustments*, 2020), having a fully Democratic Congress would be a prerequisite and even then the filibuster remains a potent weapon which would probably need removing.

2.2 Implications of a divided government – executive powers

Alongside Congressional based policy and even alternatively in the face of a hostile Senate, as both Obama and Trump showed, there is a lot of energy and climate policy that can be carried out by an Administration through executive powers.

- Biden can re-join the Paris Accord without Congressional approval.

- Most obviously there is the EPA where for instance Obama implemented his Clean Energy Plan – but only to have it rolled back by Trump.
- Federal Energy Regulatory Commission (FERC) can prove an important aspect of electrical power systems and can be heavily influenced by the Administration.
- Federal Efficiency Standards are important such as vehicle emissions.
- Further discussion on Executive Powers from Carbon Tracker is contained in Appendix 1.

In terms of the Biden plan we would put the most likely outcome under a divided government on:

1. Re-join the Paris Agreement – This can be achieved without Congress (as was initially the case).

2. Seek greater global action through diplomatic, trade and financial channels – Expect global engagement on climate. The executive has wide-reaching diplomatic authority. Relationships with the EU and China will be crucial relationships to leverage on climate.

3. Net zero emissions target by 2050 – This can be announced unilaterally by the administration. However, a credible commitment will require policy pathways including via legislature support, which is unlikely to be completely forthcoming.

4. Zero carbon electricity system by 2035 – This can be regulated without consent of congress (Mass. vs. EPA) via New Source Performance Standards (NSPS) and other Clean Air Act regulatory authority vested in the Environmental Protection Agency (EPA). The signal of strong intent will itself have some impact on markets, but implementation will take time, and legal challenges can derail the process.

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10. We would add that many economists and business leaders have called for a carbon market potentially with Border Cost Adjustments (BCAs) – The US EPA can regulate GHGs, however, a full package including a tax and BCAs requires full Congressional approval. It is possible that border cost adjustments

could be done through some emergency power granted to the president by congress previously. This would be difficult, but there are some potential pathways.

It is important to note state and local government play an important role in the overall climate outcomes in the US (see discussion from Carbon Tracker Appendix 2). As noted in the Biden-Sanders Unity Task Force Recommendations, which starts with Combating the Climate Crisis and Pursuing Environmental Justice, the interplay with Federal policy is expected to be significant.[2]

If the Democrats do not achieve a majority in the Senate, a key issue will be whether there is scope – perhaps in the context of the post Covid stimulus Bill - to achieve bipartisan consensus on policies which will tackle emissions without necessarily having a climate 'label'. Policies for renewable energy, energy efficiency and for enhanced cropland and forest management for example are all policies potentially popular in red states. A green stimulus could look to provide incentives for sectoral action in these and other sectors.

2.3 Prospects for global climate policy and action (Impact on global climate policy and the COP from a Biden win)

Re-joining the Paris Agreement and boosting multi-lateral bodies such as the IPCC are clear winners from a Biden election. This raises the expectation for the November 2021 COP26 in the UK. IPR looked to the 2025 Paris ratchet as being the most likely timing for a whole swath of policies to be announced, while always hoping that earlier action would emerge. COP26 should, with a Biden election, speed up not just the ambition of the US, but others too. Boris Johnson appears to be lobbying his fellow leaders to be ambitious in Glasgow. This will be a major area of discussion in the February Forecast Policy update.

The EU and UK are already raising ambitions and are natural partners in a renewed US push. The key question is China, which is tied to a complex and multi-level power struggle with the Democracies. The recent announcement by President Xi Jinping that China will look to Net Zero by 2060 (and phase out non hybrid ICE by 2035) has increased expectations that China will specify further climate policy changes in the near term. While exact details are unclear and the Five-Year Plan to be announced before mid 2021 is an important indicator for IPR timing; it seems China has taken the initiative to perhaps get ahead of a new Biden Administration or simply contrast themselves in a positive way with the Trump Administration. Importantly it seems they see the threat to the Communist Party in the long run.

As a well-known commentator has stated [emphasis added]:

"Popular opinion concerns Wang Yong, who directs the Centre for American Studies at Peking University, one of China's most prestigious institutions. A frequent guest on state media, he made a series of short election-eve videos about America for Jinri Toutiao, an online platform, racking up over 10m visits. As he describes it, America's China policies are guided by competing interest groups, with President-Elect Joe Biden heeding the Wall Street financiers and Silicon Valley bosses who seek 'more rational' ties with China, while hawks and 'deep-state forces' push for a new cold war. ***China and America can work together on such shared interests as climate change,*** *public health and enabling global prosperity, he insists. Yet people should be realistic, says the professor over jasmine tea near his university. America "has been accustomed to the top position in world affairs and will use all means to defend its status"*(*No American Election Will Change China's Mind*, 2020).

Indeed the EU might be able to play a crucial role in sparking a 'race to the top'. Both China and the US seek EU support in trade struggles. They could leverage this to push climate policy and the President of the EU cited climate in her congratulatory message to the President-Elect.

Japan and Korea also announced a Net Zero 2050 target. We can expect to see significant pressure being put on close US allies like Japan, Canada, Australia and others to raise their 2030 ambition. Furthermore, it looks

[2] https://joebiden.com/wp-content/uploads/2020/08/UNITY-TASK-FORCE-RECOMMENDATIONS.pdf

likely that the US Administration will look to work closely with India at the highest levels, leveraging the relationship with the Vice President-Elect.

We can also expect to see the US Administration working closely with the EU, UK and others in the G7 and G20 (with respectively UK and Italian chairs next year), and in other multilateral fora to push climate in a range of key climate related issues from debt, to green recovery, to reform of the international financial institutions.

Conclusion: Under a Biden Administration climate policy has greater emphasis and we are considering the potential for some IPR Policy Forecasts to accelerate globally pre 2025. The Glasgow COP26 in December 2021 is now looking more likely to see increasing effort for the delayed 2020 ratchet being applied more robustly.

2.4 Economics, investors and the business lobby also have a role to play

One of the key drivers of IPR is falling technology costs of low carbon options. These are expected to remain of central importance.

Investors continue to push for action by companies in support of Policy and Net Zero Targets. Investors are increasing their efforts to understand the risks and opportunities presented by the transition to a zero carbon economy and to explore ways to align their portfolios with the goals of the Paris Agreement - a leading example is the UN-Convened Net-Zero Asset Owner Alliance (AOA). The role of private capital is critical and PRI is working to encourage and support responsible investors to take action using each of the key levers at their disposal: capital allocation, stewardship, and policy engagement activities. Using IPR analysis PRI is working in five major markets, including the US, to publish climate policy roadmaps identifying policy priorities in key sectors that are vital for emissions reductions and symbolically important to the market, and to focus policy engagement on those priorities.

IPR postulates further evidence supporting climate disruption year by year. Businesses as well as investors are concerned about climate change. The pressure to take action will mount on governments. The trends here are set out in Business and Investor Public Support for Climate Transition Policy.

3 US President Elect climate policy review

This section describes and assesses the positions on US climate action of President-Elect Joe Biden and the Democratic Party

Key findings are:

President-Elect Joe Biden's pledges on US climate action together with supporting statements by the Democratic Party suggest that a Biden Administration would substantially accelerate US and global climate action. President-Elect Joe Biden's pledges, aligned to broader Democratic Party policy, include specific targets for GHG reduction and energy system transformation, a major clean energy innovation program, a program of economy-wide decarbonization policies supported by substantial Federal spending and re-establishing the United States' international leadership on climate action.

The IPR Forecast review in February 2021 will feed these into our assessment of what we believe will be the most likely outcome.

President-Elect Joe Biden's pledges on US climate action are set out in two detailed plans within his broader Vision for America proposals: *Biden plan for a clean energy revolution and environmental justice and Biden plan to build a modern, sustainable infrastructure and an equitable clean energy future*.

Taken together, President-Elect Joe Biden' pledges comprise four broad commitments:

- **Specific targets for GHG reduction and energy system transformation.** President-Elect Joe Biden pledges to set a target to achieve net zero emissions by 2050 and implement an enforcement mechanism to achieve this target; to achieve a zero carbon electricity system by 2035 through a Clean Electricity Standard; and to set a target to reduce the carbon footprint of the national building stock by 50% by 2035.

- **A major clean energy innovation program.** President-Elect Joe Biden pledges to invest $400 billion in research and innovation, and to establish a climate-focused research agency ARPA-C to develop affordable, game-changing technologies to help achieve the 100% clean energy target.

- **A program of economy-wide decarbonization policies, supported by substantial Federal spending.** President-Elect Joe Biden also makes a series of sector specific pledges, committing to measures to support clean technologies and reduce GHG emissions across the economy. Pledges include enhanced support for low-carbon electricity generation; tighter fuel economy standards and incentives to deploy zero emissions vehicles; a net zero emissions target for new commercial buildings and a national program to retrofit 6 million buildings; Federal support for carbon capture and storage to support industry decarbonization; and further measures to deliver greenhouse gas emissions reductions in the agriculture, land use and oil and gas sectors. Overall, in his first term, President-Elect Joe Biden commits to making a $2 trillion investment in job creation across the economy, though the amount to be directed specifically towards climate change mitigation is not specified.

- **Re-establishing the United States' international leadership on climate action.** President-Elect Joe Biden pledges to re-join the Paris agreement as well as to seek greater global action through diplomatic, trade and financial channels, and to expand global cooperation on clean technology innovation. A notable trade measure to which President-Elect Joe Biden commits is to impose border carbon adjustments on countries that fail to meet climate obligations.

Two formal statements of position from the Democratic Party complement President-Elect Joe Biden's pledges:

- The Democratic Party statement on *Combating the climate crisis and pursuing environmental justice* set out in the 2020 Democratic Party Platform, recommended for approval by the 2020 Platform Committee in July 2020; and
- The recommendations to Congress set out *Solving the Climate Crisis*, the report prepared by the Democratic Party majority members of the bipartisan Select Committee on the Climate Crisis in June 2020.

President-Elect Joe Biden's pledges and the Democratic Party's formal statements of position show a high degree of alignment. However, President-Elect Joe Biden does not take forward two notable policies advanced by the Climate Crisis Select Committee Democrats: he does not pledge to implement a **national carbon pricing regime**, or to set a target date for an **end to the sale of petrol and diesel cars and vans**.

Nevertheless, taken together, these three statements signal a far stronger commitment to climate action and international climate leadership than the position on US climate action of the current President and Republican presidential nominee, Donald Trump. These pledges are set out in more detail below.

3.1 Specific targets for GHG reduction and energy system transformation

Net zero emissions target. President-Elect Joe Biden pledges to set an objective for the U.S. to achieve a 100% clean energy economy and achieve net-zero emissions no later than 2050, with an enforcement mechanism to achieve this objective.

- This target is in line with the Democratic Party platform and the Climate Crisis Select Committee Democrats' recommendations to Congress. The Democratic Party platform indicates support for the US to achieve net zero GHG emissions by 2050, though stops short of including it as a campaign commitment; while the Democrat House Plan recommendations are in line with President-Elect Joe Biden's proposal, recommending establishment of a national goal to achieve net-zero greenhouse gas emissions by no later than 2050, with ambitious, front-loaded interim targets for 2030 and 2040; and a strategy for net-negative greenhouse gas emissions for the second half of the century.

Zero carbon electricity system by 2035 through a Clean Electricity Standard. President-Elect Joe Biden pledges to implement a technology-neutral Energy Efficiency and Clean Electricity Standard (EECES) for utilities and grid operators to achieve carbon-pollution free energy in electricity generation by 2035.

- This target is in line with the Democratic Party platform, which commits to eliminating carbon pollution from power plants by 2035 through technology-neutral standards for clean energy and energy efficiency. It is more ambitious than the Climate Crisis Select Committee Democrats' recommendations to Congress, which call for a Clean Energy Standard to achieve net-zero emissions in the electricity sector by 2040, five years later than the Biden plan.

Halve CO_2 emissions from buildings by 2035. President-Elect Joe Biden pledges to set a target of cutting the carbon footprint of the national building stock in half by 2035. This target goes beyond both the Democratic Party platform and the Climate Crisis Select Committee Democrats' recommendations to Congress, neither of which propose a quantitative target to reduce CO_2 emissions from buildings.

3.2 Clean energy innovation program

$400 billion research and innovation spending, and establishment of climate-focused research agency ARPA-C. President-Elect Joe Biden pledges to spend $400 billion on research and innovation over ten years, and to establish ARPA-C (Advanced Research Projects Agency for Carbon), an agency tasked with developing affordable, game-changing technologies to help achieve the 100% clean energy target.

President-Elect Joe Biden's specific technology objectives include:

- ◊ grid-scale storage at one-tenth the cost of lithium-ion batteries;
- ◊ advanced nuclear reactors, that are smaller, safer, and more efficient at half the construction cost of today's reactors;
- ◊ refrigeration and air conditioning using refrigerants with no global warming potential;
- ◊ zero net energy buildings at zero net cost, including through breakthroughs in smart materials, appliances, and systems management;
- ◊ using renewables to produce carbon-free hydrogen at a lower cost than hydrogen from shale gas through innovation in technologies like next generation electrolyzers (Biden's ambition is for this objective to be realized 'within a decade');
- ◊ decarbonizing industrial heat needed to make steel, concrete, and chemicals and reimagining carbon-neutral construction materials;
- ◊ decarbonizing the food and agriculture sector, and leveraging research in soil management, plant biology, and agricultural techniques to remove carbon dioxide from the air and store it in the ground; and
- ◊ capturing carbon dioxide through direct air capture systems and retrofits to existing industrial and power plant exhausts, followed by permanently sequestering it deep underground or using it to make alternative products like cement.

Both the Democratic Party platform and the Climate Crisis Select Committee Democrats' recommendations to Congress include similar commitments to supporting these technologies, though do not commit to or propose a specific level of funding, or set targets for development of new technologies. The Democratic Party platform commits to supporting development of similar technologies, including opportunities in energy storage, heavy-duty trucking and freight solutions, sustainable aviation fuels, direct air capture and net-negative emissions technologies, carbon capture and sequestration and advanced nuclear (avoiding waste associated with conventional nuclear technology). The Democrat House Plan recommends that Congress should increase RDD&D funding for priority areas across power, transportation, industry, buildings, agriculture, natural climate solutions and carbon removal.

3.3 Economy-wide decarbonization policies supported by federal spending

3.3.1 Power

In addition to implementation of the Clean Electricity Standard, President-Elect Joe Biden commits to a range of reforms and actions to enable electricity system decarbonization.

- These commitments include reforming and streamlining permitting of electric grid transmission and distribution; reforming and extending tax incentives for low-carbon generation capacity; developing innovative financing mechanisms to secure private sector investment in clean power; delivering 'substantial' investment in new solar and onshore and offshore wind capacity within President-Elect Joe Biden's first term; continuing to deploy nuclear and hydropower; increasing tax incentives for carbon capture, use and storage; historic procurement and investments in energy storage; and establishing targeted programs to develop renewables on federal lands and waters with the goal of doubling offshore wind by 2030.
- The Democratic Party platform and the Climate Crisis Select Committee Democrats' recommendations to Congress include similar commitments, though provide less detail. The Democratic Party platform pledges to invest in interstate transmission projects, 'dramatically' expand solar and wind energy deployment, and provide broad support for hydroelectric power, geothermal,

existing and advanced nuclear, and carbon capture and storage. The Select Committee Democrats recommend developing a long-range transmission infrastructure strategy to site more interstate transmission lines in high-priority corridors and extend and expand clean energy tax incentives and grant programs to maximize near-term deployment of energy efficiency, renewable energy, and zero-carbon electricity sources.

3.3.2 Transport

Though he does set clear targets for decarbonization of transport, or uptake of zero emission vehicles, President-Elect Joe Biden commits to a range of actions to support these outcomes. These include:

- **Supporting zero emission vehicles**. President-Elect Joe Biden commits to restoring the full electric vehicle tax credit to incentivize the purchase of these vehicles; using the Federal government procurement system to support deployment of zero-emissions vehicles; providing consumers rebates to swap old, less-efficient vehicles for new US-made 'Clean Cars'; supporting the deployment of more than 500,000 new public charging outlets by the end of 2030; and setting a goal that all new American-built buses be zero-emissions by 2030, while requiring all 500,000 school buses to be converted to zero emissions.
    - ◊ President-Elect Joe Biden also commits to position America to be the global leader in the manufacture of electric vehicles and their input materials. Pledges to achieve this objective include providing manufacturer incentives to build or retool factories to assemble zero-emission vehicles, parts, and associated infrastructure, and supporting the development of domestic battery production capabilities.
    - ◊ President-Elect Joe Biden's pledges are in line with wider Democratic Party policy: the Democratic Party platform pledges to accelerate the adoption of zero-emission vehicles in the United States, support the installation of at least 500,000 public charging stations, transition the three million government fleet vehicles to zero-emission vehicles, and to transition the fleet of 500,000 school buses to zero-emission vehicles within five years. The Select Committee Democrats also recommend providing incentives to build out zero emission fueling infrastructure.
- **Fuel economy standards.** President-Elect Joe Biden commits to developing rigorous new fuel economy standards for light, medium and heavy-duty vehicles. For light- and medium-duty vehicles, Biden indicates these will be aimed at ensuring 100% of new sales will be electrified vehicles, though does not set a target for this outcome.
    - ◊ The Democratic Party platform and Select Committee Democrats also call for strong greenhouse gas emissions standards for cars and trucks.
- **Supporting alternative fuels.** President-Elect Joe Biden pledges to support advanced biofuels, though does not provide targets or detailed policy commitments.
    - ◊ The Democratic Party platform is slightly clearer, with a pledge to establishing a Low Carbon Fuel Standard to reduce emissions from aviation, long-haul trucking, and shipping, for which electrification may not be an option in the short to medium term.
- **Alternatives to road transport.** President-Elect Joe Biden's commitments include: providing every American city with 100,000 or more residents with high-quality, zero-emissions public transportation options; extensive investment in new rail infrastructure and further electrifying the rail system, committing to 'make sure that America has the cleanest, safest, and fastest rail system in the world'; and mitigating the climate impact of urban sprawl by reforming local regulations.

- ◊ President-Elect Joe Biden's commitments are in line with wider Democratic Party policy: the Democratic Party platform pledges to double federal spending on public transit and other zero-carbon modes, and the Select Committee Democrats' recommendation to provide all Americans in municipalities with 100,000 or more residents with quality public transportation options is aligned to Biden's commitment.

- **Reducing emissions from aviation.** President-Elect Joe Biden commits to support development of new, sustainable fuels for aircraft, as well as other changes to aircraft technology and standards, and air traffic management.
  - ◊ In line with President-Elect Joe Biden's commitment, the Climate Crisis Select Committee Democrats' recommendations include setting strong greenhouse gas emissions standards for aviation.

3.3.3 Buildings

In addition to setting a target of cutting the carbon footprint of the national building stock in half by 2035, President-Elect Joe Biden commits to a range of reforms and actions to reduce CO_2 emissions from buildings. These include:

- **New commercial buildings to achieve net zero emissions by 2030.** President-Elect Joe Biden commits to setting a net-zero emissions standard for all new commercial buildings by 2030, and funding states, cities, and tribes to adopt strict building codes more widely.
  - ◊ Wider Democratic Party policy involves stronger ambition: both the Democratic Party platform and the Select Committee Democrats set a target to achieve net-zero greenhouse gas emissions for all new buildings (i.e. including residential and public buildings) by 2030.
- **National retrofit program and target to retrofit of 6 million buildings.** President-Elect Joe Biden commits to establishing a national program to target a package of affordable energy efficiency retrofits in homes, with incentives for appliance electrification, efficiency, and on-site clean power generation. President-Elect Joe Biden also commits to upgrading 4 million commercial buildings (through installation of high-efficiency LED lighting, electric appliances, and 'advanced' heating and cooling systems) and 2 million homes (through direct cash rebates and low-cost financing to upgrade and electrify home appliances and install more efficient windows) over a 4 year period.
  - ◊ President-Elect Joe Biden's commitment is in line with wider Democratic Party policy. The Democratic Party platform pledges to increase funding to support energy efficiency improvements for low-income families and incentivize the adoption of efficient electric and geothermal pump home heating solutions, and to retrofit up to two million low-income households and four million buildings within five years, slightly later than President-Elect Joe Biden's pledge. The Select Committee Democrats recommend providing incentives for energy efficiency improvements, onsite renewable energy generation, and electrification of end uses in buildings, such as space and water heating; as well as investing in large-scale retrofit in low-income communities and requiring federal buildings to undergo deep energy retrofits.
- **New appliance efficiency standards.** President-Elect Joe Biden commits to directing the U.S. Department of Energy to accelerate new efficiency standards for household appliances and equipment.

3.3.4 Industry

President-Elect Joe Biden does not make specific pledges to decarbonize industry, beyond increasing federal investments and tax incentives for CCUS.

- In contrast, wider Democratic Party policy includes greater detail on industry decarbonization. Both Democratic Party platform pledges and Select Committee Democrats recommendations include establishment of a federal 'Buy Clean' program to incentivize production of low-carbon building materials like steel and cement.
    - ◊ Further, the Select Committee Democrats recommend a range of actions, including establishing performance standards to guarantee emissions reductions from industrial facilities; provision of loans, grants, and tax incentives for efficiency upgrades, process changes, and retooling; development of infrastructure for decarbonization technologies including low- and zero-carbon hydrogen; and supporting research and development, infrastructure, and standards for materials efficiency.

3.3.5 Agriculture

President-Elect Joe Biden commits to a number of reforms and actions to reduce greenhouse gas emissions from agriculture.

- **Net zero agriculture emissions.** President-Elect Joe Biden commits to set an ambition to make American agriculture the 'first in the world to achieve net-zero emissions', though does not indicate by which date the US should achieve this objective. President-Elect Joe Biden does not provide further clarification as to how this might be achieved, or the extent to which agricultural emissions will be offset through greenhouse gas removals in the land and other sectors rather than abated directly.
- **A voluntary carbon farming market.** President-Elect Joe Biden commits to establishing a new voluntary carbon farming market to reward farmers for carbon sequestration and greenhouse gas emissions reductions.
- **Additional support for soil carbon sequestration and methane digestion.** President-Elect Joe Biden commits to supporting practices aimed at building soil carbon and deployment of methane digesters to generate electricity, though does not provide specific details of the nature and scale of public support.

3.3.6 Land use

President-Elect Joe Biden commits to supporting natural climate solutions through a new conservation initiative for public lands. President-Elect Joe Biden commits to conserving 30% of America's lands and waters by 2030, with the initiative to cover reforestation, sustainable forest management and tree planting in urban neighbourhoods; and wetland restoration.

3.3.7 Oil and gas

President-Elect Joe Biden commits to a number of reforms and actions to reduce greenhouse gas emissions from oil and gas sector.

- **Strong regulation of methane emissions.** President-Elect Joe Biden commits to requiring aggressive methane pollution limits for new and existing oil and gas operations.
- **Ending permitting of new oil and gas on public lands and waters.** President-Elect Joe Biden pledges to ban new oil and gas permitting on public lands and waters.
    - ◊ Both the Democratic Party platform and the Climate Crisis Select Committee Democrats' recommendations are in line with this pledge, while the Select Committee Democrats also recommend prohibiting new offshore oil and gas leasing in all areas of the Outer Continental Shelf.

- **Reforming incentives for oil and gas extraction.** President-Elect Joe Biden commits to ending fossil fuel subsidies, and to modifying oil and gas sector royalties to account for climate costs.

3.3.8 Spending

Overall, President-Elect Joe Biden commits to making a $2 trillion investment in job creation over his first term across a number of sectors: infrastructure, the auto industry, transit, the power sector, buildings, housing, innovation, agriculture and conservation, and environmental justice. A share of these investments will be directed at climate change mitigation, although Vision for America does not provide a breakdown of the investment or specify the extent to which it will be directed at climate change mitigation, rather than wider economic development.

3.4 International climate leadership

3.4.1 Diplomatic actions to accelerate global climate action

President-Elect Joe Biden commits to re-enter the Paris Agreement on day one of his new administration, and to lead a major diplomatic push to raise the ambitions of countries' climate targets, including by convening a climate world summit to directly persuade leaders of the major carbon-emitting nations to join the United States in raising ambition of national pledges. Further, President-Elect Joe Biden's pledges include:

- Leading the world to lock in enforceable international agreements to reduce emissions in global shipping and aviation.
- Working to curb hydrofluorocarbons.
- Securing a global commitment to eliminate fossil fuel subsidies by the end of his first term.
- Publishing a new Global Climate Change Report with rankings of country's records in climate action to 'name and shame global climate outlaws'. The Global Climate Change Report would highlight countries' progress or failures in meeting Paris commitments and actions to promote or undermine global climate solutions.
- Working with the Arctic Council to end oil and gas leasing in Arctic waters.

3.4.2 Trade actions to accelerate global climate action

President-Elect Joe Biden commits to pursuing strong new measures to 'stop other countries from cheating on their climate commitments', and becoming 'destination economies for polluters'. Specific pledges include:

- Imposing carbon adjustment fees or quotas on carbon-intensive goods from countries that are failing to meet their climate and environmental obligations.
- Conditioning future trade agreements on partners' commitments to meet their enhanced Paris climate targets.

3.4.3 Financing actions to accelerate global climate action

President-Elect Joe Biden commits to a range of measures to reduce financing of 'dirty energy'. Specific pledges include:

- Setting rules to ensure US development and export finance institutions significantly reduce the carbon footprints of their portfolios.

- Working to secure a G20 commitment to end all export finance subsidies of high-carbon projects overseas.
- Working with other countries to offer Belt and Road Initiative countries alternative sources of development financing for lower-carbon energy investments.
- Recommitting the United States to the Green Climate Fund.
- Providing low-cost financing for American clean energy exports to countries that make high climate ambition commitments under Paris, with an initial focus on small island states in the Pacific and Caribbean that are demonstrating climate leadership.
- Providing debt relief for developing countries that make climate commitments, unilaterally and in partnership with international financial institutions.
- Working to reform IMF and multilateral development finance institution standards on debt forbearance, deprioritising debt repayment for projects with high carbon impact and high debt costs.

3.4.4 Expand global cooperation on clean technology innovation

President-Elect Joe Biden pledges to work to increase the ambition and effectiveness of Mission Innovation and improve its effectiveness, including investing four times the US' originally-committed financial resources to support research and development globally.

3.5 Notable omissions from President-Elect Joe Biden's pledges

While President-Elect Joe Biden's pledges are wide-ranging, and in some cases more ambitious than wider Democratic Party policy, he does not make two key commitments advanced elsewhere by the Democratic Party.

- **National carbon pricing regime.** The Climate Crisis Select Committee Democrats make a recommendation to Congress to 'put a price on carbon to correct the failure of the market to account for the costs of unmitigated pollution'. However, while President-Elect Joe Biden's *Vision for America* and the Democratic Party platform both commit to imposing border carbon adjustments, neither commits to a national carbon pricing regime.
- **End to the sale of petrol and diesel cars and vans.** The Climate Crisis Select Committee Democrats recommend Congress enact a national sales standard to achieve 100% sales of zero-emission vehicles by 2035 for cars and by 2040 for heavy-duty trucks. However, while President-Elect Joe Biden's Vision for America indicates an ambition to 'drive towards 100% clean energy and zero-emissions vehicles', it does not commit to setting a target date to achieve this outcome. The Democratic Party platform also does not commit to achieving 100% sales of zero-emission vehicles.

Appendix 1: Carbon Tracker - Climate's Most Powerful Person In The World?

During her presidential campaign announcement, Senator Amy Klobuchar declared that on her first day in office she would take the U.S. back into the Paris Climate Agreement. Over the course of the primary other Democratic candidates echoed this sentiment. One of the reasons they did this, besides that it is popular with Democratic primary voters, is that it is something a president can do without needing Congressional approval.

They can also perform what are known as executive orders.

With the Stroke of a Pen

In 2013, President Barack Obama signed the Climate Action Plan, which focused on initiatives to increase natural disaster preparedness, create and improve existing hospitals, and encourage other nations to reduce deforestation and decrease fossil fuel subsidies. This is an example of a president acting through an executive order.

Executive Orders are produced by the president, as the head of the Executive Branch, and are directed to, and govern actions by, government officials and agencies. They have the force of law, even though they are not passed by Congress. Since 1980, there have been over 1500 Executive Orders signed by Presidents on a variety of issues and policy areas.

Over the next four years, this could be a tool that the president uses to take actions on climate policy. The one caveat is that their successor can always reverse the orders as President Donald Trump did with the Obama Administration's climate policy related order.

The golden rules and regulations

As head of the Executive Branch the president is responsible for the execution and enforcement of the laws created by Congress. To implement the law, on a given matter, regulations are issued by the various departments and agencies in the government. The Clean Power Plan ('CPP') gives us an example of some of the ways the White House can impact the creation of regulations.

In 2009, after Supreme Court rulings granted the EPA authority to regulate greenhouse gas emissions under the Clean Air Act, the agency was tasked with coming up with and implementing regulations to achieve these goals, resulting in the CPP.

The CPP's goal was to cut emissions from power plants by 32 percent below 2005 levels. The regulations required power plants in some cases to undertake expensive upgrades or shut down.

The CPP was based upon authority granted to EPA under the Clean Air Act to regulate the power sector. But there are other provisions of the Clean Air Act that could be invoked to provide economy-wide regulation of GHGs, including the National Ambient Air Quality Standards (NAAQS) program. Many commentators have noted that this could be used to regulate emissions nationwide, and some groups have gone so far as to petition the EPA to use its authority to implement a 'GHG NAAQS'.

Friends in high places

As we saw with Clean Power Plan, the power to appoint people can shape how the government acts. This power is further highlighted by the fact that as the head of the Executive Branch, the president makes over 4,000 appointments to positions in the federal government. This includes the heads of agencies, departments, and commissions that have a clear role in setting policy, writing and issuing regulations, and enforcing statutes. In terms of climate policy some of the key appointees will be in the EPA, Department of Energy (DOE), the Department of the Interior (DOI), the Securities Exchange Commission (SEC), and Federal Energy Regulatory Commission (FERC).

Here are just a few examples of how appointees can and have impacted climate policy:

- They can direct where their agency chooses to focus its resources and set its priorities for the coming years. For example, current EPA Administrator Andrew Wheeler has said that the agency will shift its focus away from climate change and toward issues like cleaning up Superfund sites.
- How funding is directed within an agency can be impacted by the appointees. For fiscal year 2019, even as coal plants around the nation closed because they were uncompetitive, the DOE put funds towards research and development of new coal facilities.
- Actions that take place on federal lands, like mining and drilling, must follow the regulations set out by the U.S. Bureau of Land Management (BLM). In 2017, the BLM ended the ban on new coal leasing on federal land that had been in place.
- Those chosen to sit on regulatory boards or commissions can exercise great authority. Over the past few years FERC Commissioners have issued regulations that critics charge favor the coal power plants and punish the renewable energy sector. In addition, the commission has approved new natural gas pipelines.

In recent years new SEC appointees have been more likely to rule in favor of energy companies who argue shareholder resolutions and proposals on issues like climate change are micromanaging. It is likely that a different set of appointees might have taken a different set of actions regarding these regulatory and funding issues.

One important difference between those appointed to commissions and those who are appointed to departments is their tenure. Department heads and other appointees can be removed by the president and usually leave when a new administration takes over. In contrast, commission members serve fixed terms and, in except in a few bodies, cannot be removed by the president. This gives commission members the power to impact policy even after an administration is out of office. For certain commissions, including FERC and the SEC, the President's party can appoint up to three of the five members of the commission, and the President designates the commission's chair.

Outside of agency and commission appointees the president also chooses the delegations that go to international conferences like COP. Their presence and activities send a strong signal about America's willingness to address the issue going forward and how we hope to shape what comes out of the event. For example, during his tenure President Trump has used this opportunity to send a delegation that advocates for the use of coal and natural gas.

Here Comes the Judge

In recent years there has been an increase in climate policy related cases. We have seen states and localities suing companies for responsibility on climate change, people suing the U.S. government for not taking enough action to deal with climate change and states challenging actions by the federal government. Some of the main issues in these cases include who, if anyone, can be held responsible for carbon emissions, who should pay for problems caused by climate change, and what constitutes legal standing in climate related cases.

Although the Judiciary is an independent branch of the U.S. government it is an area that the President can shape through appointments. Since 1980, U.S. Presidents have, on average, appointed 182 federal judges out of 809 positions. During this same period, they have been able to nominate two judges on average for the Supreme Court. Given the courts' current split, and the recent abolition of the filibuster for appointing judges the next four years could greatly reshape U.S. legal precedent for regulating and addressing climate change.

While it is impossible to predict exactly who a president will appoint, and how they will rule once they are on the bench, it seems that one might infer that an administration in favor of climate action will more likely nominate people who share their view on the role and scope of the law when it comes to addressing this issue. Conversely an administration hostile to climate action will likely look for appointees who take a view of the law that steers the court toward a narrow reading and application of the law on issues like climate policy.

Acting Independently

Given its powers and authority, if America is to implement economy-wide limits on carbon emissions or other broad measures to deal with climate change the U.S. Congress will have to pass legislation. Over the years Congress has proved to be a place where climate change legislation, despite bipartisan backing and public support, has failed. Efforts in 2008 and 2010 to pass cap and trade legislation made it through the U.S. House of Representatives only to fail in the Senate because of barriers like the filibuster.

Whether the next Congress will take up climate change in 2021, and in what way, will not be settled until after this year's election. In the meantime, we do know that if the president is serious about this issue there are things that they can do that will have an impact on policy for years to come. The question is, will the president be willing to do them?

Appendix 2: Carbon Tracker - 50 States of Play

Given the 24 hour news cycle around the US Congressional and Presidential Election, it would be easy to focus only on what happens in Congress or who is the president when it comes to looking at how the U.S. government responds to a problem like climate change. This would ignore a significant amount of policy and activity in America.

Often it is government at the state and local level that acts first and drives national policy. This has been the case on issues like the push for tax cuts in the 1970s and the fight over gay marriage in the last decade.

Recently, state actors have set the agenda when dealing with the issue of climate change. Under the leadership of governors and legislatures, states have taken the initiative on a host of climate-related issues. Importantly, these changes will continue regardless of who wins controls of the White House and Congress after the November election.

Power Up

In the U.S., electric power distribution is regulated by both the federal and state governments. Through the Federal Energy Regulatory Commission, whose members are appointed by the President, the federal government sets the rules for the wholesale sales and transmission of electricity in interstate commerce. Across the country, state public utilities commissions have the ability to regulate the local power distribution and sale of electricity within a state from an entity to a user, and the building of facilities involved in power transmission, generation, and distribution of electricity. Typically, these commissions are appointed by state governors. With this authority, state governors and legislatures have been able to push for reductions in greenhouse gas emissions from the power sector.

To achieve these emission reductions, states have set targets of either 100 percent renewable energy or 100 percent clean energy by 2050 or sooner. These approaches differ in that renewable targets mean the state's electricity comes only from sources like solar, wind, and hydropower. This approach has been implemented in Hawaii, Maine, Minnesota, and Rhode Island, as well as Puerto Rico and Washington DC.

In contrast, states that set clean energy targets allow for power to be generated from any non-carbon-emitting resources, such as nuclear generators. Among the states that use this approach include Arizona, Wisconsin, Connecticut, Virginia, California, Nevada, New Jersey, New Mexico, New York, and Washington.

By implementing these policies, states are helping to cut America's overall carbon emission levels. To understand the scope of their impact, consider that the U.S. Energy Information Administration finds the power sector in the 14 states plus D.C. and Puerto Rico generated over 273 million metric tons of in 2017, which is just over five-percent of the total emissions in the U.S.

Cap it Off

While multiple attempts to pass emissions trading legislation failed in Congress a decade ago, this has not been the case in the states. Over the past fifteen years states have been able to create their own carbon emissions trading systems.

Currently, ten states in the Northeast and Mid-Atlantic U.S. are part of the Regional Greenhouse Gas Initiative (RGGI). The initiative was launched in 2009 and is the first U.S. cap-and-trade program to reduce carbon dioxide (CO_2) emissions from the power sector.

As a sign of the program's success, over the past decade emissions regulated by the program have been cut in half from their 2005 high, and investments from allowance auctions have created close to $3 billion in economic value. In 2017, RGGI members declared they would decrease emissions another 30 percent by 2030.

Outside of the RGGI states, California has implemented an emissions trading system. The program is a key component of the state's plan to cut greenhouse gas emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. Unlike the RGGI states, California's program applies to multiple sectors of the state's economy and is linked with the cap-and-trade system in the province of Quebec.

In addition to its cap and trade program, recently, California has also announced it will push for further emissions cuts in the transportation sector. Under an executive order signed by Governor Newsom, and opposed by the Trump Administration, by 2035 all new passenger vehicles sold in the state must be zero-emission. This move echoes past efforts by California to lead in efforts to curb vehicle emissions and according to reports it is expected to lead to a 35% decline in greenhouse gas emissions.

I'll see you in court

States not only have the power to implement new programs, they also can use the courts. State attorneys general can sue the federal government to block laws or regulations from being implemented. For example, last year 21 states sued the current administration over its decision to eliminate the Obama Administration's Clean Power Plan and replace it with a new rule.

States also can take legal action to force the federal government to address a problem. In the early 2000's a coalition of states, local governments, and non-profit organizations sued the EPA to make the agency agree to regulate greenhouse gas emissions. The Supreme Court ruled 5-4 in the case of *Massachusetts v. EPA* that the Clean Air Act gives the EPA the authority to regulate tailpipe emissions of greenhouse gases and remanded the case to the EPA. This ruling forced the agency to review its contention that it has discretion in regulating greenhouse gas emissions. Ultimately, the EPA found that greenhouse gases 'in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare.'

In addition to taking actions against the federal government, states and localities can use their legal power to sue companies. Similar to what we saw the states suing tobacco companies in the 1990's states like New York have begun to file suits against oil and gas companies.

This new front in the fight over climate change hinges on the argument that companies knew their products caused problems such as sea level rise and willfully misled the public about those and other dangers related to global warming, and now should pay for the damage they caused.

In the coming years, state driven cases will be impacted by the Supreme Court moving in a more conservative direction. This change is highlighted by Circuit Court Judge Amy Comey Barret replacing Justice Bader Ginsburg on the Supreme Court. The Supreme Court's decisions are binding and have far reaching consequences, but it cannot decide all matters. The Supreme Court picks which cases it hears - around 80 cases a year. In contrast, the Federal appellate courts hear around 50,000 cases a year; where the Supreme Court does not agree to take the appeal, those decisions are final.

Lab work

During the 1930's Supreme Court Justice Louis Brandeis wrote that states are the laboratories of democracy. In his view, 'a state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.'

As we have seen, on the issue of climate change many states have taken up that mantle, regardless of who is in power in Washington, DC after the November election. A 2019 report from America's Pledge found that if state and local governments fully implement the policies already in place, along with changing conditions in the power sector—U.S. emissions would fall 19 percent below 2005 levels by 2025.

Whichever way the U.S. Federal Government ultimately chooses to address climate change in the future it is likely they will be following a path first set out by the states.

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