

August 2020

## Policy brief

# The economic case for the United States to remain in the Paris Agreement on climate change



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OF ECONOMICS AND  
POLITICAL SCIENCE

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London

### Headline issues

- Staying in the Paris Agreement would result in significant economic benefits for the United States, its trading partners, and the world economy; withdrawing is a mistake.
- The emissions reduction targets that the United States set for itself in the Paris Agreement are now easier to achieve, for reasons including sharp falls in technology costs.
- The US Government should abandon its intention to withdraw from the Agreement, or promptly re-join after withdrawal is executed.

### Summary

The interests of American citizens and businesses are best served by the United States continuing to participate in the Paris Agreement for four main reasons: i) reaching net-zero global annual emissions is necessary for the increasingly costly climate change impacts to decline; ii) the US needs a global policy response to limit the growing damage from emissions by other countries; iii) even unilateral action by the US could provide net benefits, limiting accumulating damages but also offering associated advantages such as reducing local air pollution; iv) the international negotiation process initiated by the UNFCCC, in which the US is still a participant, is the best available way of achieving coordinated global action on climate change.

The nationally determined contribution (NDC) to the Paris Agreement that was voluntarily submitted by the US Government is not unfair to the US, nor does it create an excessive economic burden. Indeed, recent trends, including rapidly falling technology costs and improving efficiency, mean the emissions reduction targets are now easier to achieve.

The current economic evidence shows that withdrawal of the US from the Paris Agreement, which is due to be complete on 4 November 2020, is a mistake. The US Government should abandon the withdrawal, or else seek to re-join promptly after withdrawal is complete. The Government can submit a revised NDC and has the opportunity to decide how it might need to be modified in the light of evolving understanding of climate risks and the costs of inaction.

Policy briefs provide analysis on topical issues, presenting specific recommendations to inform ongoing policy debates. Drawing on the Grantham Research Institute's expertise, they summarise either our research findings or the state of knowledge about a particular issue.

This policy brief has been written by Alex Bowen, Marshall Burke, Charles Donovan, Kenneth Gillingham, Frances C Moore, Robert Stavins, Gernot Wagner and Bob Ward.

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## Introduction

This policy brief examines the economic case for the United States to continue its participation in the Paris Agreement on climate change.

President Trump indicated on 1 June 2017 that he intended to end the United States’ participation, claiming that it “disadvantages the United States to the exclusive benefit of other countries”, including economically (The White House, 2017). On 4 November 2019, the US Government initiated withdrawal from the Agreement, with completion scheduled one year on, for 4 November 2020.

In this brief we examine four main economic issues relating to the participation of the United States in the Paris Agreement:

- The economic impacts of climate change on the United States
- The economic damage caused to the United States by other countries’ greenhouse gas emissions
- The economic implications of the participation by the United States in the Paris Agreement
- Global action to reduce economic damage from climate change in the United States and the rest of the world.

## Economic impacts of climate change on the US

Numerous investigations have documented the growing impacts of climate change on the United States. According to the US National Academies of Science, Engineering and Medicine, which includes the country’s leading researchers from across the full range of natural and social sciences: “Climate change is increasingly affecting people’s lives. It is having significant effects on infrastructure, agriculture, fisheries,

public health, and the ecosystems that support society” (National Research Council, 2020).

In October 2018, the United States Global Change Research Program published the second volume of the Fourth National Climate Assessment (USGCRP, 2018), which it was legally required to present to Congress and the President. It warned that while climate change will create some economic benefits for the United States (for example, longer growing seasons for crops in some parts of the country), overall it will damage the lives and livelihoods of a growing number of Americans through, for example, sea level rise and increases in the frequency and intensity of extreme weather events such as heatwaves, droughts and heavy rainfall. The report concluded: “Without substantial and sustained global mitigation and regional adaptation efforts, climate change is expected to cause growing losses to American infrastructure and property and impede the rate of economic growth over this century.”

Official government assessments have highlighted the threat that climate change is creating to the security of the United States, at home and overseas. The most recent worldwide threat assessment by the United States intelligence community stated: “The United States will probably have to manage the impact of global human security challenges, such as threats to public health, historic levels of human displacement, assaults on religious freedom, and the negative effects of environmental degradation and climate change” (Coats, 2019). It added: “Global environmental and ecological degradation, as well as climate change, are likely to fuel competition for resources, economic distress, and social discontent through 2019 and



Flooding from Hurricane Harvey in Columbus, Texas, in 2017. A recent study concluded that the heavy rainfall from this tropical cyclone was made more likely by climate change (Wang et al., 2018).

beyond.” These pose a risk to both domestic and international economic activities by the Government, companies and individuals in the United States.

In summary, a wide range of experts have warned that climate change poses a growing and very severe risk to the lives and livelihoods of Americans.

### **Economic damage caused to the US by other countries’ emissions**

The growing economic damage to the United States from climate change is due to rising concentrations of carbon dioxide and other greenhouse gases in the atmosphere. As many of these gases can remain in the atmosphere for several decades or even longer, accumulations of emissions from human activities are the primary driver of rising concentrations.

The United States has been the largest single source of historical emissions of greenhouse gases, but

was still only responsible for about a fifth of aggregate emissions between 1850 and 2012, according to a study by Rocha et al. (2015). Hence, most of the economic harm currently being suffered by American citizens and businesses is the result of emissions from outside the United States.

According to the Global Carbon Project, the United States was responsible for about 14 per cent of global emissions of carbon dioxide in 2019, and was the second largest emitter after China (Friedlingstein et al., 2019). While annual emissions of greenhouse gases by the United States have been falling very slowly in recent years, annual global emissions have continued to climb. With current trends, the United States would become a proportionately smaller contributor to global emissions, which means an even higher percentage of the economic damage caused by climate change in the future to the United States will be due to emissions from other countries.



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### **Economic implications of participation by the US in the Paris Agreement**

The Government of the United States, like all Parties to the Paris Agreement, has submitted its own ‘nationally determined contribution’ (NDC). The NDC includes a pledge to reduce annual emissions of greenhouse gases from the United States by 26–28 per cent by 2025 compared with 2005, and states that this target was “consistent with a straight-line emission reduction pathway from 2020 to deep, economy-wide emission reductions of 80 per cent or more by 2050” (Government of the United States, 2015).

The NDC outlines policies and other measures which the US Government intended to introduce in order to achieve the target. The Government has not published a full analysis of the economic implications of implementing its NDC, but there have been assessments of some of the key measures, particularly the Clean Power Plan. For instance, an analysis by Schmalensee and Stavins (2019) estimated that the

Plan would create net domestic benefits of US\$39 billion in 2030, some 94 per cent of which would derive from the avoided impacts of local air pollution.

The Trump Administration abandoned the Clean Power Plan and introduced the much weaker Affordable Clean Energy rule in its place, which would cut emissions from the power sector by less than 1 percentage point by 2025. The Environmental Protection Agency (EPA) has calculated that the combined domestic climate benefits and ancillary health co-benefits of the Affordable Clean Energy rule, compared with no policy, would be US\$570 million to US\$1.3 billion in 2030 (EPA, 2019). However, the Agency used a very low value of the social cost of carbon, based on an unreasonably high discount rate and ignoring the benefits for other countries of avoided climate change damages outside the United States.

Although the Affordable Clean Energy rule itself would result in only a small reduction in emissions of greenhouse gases in the future, particularly when compared with

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The Navajo Generating Station in Arizona. This coal-fired power station was retired in November 2019.



the Clean Power Plan that it replaces, other trends in the power sector – such as the replacement of coal by natural gas and renewables as a source of electricity – mean that emissions of carbon dioxide from the power sector are expected to fall even further.

The most recent projections by the US Energy Information Administration indicate that, in its reference case scenario, carbon dioxide emissions from electric power are expected to be 20 per cent lower in 2025 than in 2019 (EIA, 2020). The reference scenario assumes that coal-fired plants either invest in heat rate improvement technologies by 2025 or retire to comply with the Affordable Clean Energy rule. The EIA concludes that the power sector will continue to undergo transformation for the next three decades, stating: “The electricity generation mix continues to experience a rapid rate of change, with renewables the fastest-growing source of electricity generation through 2050 because of continuing declines in the capital costs for solar and wind that are supported by federal tax credits and higher state-level renewables targets.”

These projections show that overall energy-related emissions of carbon dioxide (which are also generated by the residential, commercial, industrial and transportation sectors, and altogether constitute about three-quarters of annual emissions of all greenhouse gases by the United States [EPA, 2020]) would be 21 per cent lower in 2025 than in 2005. It could be inferred from these projections that if it improved its domestic climate policy, the United States could feasibly still achieve the target contained in its NDC of reducing its annual economy-wide emissions of

all greenhouse gases by 26–28 per cent by 2025. The transportation sector could be targeted for greater reductions, for instance: carbon dioxide emissions are currently projected to fall by around only 6 per cent in the sector between 2019 and 2025.

### **Global action to reduce economic damage in the US and the rest of the world**

Some recent assessments have concluded that the goal of the Paris Agreement of holding the rise in global temperature to well below 2°C compared with its pre-industrial level could be justified (on average) for the world as a whole on the basis of economic benefit-cost analyses (Dietz et al., 2018; Hänsel et al., 2020). However, it is widely acknowledged that collectively the current set of NDCs under the Paris Agreement will not achieve that temperature goal. Researchers have estimated that instead, the current set of NDCs is consistent with a pathway for global annual emissions that would likely result in global warming of about 3°C (United Nations Environment Programme, 2019), which could have devastating economic consequences for the United States and the rest of the world.

Countries are due to submit more ambitious emission reduction pledges by the end of 2020, ahead of COP26 – the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) – which is due to be held in the UK in November 2021. However, the US Government is set to complete its withdrawal from the Paris Agreement on 4 November 2020, and so will not subsequently be involved in formal negotiations about its implementation, even though the NDCs of other countries will have very significant

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## “The economic impacts of climate change on the United States will continue to increase for many years to come if no action is taken”

consequences for American citizens and businesses.

While no other countries have followed the United States by withdrawing from the Paris Agreement, the action by the world's second largest emitter undeniably undermines global action on climate change, to the detriment of all countries' economies.

The economic impacts of climate change on the United States will continue to increase for many years to come if no action is taken. Even if the US Government ends its relative inaction on climate change and the United States sets off on a pathway towards net-zero emissions over the next few decades, it will not be able to avoid potentially catastrophic impacts if the rest of the world does not also take commensurate action.

At present, policymaking by the Trump Administration ignores the economic benefits of avoiding damage to other countries by emissions from the United States through its flawed estimates of the social cost of carbon, which is currently under legal challenge. It is in the interests of the US Government to acknowledge climate damages that occur outside the United States (by using a strategic social cost of carbon) in order to persuade other nations to substantially reduce their own emissions, which are harming American lives and livelihoods (Kotchen, 2018).

Of the 197 Parties to the UNFCCC, 195 have signed the Paris Agreement and 189 have ratified it. If the Trump Administration completes withdrawal the United States will become the only major economy that is not committed to the Agreement and its targets. Withdrawal will further isolate the United States on this issue in international fora such as the G7 and G20.

There are likely to be other associated economic consequences for the United States if its Government pursues a policy of relative inaction on climate change. Some countries, particularly the Member States of the European Union, are considering the possibility of introducing border tax adjustments on imports from countries that are failing to tackle emissions of greenhouse gases, and American goods and services could be subject to them.

The Paris Agreement is driving an increase in demand for low-carbon goods and services around the world, creating new potential markets for American low-carbon exporters. Research shows that the spill-overs into the economy are greater from green innovation than from 'brown' innovation (Dechezleprêtre et al., 2016). A joint report from the Energy Futures Initiative and the National Association of State Energy Officials found that 10,900 new jobs were created in renewable technologies in the United States in 2019, while 8,000 jobs were lost in coal-fired electricity generation (Foster et al., 2020). About 80,000 people were employed in the coal power industry compared with almost 250,000 in solar energy (ibid).

### Conclusions

The long-term interests of the United States are best served by continuing to participate in the Paris Agreement. The arguments put forward by the Trump Administration to try to justify withdrawal are inaccurate and misleading. Withdrawal by the United States will mean that it loses influence in the process of implementing the Agreement. Essentially, the Trump Administration has ceded control over the future economic impacts of climate change on the United





States to its trading partners and competitors.

The international isolation of the United States on climate change, with its absence from relevant discussions at G7 and G20 summits for example, could also create wider damage to its diplomatic relationships at a time when it is seeking support from other countries on issues such as trade and defence. And the lack of engagement by the federal government also adversely affects the reputation of businesses in the United States that could export zero-carbon goods and services around the world.

The Trump Administration could, and should, cancel the United States' withdrawal from the Paris Agreement. The United States could submit a revised version of its NDC with less ambitious targets

for emissions reductions, in line with the federal Government's weak domestic policies on climate change. Although this would contravene Article 4 of the Agreement, which states that "[e]ach Party's successive nationally determined contribution will represent a progression", experts (e.g. Stavins, 2017; Ahmad et al., 2017) have argued that the specific commitments contained in the current NDC were not legally binding. Even this more modest participation will likely lead to large net benefits to the United States through emission reductions by other nations.

If withdrawal is completed, the United States Government should re-join the Agreement at the earliest possible date and should support ambitious domestic and international policies on climate change.

In 2019 almost 250,000 people were employed in solar energy in the United States, compared with about 80,000 in the coal power industry (Foster et al., 2020).

Photo: Science in HD on Unsplash

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- Authors’ declaration**
- The authors declare funding from their host institutions and that they have no potential conflicts of interest that would have influenced this work. The views expressed in this brief represent those of the authors and do not necessarily represent those of the host institutions or funders.
- Acknowledgements**
- The authors wish to thank Professor Meredith Fowlie, Professor Richard Green and Professor Thomas Sterner for their helpful comments on a draft version of this policy brief.
- Alex Bowen and Bob Ward acknowledge support from the Grantham Foundation for the Protection of the Environment.
- Copy-editing and formatting by Georgina Kyriacou.
- This policy brief is intended to inform decision-makers in the public, private and third sectors. It has been reviewed internally and externally before publication.
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