



# Governing the global climate commons: The political economy of state and local action, after the U.S. flip-flop on the Paris Agreement

Mark Cooper

*Institute for Energy and the Environment, Vermont Law School, United States*



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## ABSTRACT

United States withdrawal from the Paris Agreement, which follows well-known principles of common pool resource management, poses a serious challenge, but it could provide a golden opportunity to cement and advance the efficacy and legitimacy of the Agreement. The Agreement encourages subnational units to participate in a polycentric, multistakeholder governance structure. As many as two dozen states have policies that could put them in compliance. These states represents over 40% of U.S. emissions, making them the 4th or 5th largest emitter. Subnational compliance would give the Agreement a major boost particularly if they seek observer status and are exempted from sanction. Even without such rewards, the states have strong reasons to follow this path. As non-fossil fuel producing states, they have clear interests in developing local resources as the basis for their electricity sector. As a large group, they gain economies of scale and network effects. As part of the American Federalist system, they would be defending their right of independent action. At COP 23, the U.S. subnational entities played a prominent role and the treaty participants reacted strongly against the Trump administration position, while embracing the activities of U.S. subnational entities. The U.S. presence was limited and isolated.

## 1. Introduction

After months of agonizing, frequently in very public debates between members of the administration, President Trump declared his intention to withdraw the U.S. from the Paris Agreement.<sup>1</sup> The definitiveness of the decision was always clouded by the fact that the actual withdrawal could not take place for three years, so the U.S. could still participate in events, and hints that the administration might reconsider, if the U.S. got a better deal.

The reaction of the signatories to the Agreement was more decisive. There were strong and broad statements that supporters were unshaken in their resolve. In the U.S. units of local government (individual states and cities) affirmed their commitment to the goals of the agreement. California, which has the sixth largest economy in the world, seized the mantle of U.S. leadership in supporting the agreement.<sup>2</sup> Many U.S. corporations also affirmed their commitment to the goals.<sup>3</sup>

This paper analyzes the policy actions and debates that developed

both in the U.S. and globally around the decision of the Trump Administration to withdraw U.S. participation in the Agreement.<sup>4</sup> This debate raised issue that touch key elements of the structure of the Agreement. First, it highlights the tension between national and local energy policy authority – under both American federalism and the subsidiarity principles of the Paris Agreement that encourage action by subnational entities. Second, it describes how these governance conflicts play out in the context of the unique institutional and governance structure of the Agreement. Third, it examines the underlying economic forces that drive groups of U.S. states and other subnational entities in opposite directions (potentially compliant v. non-compliant), which underscores the dramatically different economic interests that motivate policy choices.

The paper focuses on the actions leading up to the decision to withdraw to stress the underlying fundamentals at play. We also point out that the immediate actions after the decision to withdraw are consistent with those prior dispositions. For the purposes of the

*E-mail address:* [markcooper@aol.com](mailto:markcooper@aol.com).

<sup>1</sup> Trump (2017).

<sup>2</sup> Resistance was instantaneous, with California in the lead, Leslie (2017); Davies (2017); Davenport and Nagourney (2017); Meyer (2017); Reilly (2017c); local governments were represented too, Wattles (2017); Graeber, 2017; Kahn, 2017; Plumer, 2017; Renew, 2017.

<sup>3</sup> America's Pledge (2017), claims almost 1400 corporations (C2ES; Cusick, 2017a; Fairley, 2017; Hirji, 2017a; Hulac, 2017b; Reilly, Sean, 2017c).

<sup>4</sup> Cooper (2017), framed the challenge of transforming the electricity sector as requiring policy to pass through the horns of a global dilemma – development with decarbonization. The structure of the Paris Agreement was explained as a response to this dilemma. This paper elaborates on the development of a new challenge, the Trump administration's refusal to accept decarbonization as a problem to be solved and withdrawal from the Agreement (Friedman, 2017c; Joselow, Maxine, 2017b; Smith-Schoenwalder, 2017).

analysis, we consider the initial reaction to fall in the period from the announcement of the intention to withdraw until the first meeting of the parties after the announcement. Therefore, the entire period analyzed covers a little over a year with three subperiods of intense activity – the lobbying to influence the Administration’s decision (election day until June 2017), the announcement of the decision itself (early June 2017), and the meeting at which the U.S. was “on the way out” (November 2017). We focus on the first two subperiods to build a map of the political economy of the decision, then assess the actions in the third period as a reflection of the underlying political economy. The paper focuses on three sets of actors who will deeply affect the early phase of the development of the Agreement – the U.S. Federal level, the parties to the Agreement, and the U.S. subnational entities that are supporting the agreement.

Explaining and predicting actions of key players does not, however, predict an outcome. On the contrary, with complex and powerful forces pushing and pulling the implementation of the Agreement in different directions, even challenging its very existence, the outcome is uncertain. This paper argues that, ironically, an unintended consequence of the U.S. withdrawal could be to strengthen the Agreement.

The paper is divided into four parts. The first section outlines the contemporary debate and tension between two horns of the dilemma the Trump administration faced – participation vs. federalism.

Section 2 describes climate change as a common pool resource problem and discusses how the Paris Agreement is a response to this unique challenge. It also briefly describes how the analysis of the digital revolution can be applied to the electricity sector to support the conclusion that the Paris Agreement can be, and is, perhaps, the only, effective institutional response to climate change.

Section 3 shows why American Federalism may play a key role that reinforces the Agreement, even after the U.S. decision to formally withdraw from the Agreement because the subnational entities have strong economic interest and a significant amount of political independence to act on those interests.

The paper concludes in Section 4 with a brief discussion of the policy options for each of the main actors and the direction of policy development. Having taken the position that the U.S. withdrawal could have the ironically positive, unintended consequence of strengthening the Agreement, I evaluate the options/likely actions of the parties from the point of view of seizing on the moment to promote the success of the Agreement.

## 2. Trumps' climate change dilemma

### 2.1. The Paris Agreement

Over the first half year of the Trump administration, arguably the most public, long running policy soap opera was the decision of whether to withdraw from the Paris Agreement or not.<sup>5</sup> Individual members of the cabinet had taken public positions on opposing sides.<sup>6</sup> The President’s closest advisers were severely divided.<sup>7</sup> White House staff

<sup>5</sup> Hess (2017a, 2017j), Cushman and Lavelle (2017), Chemnick and Lehman (2017b); the hand wringing became so profound and public that Chemnick and Evans (2017a), likened Trump’s indecision on participation to Hamlet. While others fretted about participation being put on and taken off the table (Chemnick, 2017c). This is not to suggest that there were not other issues that involved very loud division. However, they were much more external –between the Administration and the Congress, the Courts, the Republicans and the Democrats (Battelle, 2017a; Bowlin, 2017; Colman, 2017; Davenport, 2017; Koss, 2017; Lavelle, 2017b; Loris and Schaefer, 2017; Mooney and Eilperin, 2017; Mooney et al., 2017).

<sup>6</sup> The State Department favored participation including Tillerson and his No. 2, as well as the head of USAID (Banerjee et al., 2017; Hess, 2017k, Chemnick, 2017k). Perry, at Energy (Irfan, 2017; Walton, 2017) favored participation, while the defense/intelligence community saw climate change as a threat including Coates in intelligence (Mintz, 2017). Pruitt, at Environment (Heikkinen, 2017a) was opposed (Waldman, 2017).

<sup>7</sup> Kushner, Ivanka in favor Bannon and Ebell opposed (Chemnick, 2017j; Lehmann, 2017a, 2017b; Chemnick, 2017n).

meetings were cancelled and rescheduled, but ultimately failed to resolve the issue.<sup>8</sup> The Administration was being lobbied to participate and comply by advanced industrial nations<sup>9</sup> and corporations,<sup>10</sup> while conservative think tanks were pushing it towards withdrawal.<sup>11</sup> One of the central points of debate raised by the advocates of participation was the loss of America’s international leadership role combined with the questioning of the willingness and ability of other nations to fill the void.<sup>12</sup>

With policies to promote the production of fossil fuels already implemented<sup>13</sup> and the primary policy to reduce carbon emissions from existing electricity generation facilities (i.e. the Clean Power Plan) a high visibility target for weakening or abandonment,<sup>14</sup> it was clear that the U.S. would have great difficulty complying with the Agreement. The decision not to fund the U.S. commitment to the United Nation’s Green Climate Fund was a clear indication of the Trump administration’s unwillingness to actively participate in the global effort to combat climate change.<sup>15</sup> Therefore, a strategy of participating in order to lower the targets and reallocate the burdens was floated.<sup>16</sup>

This not only magnified the divisions within the Administration,<sup>17</sup> it also quickly elicited a vigorous response from officials closely associated with the Agreement and nations that intended to comply.<sup>18</sup> They rejected that idea.<sup>19</sup> The rationale that the U.S. had been treated unfairly in the treaty was also contested.<sup>20</sup> One important issue that plays a key role is the very different understanding that the Parties have of how the process is intended to operate.<sup>21</sup> Some advocates in the U.S. debate argued incorrectly, as discussed below, that the Agreement was meaningless since it was voluntary and could not be enforced.<sup>22</sup>

### 2.2. American federalism

The ‘toing-and-froing’ on participation interacted with a second

<sup>8</sup> Chemnick and Evan (2017a), Hess (2017i).

<sup>9</sup> Germany (Battelle, 2017b), France (Balaraman, 2017c), the UK (Balaraman, 2017a) and Nordic Nations (Hobson, 2017) in the unique context of the Arctic nations (Hess, 2017k; Volcovici, 2017).

<sup>10</sup> Those pushing for participation and compliance included large money managers (Casey, 2017) and corporations (Chemnick, 2017a, 2017g; Lehmann, 2017b; Hirji, 2017b; Hess, 2017e).

<sup>11</sup> American Energy Alliance (2017); Horner and Lewis (2017), Hess (2017b).

<sup>12</sup> China was the leading contender by far (Battelle, 2017c) and Moody’s (2017) pointed out that the three largest emitters (China, the EU, and India) had all reaffirmed their commitment to the Agreement (Lavelle, 2017c) and taken shots at the shift in American policy (Balaraman, 2017f; Chemnick, 2017f, 2017m). The potential costs to the U.S. covered a range of issues from loss of diplomatic leadership (Hess, 2017a, 2017g, Irfan, 2017; to jobs, (Reuters, 2017b)) to renewable technology (Ferris, 2017; Chemnick, 2017e; Hulac, 2017a; Selin and Najam, 2016; Sengupta, 2017).

<sup>13</sup> Hafstead (2017), concluded that Obama policies were likely to fall short by a small margin under a best-case scenario, while Trump’s would miss by a wide margin.

<sup>14</sup> The most strident strategy involved reversing the endangerment finding Hess (2017a); American Energy Alliance (2017); Artz, 2017; Reilly, Sean, 2017c; Trauzzi, 2017; Wamsted, 2017.

<sup>15</sup> Hess (2017d); Friedman (2017b).

<sup>16</sup> Horner and Lewis (2017). A letter from a “major American coal company” outlined the concessions the U.S. should seek for participation including changing the rules at international financial institutions to fund coal projects, a major focus of the Green Climate Fund on cutting-edge coal technologies, renegotiating the nationally determined contribution (NDC), which was deemed to be “de facto done anyway,” with the executive order killing the power rule.” (Chemnick, 2017i) Domestic policy would amend the Clear Air Act to give time for carbon capture technology to develop, with increased funding subsidies and incentives for coal. Similar demands had been made by Trump advisors (Hess, 2017l).

<sup>17</sup> Chemnick (2017a).

<sup>18</sup> Irfan (2017); Walton (2017a, 2017b); Chemnick and Lehman (2017a); Balaraman (2017d, 2017e, 2017g, 2017i); Battelle, 2017d; Chemnick, 2017h; Doughy, 2017; Reuters, 2017a.

<sup>19</sup> Chemnick (2017a), Cushman and Lavelle (2017); Lehmann (2017a), Hess (2017f), Chemnick, 2017d.

<sup>20</sup> Chemnick and Lehman, 2017b; Irfan, 2017; Walton, 2017a, 2017b.

<sup>21</sup> Irfan, 2017; Chemnick and Lehman, 2017b.

<sup>22</sup> Cushman and Lavelle (2017); Hess, 2017f; Balaraman (2017b); Chemnick and Lehman (2017b).

policy dilemma, American federalism. While the federal government was promoting fossil fuels, a substantial number of states were heading in the opposite direction, toward much greater reliance on renewable resources and aggressive supply-demand integration and management.<sup>23</sup> A dozen individual states declared their belief that they could comply with the Agreement, while a growing number of cities had announced their intentions to rely on a very high level of renewables.<sup>24</sup>

The Federal government has jurisdiction over interstate commerce and the treaty making power under the U.S. constitution, but all other policy areas are reserved to the states. Where this line is drawn is a source of constant debate, and the early days of the Trump Administration exhibited this very dilemma. The headline issues in the tug of war over local rights involved contradictions like the Trump Administration aggressively arguing that cities should not become sanctuaries for immigrants, but simultaneously attempting to devolve authority for key health care decisions to local authorities.

There are similar examples in the energy space. For example, the Trump administration granted North Dakota the right to regulate storage of captured carbon,<sup>25</sup> but fretted over how to deal with California's right under the Clean Air Act to write its own set of standards to reduce air pollution.<sup>26</sup> California had long been pursuing an expanded western grid that would provide important geographic and technological diversity and facilitate operating the grid at much higher levels of penetration of renewables.<sup>27</sup> However, the advent of an extremely hostile administration in Washington gave it pause because wholesale transactions between Western states participating in a joint grid management organization that would cover a wide geographic area and cross state lines would be subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC).<sup>28</sup> The FERC was being reshaped to reflect the Trump administration's preference for coal and hostility to renewables,<sup>29</sup> but here too there were tensions. The FERC, which is responsible for energy markets and committed to competition, hesitated to embrace a Department of Energy proposal to build subsidies for baseload (coal and nuclear) into market transactions<sup>30</sup> and ultimately rejected the proposal, asking the regional transmission operators to explain how they work to ensure reliability.<sup>31</sup> Its action in abandoning the Clean Power Plan (CPP) did not go as far as some supporters wanted and sounded this localism theme in doing so.<sup>32</sup> A number of states and localities challenged federal authority in a variety of ways.<sup>33</sup>

This dilemma interacts broadly with the Paris Agreement, which is a treaty among nations that encourages action by subnational entities and offers them a route to participation as "observers" under the treaty, as discussed in the next section. The intense, public discussion and uncertainty are testimony to the importance of these matters, globally and locally.

### 3. Governing a global commons

#### 3.1. The Paris Agreement as common pool resource management

The Paris Agreement<sup>34</sup> is an Addendum (hereafter Agreement) to the United Nations Framework Convention on Climate Change (UNFCCC) Report (hereafter Report) of the Conference of the Parties on its twenty-first session.<sup>35</sup> The Report and the Agreement are roughly of equal length and deserve equal attention, since the former provides justifications for and fleshes out policy prescriptions in the latter.

Climate change is a global commons problem. Individual actions that emit greenhouse gases affect all people who live in the commons. Individual emitters are responsible for dramatically different levels of cause and have very different levels of capability to respond. Moreover, there is no overarching authority to set limits and order actions. These characteristics make a polycentric, multi-stakeholder, collaborative governance structure necessary.<sup>36</sup> The approach the parties arrived at in Paris can be described in terms of well-known principles of "common pool resource management." The definition of common pool resources and their management are firmly established in the economic literature thanks to the work of Elinor Ostrom, who received the Nobel Prize in economics in 2009. Her acceptance speech provides the analytic framework used in this paper for characterizing the Paris Agreement.

Ostrom notes that for a quarter of a century, Samuelson's (1954) identification of two types of goods<sup>37</sup> – public and private – was dominant. Beginning in the 1960s, scholars identified hundreds of local and regional governance arrangements that do not fit into either category (see Table 1). Common pool resources were "overtly added" to the framework in the

Public goods, like national defense, involve outputs from which it is difficult to exclude individuals (all people in the defended territory benefit) and the enjoyment by one person does not detract from the enjoyment by another (the output is non-rivalrous or non-subtractable). Private goods are the opposite of public goods; easy to exclude and highly subtractable (I eat my apple and you cannot). Club goods are excludable but not highly subtractable (artwork in a museum), although they may be subject to congestion. Common-pool resources are difficult to exclude, like the atmosphere, but subtractable or congestible. Your pollution may impact all users and, with many polluters, the impact on the resource may be severe.

The objective of the analysis of common-pool resource systems is "to understand the broader institutional regularities among the systems that were sustained over a long period of time and were absent in the failed systems."<sup>38</sup> A basic set of design principles came to be defined as sets of "rules in use" that communities develop to manage a common-pool resource without recourse to an external, governmental authority. The list of key principles to define effective common pool resources management had evolved with field research. Ostrom provided an updated list in her Laureate speech, which is reorganized slightly and applied to the Paris Agreement in Table 2.

The implication of this line of analysis was to demonstrate that the assumption of a "tragedy of the commons,"<sup>39</sup> e.g. the classic problem of overgrazing by individual sheep owners, was not an inevitable outcome and did not require either the privatization of the commons or the dictates of some central government to eliminate the problem. Needless

<sup>23</sup> Hess, 2017c; Cooper, 2012a.

<sup>24</sup> Hess (2017c), Moody's (2017), Walton (2017a, 2017b).

<sup>25</sup> Holden (2017); Ayres, 2017; Heikkinen, 2017b, 2017c.

<sup>26</sup> Meyer (2017). A similar inconsistency triggers a huge flap when Florida was included, then exempted from the lifting an Obama-era offshore drilling ban (Shankman, 2018).

<sup>27</sup> See Cooper (2017), Chapter 6.

<sup>28</sup> Joselow (2017a).

<sup>29</sup> The differences were obvious, but to underscore the magnitude of the divide, Hess, 2017a, reports that the League of Conservation Voters had given Obama a B+, while Trump received an F; Chernick, 2017a; Balaraman (2017h); Cama (2017).

<sup>30</sup> The effort of the Trump administration to force electricity ratepayers to pay baseload operators above market costs, on the theory that the market was not "properly" reflecting the value of baseload, unleashed furious opposition, Bade, 2017b, Bade, 2017c, Gilmer, 2017a, 2017b, 2017c; Coffman-Smith, Andrew (2017); Bifera (2017); Northey (2017); Fowle (2017); Orvis and Boyle (2017); St. John (2017). Even compromises, were hotly debated, Silverstein (2017); PJM (2017), Heidorn (2017).

<sup>31</sup> Bade and Maloney, 2017; Base.

<sup>32</sup> EPA (2017); Friedman and Plumer (2017); E&E (2017c); Artz, 2017; Trauzzi, 2017.

<sup>33</sup> For example, challenging federal rules affecting coal production (Gilmer, 2017a, 2017b, 2017c); putting up data the Trump administration wanted to restrict (Weston, 2017); demanding more input (Streeter, 2017); Adopting clean power plans (Holden and Kucro, 2017; Plumer, 2017).

<sup>34</sup> UNFCCC (2015b).

<sup>35</sup> UNFCCC (2015a).

<sup>36</sup> Cooper, 2013. The third industrial revolution of which the transformation of the electricity/energy sector can be seen as a part (Cooper, 2017), has several other key aspects that can be analyzed as common-pool resource management. These include the Internet protocol and its governing institutions (Cooper, 2013); many of the physical (Cooper, 2006, 2005) and intellectual property (Cooper, 2006) systems that make up the communications resources system.

<sup>37</sup> Ostrom (2009), p. 410; Samuelson (1954).

<sup>38</sup> Ibid., p. 9.

<sup>39</sup> Hardin (1968).

**Table 1**  
Expanding the typology in the 1970s (new types in bold).

		Extent of Rivalry, Subtractability of Use	
		High rivalry	Low rivalry
Difficulty of Excluding Potential Beneficiaries	High	<b>Common-pool resources local: irrigation systems</b>	Public goods: peace and security of community, national defense, knowledge, fire protection, weather forecasts
	Low	<b>regional: fisheries global: Atmosphere</b> Private goods: food, clothing automobiles	<b>Toll goods: theaters, private clubs, daycare centers</b>

Ostrom, Elinor, 2009. Beyond Markets and States: Polycentric Governance of Complex Economic Systems. Prize Lecture. [http://www.nobelprize.org/nobel\\_prizes/economic-sciences/laureates/2009/ostrom\\_lecture.pdf](http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2009/ostrom_lecture.pdf). p. 413.

**Table 2**  
The design principles of the paris agreement as a collaborative common-pool resource management institutional arrangement.  
*Sources:* Adapted and updated from Mark Cooper, 2017. The Political Economy of Electricity: Progressive Capitalism and the Struggle to Build a Sustainable Power Sector (Santa Barbara, Praeger) pp. 26–28.

CPR Rules Necessary for a Viable Structure	Rules Embodied in the Paris Agreement
<b>Constitutional rules</b> govern the way the overall resource system is constituted; particularly how collective choice rules are defined. How does the resource system come into existence?	The governance of the common pool resource system is created by the United Nations Framework Convention on Climate Change
<b>Collective choice rules</b> embody the procedures by which the operational rules are changed. How can the operation of the system adapt?	The Parties, acting through the Conference of the Parties have the authority to adapt and improve the operational rules (as happened in Paris in 2015). Being based on a convention, it has the trappings of a traditional international agreement, but the dynamics of its governance—the operational rules—resemble the institutions of a traditional common pool resource system.
<b>Operational rules</b> govern the activities that take place within the borders of the resource system. How does the system work?	The set of commoners is defined as the Parties to the Convention, which is the province of nations. Nations also have primary responsibility for local energy policy. Contributions to decarbonization are required. Strategies are defined by individual Parties and must be consistent with the shared goal. Progressive burdens and obligations are outlined.
<b>Boundary rules</b> specify how participants enter or leave their positions. How are users awarded rights?	The responsibility attached to each commoner is both individual and shared. The nations define their contributions and are subject to a collaborative review of the appropriateness of the contribution. Consideration is given to the capabilities of the individual nation and the likelihood that the combined effect of the individual contributions will achieve the shared goal.
<b>Position rules</b> associate participants with an authorized set of actions. Who gets to use the resource and who oversees it?	The Agreement follows the principle of subsidiarity, delegating responsibility to self-organized, self-governing policy sectors (i.e., nation states). At a high level, the principles for the distribution of both burdens and rewards are laid out. The Agreement is aggressively progressive, in both laying a heavier burden on developed Parties to reduce emissions, and in helping developing Parties achieve the dual goals of development and decarbonization.
<b>Aggregation rules</b> specify the transformation function to map actions into outcomes. How is the resource measured and controlled?	The Agreement adopts a more aggressive target for minimizing temperature increases, which drives the steps necessary to achieve the outcome.
<b>Authority rules</b> specify which sets of actions are assigned to positions and how those actions will be overseen. How are users allowed to exploit the resource?	The Agreement seeks to hold the Parties accountable by establishing effective monitoring and accountability. It outlines a great deal of continuous reporting and information exchange to promote transparency and facilitate the application of social pressures to elicit compliance. In this regard, the Agreement calls for immediate and ongoing efforts to continually assess and refine the goals and relationships.
<b>Payoff rules</b> specify how benefits and costs are required, permitted, or forbidden in relation to players based on the full set of actions taken and outcomes reached, as well as how the provisioning and maintenance of the resource system will be provided. What are the incentives, taxes, and fines that elicit proper behaviors?	Intense transparency and information sharing
<b>Scope rules</b> specify the set of outcomes that may be affected. How do actions impact the resources and other users?	Critique by community
<b>Information rules</b> specify the information available to each position for purposes of monitoring and enforcing compliance with the rules. What flow of information best encourages, manages, and distributes the resource?	The Agreement intends to facilitate a flow of technology and resources across borders. Subnational units and non-governmental entities are encouraged to participate actively and give direction in the implementation of the agreement.
<b>Monitoring:</b> Users and resources,	
<b>Enforcement:</b> Conflict resolution, Graduated Sanctions	
<b>Border relationship to larger socio-economic systems:</b>	
Resource border conditions	
Local Rights	
Nested Enterprises	

to say, given the location of these institutions between the market (property) and the state,<sup>40</sup> this is an intensely studied and debated framework. Here suffices it to say that collaborative, self-organizing solutions are possible and frequent.

The challenge of developing effective common-pool resource management approaches varies depending on the nature of the resource. While there are “many subtypes of goods that vary substantially in regard to many attributes,”<sup>41</sup> in her Laureate speech, Ostrom identified key characteristics that suggest pollution of the global climate resource is particularly challenging. There is high mobility of resource units and significant difficulty in measuring impacts, if not output. The resource

base takes a long time to regenerate, if, in fact, it can. It covers a very large spatial range. It has a large and constantly growing number of users.<sup>42</sup> Several of these key elements of the Agreement’s common pool-resource model that play prominent roles in the policy debate are the focal point of this analysis.

### 3.2. Governance

Common pool resource management institutions are collaborative and not imposed by some external authority. Those who declare the model meaningless misunderstand the nature of the enterprise. In these models, legitimacy is built through the consensus process; it is not imposed by forces from the outside or above. The governance solution

<sup>40</sup> Cooper (2013), emphasizes this aspect in contributing to the strength of the solution and the problems of governance that it creates.

<sup>41</sup> Ostrom (2009), p. 412.

<sup>42</sup> Ibid. p. 8.

had to be geographically polycentric and vertically coherent, affording flexibility to the parties involved. This required collaborative solutions and reciprocity around shared goals building up norms of responsibility through the transparency of a vigorous information/evaluation framework and developing mechanisms for conflict resolution. Ultimately imposition of graduated light-touch sanctions for inappropriate or inadequate actions would have to be developed. As with any multi-stakeholder approach that relies on the principle of subsidiarity and delegates responsibility, the success of the Paris Agreement will be determined by practice. The Paris Agreement got the theory right, but it is practice that determines success or failure.

Starting with a confrontation with one of the most important and powerful commoners might not be ideal, but it did have three aspects that may be constructive. First, it led to an initial set of “light-handed” responses, like social disapproval, criticism and shunning, which fits the need for responses to be graduated. Second, it provided the opportunity to build solidarity by socially rewarding positive actions taken by subnational entities with praise and enhanced participation. Third, rather than hashing out difference of opinion and nuances about commitments and plans to reduce emissions, which was certain to be contentious, the parties got to stand together to confront a common enemy and publicly affirm their commitment to the organization and its goals.

### 3.3. Economic principles

The Report and Agreement outline progressive policies that note the greater resources, technological skill, and the higher rate of emissions in the more advanced nations. The Report and Agreement call for commensurately greater obligations on these nations including reductions in emissions and the funding and transfer of technology. The goal of sustainable development is balanced and progressive in the Agreement: “Developing countries ... are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.”<sup>43</sup> Developed countries not only take the lead in financing and enhancing technology transfer, they “shall continue taking the lead by undertaking economy-wide absolute emission reduction targets.”<sup>44</sup> As larger emitters with more resources, they are held to a higher standard.

The policies are market and efficiency-oriented in the sense that, while goals are set by governments, markets and public-private partnerships are primary vehicles to achieve the goals.<sup>45</sup> They favor efficiency and renewables for economic reasons.<sup>46</sup> The lower the cost, the greater the ability to achieve the sustainable development goal. The Report points to the “need to promote universal access to sustainable energy in developing countries, in particular in Africa, through the enhanced deployment of renewables.”<sup>47</sup> The focus on renewables, which use local resources, also furthers other goals including a desire to promote the “development and enhancement of indigenous capacities and technologies. ... Exploring how developing country Parties can take ownership of building and maintaining capacity over time and space.”<sup>48</sup>

The Trump administration’s complaints go to the core values of the commitment to manage the resource in a cooperative and progressive manner and trigger intense rejection by the commoners, making negotiations difficult, if not impossible.

<sup>43</sup> United Nations, Framework Convention on Climate Change, 2015. Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December.

<sup>44</sup> UNFCCC, Report, 21.

<sup>45</sup> *Ibid.* 23.

<sup>46</sup> *Ibid.* 2.

<sup>47</sup> *Ibid.* p. 3.

<sup>48</sup> *Ibid.* 9–10.

### 3.4. Vertically supportive polycentric action: local, subnational and regional participants

Because the Paris Agreement recognizes the need for a consensual framework in which authority is dispersed, it reaches out to subnational entities. Although it is typically nation-states that sign treaties, other governmental entities can have international relationships. The Paris Agreement gives this aspect as much attention as any other issue it dealt with.

The Paris Agreement is an Annex to the “Report of the Conference of the Parties on its twenty-first session.” The Report recognizes and encourages the participation of other entities 31 times including subnational entities (governmental and nongovernmental) 12 times, and encourages non-signatories to participate through observer status 12 times. The preamble to the Report and the outreach to non-Party stakeholders suggests the breadth of the effort to stimulate participation by these entities.

*Agreeing* to uphold and promote regional and international co-operation in order to mobilize stronger and more ambitious climate action by all Parties and non-Party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples.<sup>49</sup>

*Welcomes* the efforts of all non-Party stakeholders to address and respond to climate change, including those of civil society, the private sector, financial institutions, cities and other subnational authorities;

*Invites* the non-Party stakeholders... to scale up their efforts and support actions to reduce emissions and/or to build resilience and decrease vulnerability to the adverse effects of climate change...

*Recognizes* the need to strengthen knowledge, technologies, practices and efforts of local communities and indigenous peoples related to addressing and responding to climate change, and *establishes* a platform for the exchange of experiences and sharing of best practices on mitigation and adaptation in a holistic and integrated manner.<sup>50</sup>

The Agreement identifies local impacts, local knowledge, and local capacity building as key concerns mentioning the subnational, regional and non-governmental groups that would not be “parties” to the convention. These entities are encouraged to provide expertise and participate as observers in meetings.<sup>51</sup> Observer status is defined in terms of participation and financial relationships. These references are in the Preamble, and Articles 7, 11, 15, 16 and 18, which constitute one sixth of the Agreement.

Ultimately, the Parties will define the nature and extent of activities for these non-Participants, but the language clearly favors more, not less involvement and engagement by entities. The participants are much more likely to give the expansion of participation by compliant observer entities a much friendlier hearing than to the efforts by non-compliant entities to lower the goal.

On the one hand, the U.S. withdrawal from the Paris Agreement<sup>52</sup> poses a serious challenge to those committed to dealing with climate change, not only because it would remove the second largest global carbon emitter from compliance with the treaty, but also because it could be a blow to the governance model adopted by the Agreement. On the other hand, the conditional tense is necessary because, it could also provide an opportunity to advance the legitimacy of the agreement. The resolve of the community might be strengthened,

<sup>49</sup> UNFCCC, Report, p. 3.

<sup>50</sup> *Ibid.* pp. 19–20. Non-Party entities have a separate section and are dealt with in paragraphs 106–135 of the Report, which constitutes almost a quarter of the Report.

<sup>51</sup> UNFCCC, Paris Agreement, Article 8: Anybody or agency, whether national or international, governmental or non-governmental, which is qualified in matters covered by this Agreement and which has informed the secretariat of its wish to be represented at a session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement as an observer, may be so admitted unless at least one third of the Parties present object.

<sup>52</sup> <http://www.nbcnews.com/politics/2016-election/donald-trump-pledges-rip-paris-climate-agreement-energy-speech-n581236>.

particularly if there are subnational units within the U.S. that can and will comply. A decision to comply by local or regional entities with energy and climate making authority would send a strong counter message and could significantly enhance the legitimacy of the Agreement.

This runs into the Trump administration's idiosyncratic attitude toward localism, which supports local authority when the locals agree with it, but opposes local authority when it does not agree. Thus, in the core economic and political values embodied in the Agreement, there is a fundamental conflict between the Trump administration and the principles of the Agreement.

### 3.5. The third industrial revolution and the emergence of a 21st century electricity system

An analogy to the development of the Internet adds depth to the description of the Paris Agreement and the emerging paradigm in the electricity sector. In the early 1990s, as the Internet began to move out of the university and national laboratory environment to penetrate society more broadly, it was seen as a global common pool resource.<sup>53</sup> The location of much of the digital revolution (the internet and technological development) outside of the state and separate from traditional international organizations became a central feature of the institutional structure,<sup>54</sup> although governance challenges were significant as the digital communications system grew.<sup>55</sup>

As the digital economy became pervasive, scholars added two new types of goods to the typology discussed above. These were based on extensions of the underlying dimensions of rivalry and exclusion. As shown in the Table 3, anti-rivalry and inclusiveness were seen to be characteristics of the new economy giving rise to new types of goods.<sup>56</sup> The identification of collaborative goods, which exhibit both anti-rivalry and inclusiveness, is particularly important because the economic characteristics they possess and the processes the new traits trigger give them an economic advantage.

Anti-rivalry occurs when the use and/or sharing of the production of the good by one person increases the value to others. Inclusiveness occurs when the value of a good increases as the number of people using and/or producing the goods increases.<sup>57</sup>

It can be argued that the emerging 21st century electricity system exhibits these characteristics, which are identified in bold in Table 4. While the supply-side resource savings are unique to each resource, they share economic characteristics. Traditional technological progress in lowering the cost of electricity from alternative technologies has been the key launch pad for the transformation of the electricity sector. However, the ultimate success will depend on the application of information, communications and advanced control technologies to manage the new, more complex system. The dynamic integration of supply and demand is akin to the idea of torrenting – distributing and storing resources in the local network, then calling on them in the most efficient manner when needed with embedded algorithms and knowledge. The ability to capture these sources of value and efficiency are made easier because declining communications costs facilitate and dramatically alter the logic of collective action. Digital communications facilitate control and integration of diverse elements of the network.

and High Technology Law, 3:1, pp. 133, 138 and applied to the

characteristics of the emerging system as described in Cooper (2017). The Political Economy of Electricity: Progressive Capitalism and the Struggle to Build a Sustainable Power Sector (Santa Barbara, Praeger), Chapters 8, 10, 11. Other, non-digital examples are provided in Mark Cooper, 2011. Structured Viral Communications: The Political Economy and Social Organization of Digital Disintermediation. Journal on Telecommunications and High Technology Law, 9:1

Characteristics that lower transaction costs and increase demand side value are shared across all resources. The emerging digital system emphasizes local resources, more local knowledge and local control, which are clear attributes of the emerging electricity system. Particularly important is the expanding role of end-users, not simply on the demand side, but also as producers (self-supplying “prosumers”). Direct and indirect network effects, also known as demand-side economies of scale, were seen as extremely important.

In electricity, inclusion of wider geographic areas, complementary technologies, and participation of more users engaging in flexible supply and demand enhance system management possibilities. The large and diverse market makes it possible for firms to find profitable niches, even with an open source approach to property since valuable specialization could be built atop shared protocols without undermining interoperability. Giving individuals and system operators a wider range of options at a local scale allows needs to be met at lower cost with fewer resources. This transformation of the organizing principles is estimated to yield an integration dividend of 15–20% of system capacity. This makes complementary resources and integration the second or third largest “resource” in the new system.

The parallel and complementary development of the energy and communications sectors is more than a mere analogy. A new techno-economic paradigm imposes and requires consistency across interconnected economic activities. The penetration of the core logic of the evolving paradigm into all aspects of the economy to capture the economic advantages they create is to be expected.<sup>58</sup> Moreover, the communications and energy sector are two of the most important “focal core resource systems”<sup>59</sup> of any society, so one would expect them to be organized according to similar principles.

Given the global nature of the resource and the polycentric nature of policy authority that affect its exploitation, the ability to meet the challenge of climate change would be enhanced if these characteristics of the 21st century economy were brought to bear on it.

## 4. The political economy of compliance: what's in it for the states

### 4.1. State actions in support of Paris and climate policy

As noted above, a dozen states immediately informed the White House that they believed the U. S. should remain in and comply with the Paris Agreement. In fact, shortly after the Agreement was adopted, ten of these states joined the Under2 Coalition, which was an immediate affirmation of the effort of the Agreement to engage organizations at a variety of levels.

The Under2 Coalition is a diverse group of governments around the world who set ambitious targets to combat climate change. Central to the Under2 MOU (Memorandum of Understanding) is an agreement from all signatories to reduce their greenhouse gas emissions 80–95% below 1990 levels, or limit to 2 annual metric tons of CO<sub>2</sub>-equivalent per capita, by 2050. A total of 170 jurisdictions spanning 33 countries and six continents have signed or endorsed the Under2 MOU. Together, the Under2 Coalition represents 1.18 billion people and \$27.5 trillion in GDP – equivalent to 16% of the global population and 37% of the global economy.

<sup>53</sup> Golick, 1991; Kollach and Smith (1996); Hess, 1995a, 1995b; Bernbom (2000).

<sup>54</sup> Mueller (2010); Pavan, 2012; Malkin, 1994.

<sup>55</sup> Cooper (2013). As the Internet moved out of the academic world into society, participation in the governance of its core protocols implemented by the community through the Internet Engineering Task force, which was conducted through list serves and open conferences, exploded, doubling in a few years in the early 1990s. To socialize the mass of new participants a document entitled the “Tao of IETF,” with the hope that “this will give them a warm, fuzzy feeling and enable them to make the meeting more productive for everyone” (Malik, 1994, p. 1).

<sup>56</sup> Weber, 2004, Von Hippel, 2005.

<sup>57</sup> Cooper (2006), p. 133.

<sup>58</sup> Cooper (2015), and 2017, argue that the two sectors are part of the third (digital) industrial revolution and rest on similar principles that are reflected in the Paris Agreement.

<sup>59</sup> Cooper (2013); Cooper (2016a), presents an analysis of the communications sector in the same framework used in this paper to describe the electricity sector.

**Table 3**

A digital information age view of the 21st century electricity system expanding typology of goods in the 21st century digital economy (new types in bold).  
 Source: Mark Cooper, 2006, From WiFi to Wikis and Open Source. Journal on Telecommunications and High Technology Law, 3:1, p. 133.

		Extent of Rivalry, Subtractability of Use		
		High Rivalry	Low Rivalry	Anti-Rivalry
Difficulty of Excluding Potential Beneficiaries	High	Common-pool resources	Public goods	<b>Public/Private goods Private providers benefit more than free riders, so they “support open source”</b>
	Low <b>Inclusion is valuable</b>	Private goods	Toll goods	
<b>Collaborative goods Network Effects: Direct (users enjoy increased value due to their expanded Connection (telephone) Indirect network effect – users benefit because suppliers expand and diversify (software)</b>				

**Table 4**

Sources of Comparative Advantage of Collaborative Production (Bold entries apply to the emerging 21<sup>st</sup> century electricity sector).  
 Source: Adapted from Mark Cooper, 2006, From WiFi to Wikis and Open Source. Journal on Telecommunications and High Technology Law, 3:1, pp. 133, 138 and applied to the characteristics of the emerging system as described in Mark Cooper, 2017. The Political Economy of Electricity: Progressive Capitalism and the Struggle to Build a Sustainable Power Sector (Santa Barbara, Praeger). Chapters 8, 10, 11. Other, non-digital examples are provided in Mark Cooper, 2011. Structured Viral Communications: The Political Economy and Social Organization of Digital Disintermediation. Journal on Telecommunications and High Technology Law, 9:1

Activity	Shared Resource	Process	Benefits
<u>Supply Side Transformation Resource Savings</u>			
Mesh Network	Spectrum	Embedded Coordination Algorithms	Dynamic occupation of spectrum
Open Source Software	Code	Embodied knowledge in software	Exploiting rich information in real time
Peer-to-Peer	Storage, Bandwidth content	Torrenting, Viral communications	Reduction in cost and expansion of throughput, broad exchange
<b>21<sup>st</sup> Century Electricity System</b>	<b>Local &amp; renewable resources</b>	<b>Integration of supply &amp; demand with embedded coordination &amp; embodied local knowledge Using diverse geographic &amp; technology supply (akin (to torrenting)</b>	<b>Dynamic use of grid &amp; resources storage, exploiting information (e.g. weather) in real time Reduction in cost, improvement of throughput</b>
<u>Transaction Cost Reduction</u>			
All	<b>Local Knowledge</b>	<b>Consumer as producer</b>	<b>Fit Between consumer needs and output improved</b>
<u>Demand-Side Value Creation</u>			
All	<b>Network effects</b>	<b>Self-organizing</b>	<b>Increased option value, supply-Side support for open source property due to specialization</b>

The Under2 MOU originated from a partnership between California and Baden-Württemberg with the aim of bringing together ambitious states and regions willing to make a number of key commitments toward emissions reduction and to help galvanize action at the COP 21 (Conference of the Parties) Paris Climate Change Conference in December 2015.<sup>60</sup>

The early leadership role of California is important as it is the most populous state with the largest state economy by far<sup>61</sup> and one which has a unique degree of autonomy. The U.S. participants in the Under2 Coalition included two of the largest four U.S. states and the group of ten U.S. states represented about one-third of U.S. GDP. The German participation was even more substantial, with all four of the largest German states and almost three-fifths of the German GDP.<sup>62</sup>

4.2. Potentially compliant states as a group

The left side of Table 5 shows the policy positions (inputs) that identify the potentially compliant states. The final rows on the left side contrast the policy positions of the potentially compliant states with the non-compliant states.

In addition to the Under2 Coalition states, another five states urged the Trump Administration to remain in the Paris Agreement because they were feeling the impact of climate change and were making progress in responding. Another half dozen states have defended the Clean Power Plan. In all three of these policy actions, several major cities also

joined in. Another important indicator of a willingness to follow aggressive local climate policies is the participation in the Clean Cars Program, which is the group of states that follows the California lead on vehicle emissions. Here the table identifies states that have taken steps toward joining California standards, but have not joined fully. Finally, Table 5 identifies the nine states in the Northeastern Regional Greenhouse Gas Initiative (RGGI) and one that withdrew.

While one can debate how many states can comply and/or would formally seek observer status, the group of potentially compliant states is substantial. The right side of Table 5 shows some of the key “outputs” of the policies of the compliant states compared to the non-compliant states. The potentially compliant states would represent between one-third and two-fifths of U.S. emissions and more than half of U.S. GDP. Taken together, these states would rank in the top five globally as “an” emitter, just behind India, accounting for 6% of global emissions.<sup>63</sup> The non-compliant states would still be the second largest emitter, below China.

The share of emissions of the potentially compliant states is much smaller than their share of population and economic activity. This reflects both the nature of economic activity in the states and the track record of reducing energy consumption and emissions. As shown in Table 5, the potentially compliant states have much higher rankings on efficiency in utility, buildings, transportation, solar, corporate and overall clean energy policy. Their efforts to promote renewables are much more aggressive, with higher targets for utilities to include in their resource mix, i.e. Renewable Portfolio Standard (RPS). The RPS targets in the potentially compliant states are three times as high as the

<sup>60</sup> <http://under2mou.org/background/>.

<sup>61</sup> Its economy is over 60% larger than the second ranked state (Texas) and seven times as large as the average state. [https://en.wikipedia.org/wiki/List\\_of\\_U.S.\\_states\\_by\\_GDP](https://en.wikipedia.org/wiki/List_of_U.S._states_by_GDP) P.

<sup>62</sup> [https://en.wikipedia.org/wiki/List\\_of\\_German\\_states\\_by\\_GDP](https://en.wikipedia.org/wiki/List_of_German_states_by_GDP).

<sup>63</sup> Based on 2016 shares of CO2 emissions, <https://www.statista.com/statistics/271748/the-largest-emitters-of-co2-in-the-world/>.

**Table 5**

The war between compliant and non-compliant U.S. states reproduces The U.S. war against the world.

Sources: Under2 Coalition, <http://under2mou.org/coalition/>; Chris Mooney and Brady Dennis, “Even in states suing over new climate regulations, coal use is shrinking,” *Washington Post*, May 3, 2016, [https://www.washingtonpost.com/news/energy-environment/wp/2016/05/03/nearly-every-state-suing-over-obamas-climate-plans-is-burning-less-coal-anyway/?utm\\_term=.617eaffe2859](https://www.washingtonpost.com/news/energy-environment/wp/2016/05/03/nearly-every-state-suing-over-obamas-climate-plans-is-burning-less-coal-anyway/?utm_term=.617eaffe2859); Brent Kendal, “Coalition of 18 States to Move to Defend Carbon-Emissions Rules: Group expected to ask court to intervene in lawsuit challenging greenhouse-gas regulations,” *Wall Street Journal*, Nov. 4, 2015; <http://www.wsj.com/articles/coalition-of-18-states-to-move-to-defend-carbon-emissions-rules-1446613261>; US Environmental Protection Agency, “U.S. Greenhouse Gas Inventory Report: 1990–2014,” 2015; U.S. Department of Commerce. Bureau of Economic Analysis. Gross domestic product (GDP) by state, 2015. United States Census Bureau. “National Totals: Vintage 2015, 2016; Netherlands Environmental Assessment Agency. *CO2 time series 1990–2014 per region/country, 2015*; ACEEE, *State Energy Efficiency Scorecard, 2016*, <http://aceee.org/state-policy/scorecar>; Solar Power Rocks. Com, *2016 United States Solar Power Rankings*, <https://solarpowerrocks.com/2016-state-solar-power-rankings/>; Clean Edge, *Corporate Clean Energy Procurement Index, State Leadership & Ranking, 2016*, 2017 U.S. Clean Tech, Leadership Index: State and Metro, May. Jocelyn Durkay, *State Renewable Portfolio Standards and Goals*, National Conference of State Legislatures, December 28, 2016, <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

State	Compliant v. Non-Compliant State Policy Inputs												Compliant v. Non-Compliant State Outputs		
Potentially Compliant	Under 2	Paris	CPP	Clean Cars	RGGI	RPS Goal	ACEE Rank	Trans.	Bldg.	Solar	Corp.	Clean Edge	% of GHG	Compliant	Non-Compliant
California	1	1	1	1		41	1	10	7	14	65	92		38%	62%
Colorado		1	0.5	0.5		30	14	4.5	5	10	39	58			
Connecticut	1	1	1	1	1	27	5	6.5	5.5	5	56	59	% of GDP	55%	45%
Delaware		1	1	1	1	25	15	6.5	5.5	12	55	43			
Hawaii		1	1			35	15	4.5	4	16	37	56	% of Production		
Illinois			0.5	0.5		25	13	5	7	18	69	55	Oil	15%	54%
Iowa			1	0.5		35	15	3	3	23	75	36	Nat. Gas	25%	70%
Maine			1	1	1	40	11	5.5	3	28	53	46	Coal	17%	82%
Maryland			1	1	1	20	9	6.5	6.5	4	56	47	Non-hydro renewables	60%	40%
Massachusetts	1		1	1	1	20	1	8.5	7	1	61	78			
Michigan	1					35	11	6.5	1.5	37	35	50			
Minnesota	1	1	1	1		26	10	4	6.5	7	33	56	Energy Use	270	428
New Hampshire	1		1			25	21	1.5	4	12	53	45	million BTU/capita		
New Jersey					0.5	25	24	6	4	1	67	45			
New Mexico			1	0.5		20	35	0.5	3.5	7	37	48	Elect. Use/year		
New York	1	1	1	1	1	50	5	8.5	7	1	60	64	kWh/capita		
Oregon	1	1	1	1		25	7	8	6.5	5	51	70	Total	22,100	29,830
Pennsylvania		1	0.5	1		18	19	5	4.5	23	52	42	Res. Only	8880	12,200
Rhode Island	1	1	1	1	1	25	4	6	5	15	57	51			
Vermont	1		1	1	1	67	3	7	7	9	49	72			
Virginia		1	1			15	33	4.5	4	35	45	36			
Washington	1	1	1	1		15	8	8	7	25	36	57			
Avg.															
Compliant						29.3	12.7	5.7	5.2	14.0	51.9	54.8			
Noncompliant						7.6	36.1	1.8	3.6	35.3	28.9	24.9			

other states. All but one of the 22 states with a high probability of compliance, based on the efficiency/solar rankings, have an RPS. Among those states the range is 10–65% by 2025, with that average RPS target is in the range of 30%. The one state without an RPS (Iowa) already exceeds the average targets for the other states, which is at 37%.

Among the states that are not good candidates for compliance, energy policy is much less friendly to efficiency and renewables. Almost half have no RPS and the average target for the RPS for the non-compliant group is less than 10%. Average energy consumption in the non-compliant states is almost 60% higher than in the compliant states, even though the latter have much higher incomes. While a variety of factors can contribute to this difference, the noncompliant states produce more fossil fuels, consume more and do not try as hard to lower consumption. In terms of electricity consumption, the potentially compliant states are much closer to the more efficient advanced industrial societies that are supporting the Paris agreement.

The most striking difference between the potentially compliant and non-compliant states is in their fossil fuel resources. The states identified as potentially compliant account for a much smaller share of fossil fuel production than the non-compliant states; 14% v. 57% of oil, 17% v. 82% of coal and 25% v. 70% of gas output. Clearly, they would be much better off pursuing non-fossil fuel approaches. Interestingly, the distribution of production from renewables is much more evenly split with the potentially compliant states accounting for 60% of non-hydro renewables. The non-compliant states have chosen not to develop their renewable resources or to control their demand growth, but they have a substantial share of non-hydro renewables because their resource base

is substantial and the cost is very attractive.<sup>64</sup>

To underscore the political economy of these differences domestically, whereas nine-tenths of the non-compliant group sued to block the CPP, three-quarters of the potential compliant group intervened to defend it. With respect to the Paris Agreement, Republican House members from nine states<sup>65</sup> and Senators from 5 states<sup>66</sup> introduced a resolution calling on the Trump Administration to withdraw from the Paris Agreement, followed by a letter from Republican Attorneys General from 10 states.<sup>67</sup> Two-thirds of the non-compliant states were represented among those calling for withdrawal. On the other side, 40 Democratic senators sent a letter urging the administration not to withdraw,<sup>68</sup> along with the governors from 12 states.<sup>69</sup> Five-sixths of the potentially compliant states were represented among those opposing withdrawal. Michigan, Pennsylvania and Wisconsin, widely seen as “battleground” states, were represented in both groups. These three states generally sat in the middle on the policy measures even though

<sup>64</sup> Several of the non-compliant states have rich renewable resources whose current costs are quite low – particularly onshore wind – so they have exhibited significant development of those resources (e.g. Texas, Oklahoma) but fossil-fuel interests are much larger. In the case of Trump’s Secretary of Energy, former Texas governor Rick Perry, whose tenure had seen a huge expansion of wind power, the Trump Administration’s policy created a bit of a contradiction, particularly with respect to the expansion of the grid to accommodate wind (Thinkprogress, 2017; Tomich, 2017; Marshall, 2017).

<sup>65</sup> Quinones (2017).

<sup>66</sup> Hess (2017n).

<sup>67</sup> Siciliano (2017).

<sup>68</sup> Senate Democrats, 2017.

<sup>69</sup> Hess, 2017.



Pennsylvania has fossil fuel resources. Republican governors from Vermont and Massachusetts, two of the highest performing potentially compliant states, also argued against withdrawal.<sup>70</sup> Thus, this is not a war against coal,<sup>71</sup> but a battle between two very different paths to the future,<sup>72</sup> and the battle lines are sharply drawn.<sup>73</sup>

#### 4.3. Economics

Many of the potentially compliant states have expended considerable political, policy, and legal resources to take these state policy actions that are likely to lead to compliance, so why go to the trouble? There are political reasons and as suggested above, the potentially compliant states have a direct interest in relying on local resources, but there are many more economic reasons.

First, a massive and growing number of economic entities within<sup>74</sup> and outside of the energy sector are acting on this belief.<sup>75</sup> The commons literature teaches that responding to the externality does not require altruism, but a recognition of self and shared interests and an acceptance of responsibility.

Second, the benefits of carbon emission reduction, which are very diffuse owing to the truly global nature of the problem, are not the only public health benefits. Replacing fossil fuels reduces emissions of local and regional pollutants. A recent estimate for the states participating in the Regional Greenhouse Gas Initiative (RGGI) a multistate agreement in the Northeastern U.S. to promote reduced emissions with a cap on emissions that allows trading of emission permits, is pertinent here because the participating states make up a significant part of the potentially compliant group.<sup>76</sup> The analysis puts the value of non-carbon pollution reduction at just under \$6 billion, which pays for the entire cost of RGGI.<sup>77</sup> In the Jacobson, et al. analysis of a 100% renewable sector, the non-carbon environmental benefits are larger than the climate change related benefits.<sup>78</sup>

Third, a technological revolution has made acting like a responsible user of the commons much easier with a dramatic decline in cost of low carbon, low pollution approaches to meeting the need for electricity on both the supply and the demand side.<sup>79</sup> There is a widespread and growing understanding that the main building blocks of the alternative electricity system, efficiency, onshore wind, utility photovoltaics, and storage are already cost competitive with conventional fossil fuels and much lower in cost than new or aging nuclear technologies.<sup>80</sup> Cost trends suggest that the palate of cost competitive options is expanding quickly. The Trump Administration's effort to expand the use of fossil fuels is widely seen as misguided and doomed to fail in the face of the

dramatically superior economics of the alternatives and the global shift away from fossil fuels.<sup>81</sup>

Fourth, cost competitive alternatives and local resource reliance and development highlight another attractive economic characteristic for the potentially compliant states – macroeconomic gains. The alternatives, particularly efficiency and solar PV, are widely recognized to deliver more jobs and bigger gains in economic output per dollar of investment/expenditure.<sup>82</sup> For every dollar of direct cost savings, there is a second dollar of increased, indirect economic output.<sup>83</sup> The impact is magnified since these resources are local,<sup>84</sup> which is the fundamental premise of the Paris Agreement.

Fifth, the economic benefits will be magnified with larger numbers of states complying. Economies of scale and learning will be greater if the total market is larger. The coordination of resources in general and across the interstate grid (if federal authorities allow renewable/demand side friendly policies) is an important factor that affects the economics of the alternative system. Similarly, a global market would lower input costs and increase output opportunities. Consumption externalities are also important, particularly for natural gas and oil. The greater the reduction in consumption, the greater the downward pressure on prices, thus increasing the disposable income of households.

#### Politics and policy: public opinion and federalism

From a political perspective, the growing acceptance of climate change as a problem is a central political fact. First, concern about the causes and consequences of climate change has grown to near unanimity in the scientific community. Second, a substantial and growing majority of the public<sup>85</sup> believes the problem is large and in urgent need of a solution. This majority was manifest in every state and across political lines.<sup>86</sup>

Beyond the Paris Agreement, the early energy headlines tended to be dominated by the electricity sector because of the Trump Administration's focus on promoting coal and expunging it nemesis, the Clean Power Plan. However, the transportation sector witnessed a similar debate with respect to petroleum use. Not only had transportation become an equal source of greenhouse gas emissions in the U.S.,<sup>87</sup> but the federal-state line of conflict was highlighted in this sector.

The dilemma has a specific manifestation under U.S. the Clean Air Act, one of the primary drivers of U.S. climate policy and it puts a spotlight on California, which is justified. Not only is California large, but it also has a unique role in environmental policy and the conflict with the Trump Administration gave it great prominence. As reported in a front-page *New York Times* story on the eve of the G-7 meeting that had been identified as the key moment for the Trump Administration's decision on Paris, "California is not only fighting to protect its legacy of sweeping environmental protection, but also holding itself out as a

<sup>70</sup> Georgetown Climate Center (2017).

<sup>71</sup> Mark Hensch, "Pence: Trump will 'end the war on coal,'" *The Hill*, October 8, 2016, <http://thehill.com/blogs/ballot-box/presidential-races/290798-pence-trump-will-end-the-war-on-coal>.

<sup>72</sup> Cooper (2017), Chapter 8.

<sup>73</sup> The diametrically opposed comments of California and Texas filed in response to an EPA request for suggestions on how to revisit Obama EPA standards adds another dimension (Reilly, 2017b). These are the two largest states in the potentially compliant v. non-compliant groups and they are as different as night and day in their energy policy, resource endowments, and reliance on renewables. Texas accounts for over one-third of U.S. oil production, over one-quarter of natural gas production, and one-twentieth of coal production. California accounts for just over one-twentieth of U.S. oil production and virtually no gas or coal production.

<sup>74</sup> Trabish (2017a, 2017b, 2017c), Bade (2017a) (2017b); Fresh energy (2016).

<sup>75</sup> Moody's (2017), Cusick (2017b); Casey (2017).

<sup>76</sup> Over two-thirds of the Under 2 group, half of the Pro-CPP group, and two-fifths of the max potential group.

<sup>77</sup> Abt (2017).

<sup>78</sup> Jacobson et al., 2015a, 2015b, present results for 139 nations; while 2015b, presents results for all 50 states.

<sup>79</sup> Cooper (2017), Part III.

<sup>80</sup> Combining non-carbon health benefits of reduced reliance on coal with direct pocketbook cost savings (RGGI, *The Investment of RGGI Proceeds through 2014*, September 2016), which are both driven by energy efficiency, yields a benefit cost ratio of just under 3.5-to-1, without include any value for reduce carbon emissions.

<sup>81</sup> Hess, 2017h; Chemnick (2017i); Moody's (2017) Coal, Oil, Nuclear (Cooper, 2012b, 2016c; Cooper, 2014; Hwang and Peak, 2006; International Council on Clean Transportation).

<sup>82</sup> Cooper (2017), Part III, p. 117 shows social producing about nine-times central station generation (gas, coal and nuclear) and efficiency almost four times (Lavelle, 2017a).

<sup>83</sup> The multiplier effect of "responding" the money saved on use of more efficient equipment has been extensively studied (see Ryan and Campbell, 2014; Volkery, 2013; Holmes and Mohanty, 2012. Lutz, Lehr and Peht, 2012; Wei, Patadia and Kammen, 2010. Fronzel et al., 2009). Less often studied, but equally important are the ways in which the adoption of energy saving technologies (frequently instigated by policies like standards) drives innovation more broadly in the affected industry (International Council on Clean Transportation; Whitefoot, Fowler and Skerlos, 2012; Dale et al., 2009; Kuik, 2006; Sperling et al., 2004; Worrel et al., 2001).

<sup>84</sup> For European nations, where fossil fuels are frequently imported, the literature emphasizes reduction of imports as a national security, competitiveness and economic benefit. This provides context for the potentially compliant states that have relatively little fossil-fuel production.

<sup>85</sup> Cooper (2016b), discusses ten years of polling on fuel economy standards which are by far the most important energy efficiency standards, although lighting is becoming a huge source of conservation due to the growth of LED lighting (Davies, 2017).

<sup>86</sup> Davenport and Connelly (2015); Marlon et al. (2017). Nace (2017).

<sup>87</sup> Randall, 2017.

model to other states – and to nations – on how to fight climate change.<sup>88</sup>

Under a 40-year old amendment to the Clean Air Act, the state of California has the right to issue its own standards, subject to the granting of a waiver from the Federal government.<sup>89</sup> If California and the Federal government adopt different standards, individual states can choose which standard to follow. This allows for a federal or state solution, while compelling the industry to comply with at most two standards.

California had been granted a waiver by the federal government to regulate emissions from vehicles and had led the Clean Cars Program. Shortly after the start of the 21st century, California had adopted a Low Emission Vehicle (LEV) standard. A dozen states had chosen to follow California, which made the coalition of Clean Cars states the fifth or sixth largest auto market in the world. Over the objection of the automakers, one of the primary impacts was to create a market for hybrid vehicles.<sup>90</sup> Although the hybrid had started as a niche product, a decade and a half later it was mainstream, with every automaker who offered a full line of vehicles marketing hybrid for each of the main models that consumers drive (small, medium and large cars as well as SUV).<sup>91</sup>

The Obama Administration ordered the federal agencies responsible for auto standards – the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) – to cooperate and coordinate with California, i.e. the California Air Resource Board (CARB). It can be argued that this was a good example of cooperative federalism by the administrative bodies with the responsibility for setting policy.<sup>92</sup>

The National Program that they arrived at to set standards for 2017–2025, was the most aggressive in U.S. history. Moreover, nine states had chosen to follow the California Zero Emission Standard, which will require significant penetration of electric vehicles. At the end point, for the first time ever, the U.S. standards would have been close to the standards imposed by other major vehicle market nations.

Because the National Program was a long-term program, it involved a mid-term review. EPA and CARB had determined that the rule should stay in place, but NHTSA had not.<sup>93</sup> The Trump Administration withdrew the EPA determination and opened a full-scale review, while CARB not only supported the existing rule, but also proposed more stringent regulation for the 2025–2030 period. Battle lines were quickly drawn, as the automakers, who had overwhelmingly supported the National Program, were the first sector to reach out to the new Administration to ask for relaxation of regulatory requirements.<sup>94</sup> As noted above, the Trump Administration withdrew the EPA's final determination to keep the standard and was considered withdrawing the California waiver.

Another important field of battle is energy efficiency policy. This is not only likely to be one of the centerpieces of climate policy, but in the U.S. it enjoys a remarkable tradition of bipartisan support that stretches back almost fifty years.<sup>95</sup> The federal government has pre-empted state action on efficiency standards, where the federal government has

enacted a standard.<sup>96</sup> Nevertheless, efficiency standards were a primary target of the conservative think tanks.<sup>97</sup> The Trump Administration issued both specific and general attacks on standards with an executive order to review all standards and a severe limit on the conditions under which new standards could be issued.<sup>98</sup>

Thus, potentially compliant states have a clear political interest in asserting and preserving their right to act independently, not to mention a strong economic interest in moving policy in a direction that serves their direct economic interest and the interest of the participants in the global climate commons.

#### 4.4. Conclusion

Ultimately, the debate over U.S. participation is at best a distraction, at worst a scam. It is not participation that matters, but compliance. Common pool resource systems rely on voluntary compliance induced by social pressures. Having point to the fundamental conflict between the Trump Administration and the participants, one would expect continued and intensified conflict as the Agreement was implemented. This is what took place at COP23.

#### 4.5. Subnational U.S. entities

The subnational entities in the U.S. have been extremely active in expanding their base and demonstrating their resolve.<sup>99</sup> “Official” support increased to majority levels and became a selling point to reassure the participants.<sup>100</sup> Thirteen of the 22 potentially compliant states are officially on record as supporting.<sup>101</sup> Another four have major cities supporting (Dubuque, IA; Chicago, IL; Santa Fe, NM; Philadelphia, PA.). Three more that have not specifically supported the Agreement are deeply involved in supporting other activities, Clean Cars, RGGI and the CPP (Maine, MD, NH). New Jersey was RGGI and is in Clean Cars. Michigan is the only outlier. North Carolina signed on in support. The original list of potentially-compliant states is affirmed by these actions.

At the same time, the dispute over the Agreement has solidified a potentially larger base of support, with major cities in a dozen other states declaring support (Phoenix, Tucson, AZ; Fayetteville, Little Rock, AR; Miami, St. Petersburg, West Palm Beach, Orlando, Tallahassee, FL; Atlanta, GA; Kansas City, KS; St Louis, MO; Reno, NV; Columbia, SC; Nashville, Knoxville, TN; Dallas, Houston, Austin, TX; Salt Lake, Park City, UT; Milwaukee, WI). Analysis by America's Pledge puts the GDP of the “officially” supporting entities well above half of the U.S. total. Combining the “official” count with the potentially compliant list, would push the total to close to 60% of the U.S. economy.

At COP 23, the non-governmental participants expected a larger voice and the leadership has been treated as equals, suggesting innovative ideas, e.g. a global carbon market, zero growth in the transit sector, as well as picking up the tab for the U.S. share.<sup>102</sup> A variety of benefits of support were touted including economic benefits<sup>103</sup> in

<sup>88</sup> Davenport Nagourney (2017), p. A-1; Reuters (2017c); Leslie (2017).

<sup>89</sup> Reilly (2017a, 2017b, 2017c); Reuters (2017c); Davies, 2017; Chemnick, 2017o.

<sup>90</sup> The ownership rate of electric vehicles in California is over six times the national average.

<sup>91</sup> Cooper and Gillis (2017), Attachment II (Smiechowski, 2014).

<sup>92</sup> There was considerable debate about what the concept meant and whether some states wanted more responsibility (Kahn and Mulkern, 2017).

<sup>93</sup> NHTSA was legally obligated to conduct a second complete rulemaking; the other agencies were not (Cooper, 2012a).

<sup>94</sup> Henry (2016), reporting letter to the White House two days after election day. Another letter was sent on February 10, 2017.

<sup>95</sup> Nine of the ten major pieces of legislation mandating increases in energy efficiency were signed by Republican presidents. At least sixty percent of every house of Congress has voted in favor this legislation on final passage and, on average in over a dozen votes, over 85% of the member of congress supported enactment of legislation that authorized regulation to improve energy efficiency (Global Automakers, 2017; Williams, 2017).

<sup>96</sup> Important energy policies, like building codes, utility efficiency programs and renewable portfolio standards are state-based.

<sup>97</sup> American Action Forum (AAF), 2017, identifies over 1100 rules as imposing excessive costs of over \$1.2 trillion. Of these about one quarter of energy efficiency standards which account for almost half of the total cost. The calculation measures costs, not benefits Hess, 2017b.

<sup>98</sup> The AAF approach was taken by the Trump Administration Executive Orders of reducing regulation and the imposition of a regulatory budget, an approach that was severely criticized by 95 regulatory experts, led by a pro-market think tank, Lin and Krupnick (2017); Cooper, 2014.

<sup>99</sup> Wattles (2017); U.S. Climate Action Center, 2017; We Are Still In (2017); Hensen (2017), Stupp (2017).

<sup>100</sup> E&E News, 2017a, 2017b, 2017c, 2017d, 2017e, 2017f, 2017g; U.S. Climate Action Center; U.S. Climate Alliance, 2017; United States of America, 2017.

<sup>101</sup> Maryland added its name to the list in early 2018, Dance (2018).

<sup>102</sup> Stupp (2017), America's Pledge (2017), Wattles (2017).

<sup>103</sup> Gilpin (2017), Lee and Klump, 2017, McKenna (2017), Hess, 2017m.

general and specific states,<sup>104</sup> and political benefits, supported by the polling result.<sup>105</sup> The flood of commitments from industry cannot be overlooked, particularly the increasing commitment to electrify the transportation sector.<sup>106</sup>

#### 4.6. The Trump administration

The Trump administration made it clear that it would not be pressured into complying in the cooperative manner of the Agreement. The hostility of the administration to multi-lateral agreements, not to mention polycentric governance, suggests that it will simply not contribute to the emergence of consensus and norms. The Trump Administration's rejections of a progressive obligation, in spite of the fact the U.S. is one of the wealthiest nations and one of the largest emitters on a per capita basis, highlights the conflict with the central premise of the Paris Agreement's progressive mechanism for achieving development with decarbonization.

At COP 23, the Trump administration simply reiterated its initial position, no matter what developments are. As the senior administration official put it. "There has been no change in in the United States Position on the Paris Agreement. As the President previously stated, the United States is withdrawing unless we can re-enter on terms more favorable to our country."<sup>107</sup> Having done so, it lost its influence over the process. Looking at the actions of the other two sets of actors, one can argue that the U.S. quickly became isolated, confused and irrelevant, exactly what those in the administration who had argued for participation had feared.

The isolation can be seen in a number of ways, some by choice, some by action of others. The U.S. had no pavilion, which the subnational U.S. entities had a prominent pavilion right outside the gate.<sup>108</sup> The U.S. was not invited to a follow up meeting in Paris.<sup>109</sup> Syria signed the Agreement on the eve of COP 23, leaving the U.S. as the only member of the U.N., not supporting, a fact that was repeated loudly and frequently.<sup>110</sup>

The confusion and, consequently, weakness in the U.S. position was evident at COP 23 and in key policy areas leading up to it. Mixed messages were sent at the meeting in terms of the depth of the hostility, if not the direction of U.S. policy.<sup>111</sup> This paralleled analysis coming out of the administration, which seemed to show, contrary to its policy, that climate change was having an impact.<sup>112</sup> The difficulty in arriving at policy conclusions, much like the "toing and froing" over participation dogged the administration, including problems with implementing subsidies at the FERC and the repeal of the Clean Power Plan. The courts got in the way of other decisions, one of particular importance being the effort to roll back regulations on methane.<sup>113</sup>

To be sure, the Trump administration had the capacity to create pressure in the direction it wanted the U.S. to go by pushing subsidies for fossil fuels, reducing subsidies to alternatives or putting tariffs on the importation of equipment,<sup>114</sup> lowering or eliminating the size and use of the social cost of carbon in policy analysis, and eliminating the conduct of research or the dissemination of its results.<sup>115</sup> In a sense,

there was a standoff between the power of the federal government and state and local governments.

For the Parties to the Agreement, the point had been made that the U.S. position was divided and far less threatening than an uncontested symbolic act of withdrawal would have been. The Trump administration may have its hands tied and be stuck with a very significant part of the U.S. acting independently under American Federalism and its own rhetoric about local autonomy interacting with the Agreements strong commitment to subsidiarity and sub national and non-governmental action.

#### 4.7. The participants

The pattern of reactions has become clear. Participants pat themselves on the back, while activists and scientists complain that progress is not fast enough.<sup>116</sup> Success, like beauty is in the eye of the beholder, especially in a process including almost 200 nations with goals across 50-years.

The parties responded to the U.S. withdrawal by continuing their rejection of the U.S. claims<sup>117</sup> and vigorous competition for global leadership between advanced industrial nations,<sup>118</sup> with China and India "stepping" up with more vigorous reduction commitments,<sup>119</sup> and efforts to coordinate and build leadership showing no signs of abating.<sup>120</sup> While the activity around the U.S. withdrawal were largely at the level of defending constitutional and choice rules, the main focus of COP 23 was very much at the level of operational rules. Three things are clear from the self-evaluations.

First, subnational entities were a focal point of attention. Of fourteen major accomplishments singled out, almost half dealt with subnational and non-participant entities. Table 6 shows the description offered for the four most prominent of these.

Second, the U.S. presence at the subnational level is acknowledged. America's Pledge was listed in the coordination accomplishments and three of the four corporation singled out for corporate emissions cuts were American. U.S. participation was also clear in the cities and beyond coal activities.

Third, a clear effort was made to build an institutional history and identity by linking accomplishments back to the Marrakech meeting and commitment, which were non-Party oriented.<sup>121</sup> The claimed accomplishments include coordination of non-Party action with the Agreement, expanding action by subnational entities, business transformation and improved reporting.

Focusing on a pariah challenge and positive developments makes sense in the early days, but a day of reckoning is likely to come. Sticking with positive measures, it would be possible to craft a set of rules that allows compliant, subnational entities (state and local governments, corporations and civil society groups) to participate in the substantial flows of resources that the global response to climate change is likely to create. Non-participants and non-compliant entities could be foreclosed. In a sense, this is the second step in a scheme of graduated sanction (i.e. rewarding good behavior). Negative sanctions, like taxes and carbon intensive products could also be adopted.

## 5. Conclusion

A successful reaction to the threat of U.S. withdrawal from the treaty, or the steadfast resistance of subnational units to the effort of the

<sup>104</sup> Rahim (2017), renews, 2017.

<sup>105</sup> Marlon et al. (2017).

<sup>106</sup> With the major Asian automakers asking California to use the money from the VW settlement of fraudulent test results to expanding charging stations, which would support it Zero Emission Vehicle program.

<sup>107</sup> Siciliano (2017). The President reaffirmed this position several month after COP 23 (Reuters, 2018).

<sup>108</sup> Delurey (2017).

<sup>109</sup> E&E News, 2017a, 2017b, 2017c, 2017d, 2017e, 2017f, 2017g; Browne, 2017.

<sup>110</sup> Stupp (2017); Siciliano (2017).

<sup>111</sup> Friedman (2017c).

<sup>112</sup> Shankman, 2017a, 2017b, 2017c; Cushman (2017); Energy.Gov, 2017; Freidman, 2017a.

<sup>113</sup> Friedman (2017e).

<sup>114</sup> Restucci and Palmer, 2018.

<sup>115</sup> Plummer, 2017, Cushman, 2017, Heikkinen and Kaenel (2017).

<sup>116</sup> Euronews (2017).

<sup>117</sup> Chemnick (2017a); Sengupta, 2017; Mulkern (2017).

<sup>118</sup> Sengupta, 2017; E&E News, 2017a, 2017b, 2017c, 2017d, 2017e, 2017f, 2017g; Chemnick (2017b).

<sup>119</sup> E&E New, 2017a, 2017b, 2017c, 2017d, 2017e, 2017f, 2017g; Sengupta, 2017.

<sup>120</sup> McDonald (2018).

<sup>121</sup> UNFCC (2017a).

**Table 6**

Local and Non-Party Accomplishment of COP 23.

Source: United Nations, Framework Convention on Climate Change (UNFCCC), (2017b), Key Achievement from COP 23, November, 18.

**2018 Talanoa Dialogue:** After extensive consultations, the Fijian COP23 Presidency announced an inclusive and participatory process that allows countries, as well as non-state actors, to share stories and showcase best practices in order to urgently raise ambition – including pre – 2020 action – in nationally determined contributions (NDCs). This is ultimately to enable Parties to collectively move closer to the more ambitious Paris Agreement goal of keeping the rise in global temperature to 1.5 degrees Celsius.

**Finalisation of the Local Communities and Indigenous Peoples Platform:** This platform will provide direct and comprehensive means to give a greater voice to indigenous people in the climate negotiations and allow them to share their traditional knowledge and best practices on reducing emissions, adapting to climate change and building resilience.

**America's Pledge:** A delegation of sub-national leaders led by Gov. Jerry Brown of California and former New York City Mayor Michael Bloomberg presented a report on the ongoing efforts by American states, cities, businesses and civil society to uphold the emissions reduction target of the United States under the Paris Agreement.

**Bonn-Fiji Commitment:** Local and regional leaders gathered to officially adopt the [Bonn-Fiji Commitment of Local and Regional Leaders to Deliver the Paris Agreement at All Levels](#), a pledge that signals their commitment to bring forward a critical shift in global development. The Bonn-Fiji Commitment highlights the pledge to raise collective ambition for climate action.

**First Open Dialogue between Parties and Non-Party Stakeholders:** The Fijian COP23 Presidency presided over the first ever Open Dialogue between Parties and Non-Party Stakeholders (NPS) within the formal climate negotiations. Discussions were held surrounding two important topics. The first was how NPS can help Parties design and implement more ambitious NDCs and the second was how to better integrate NPS into the climate negotiations process. Based on the success of the dialogue, there was strong enthusiasm to continue similar discussions at future COP meetings.

Trump Administration to undermine the goals and collaborative model, might provide a critical test that enhances the efficacy and legitimacy of global climate policy. Looking back several decades, this could be seen as a critical juncture or a turning point on the path to a successful response to the challenge of climate change. Acemoglu and Robinson use the former term<sup>122</sup> and Perez uses the latter to describe these moments in the development of an economy.<sup>123</sup> These critical junctures or turning points have been historically marked by intense conflict, as the interests grounded in the declining techno-economic paradigm can see that, if the economy continues in the ongoing direction, their skill sets and assets will be severely devalued and their power diminished. This is the moment to fight a rearguard action and use policy to reverse the direction of change. These authors argue that rejecting the past and turning policy in a progressive direction have been the keys to success. They hasten to add that the outcome is far from certain. Needless to say, this moment and the conflict between the participants and the Trump administration fits the bill.

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