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The 2015 Paris Agreement on Climate Change: Significance and Implications for the Future

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D I A L O G U E

The 2015 Paris Agreement on Climate Change: Significance and Implications for the Future

Summary

On December 12, 2015, nearly 200 countries created a major new agreement on climate change, accompanied by national commitments to act. The Paris Agreement has rightly been celebrated as a breakthrough, but was unquestionably constrained by the need for compromise, and its details will continue to be developed at the international, national, and local levels. On January 9, 2016, a panel of expert commentators and delegation members from a variety of national jurisdictions convened at the annual American Association of Law Schools meeting to analyze the Paris Agreement; they considered how the agreement evolved from prior efforts, the structure of its commitments, and its implications for the future. This Dialogue presents a transcript of the discussion, which has been edited for style, clarity, and space considerations.

Hari Osofsky (moderator) is a Professor at the University of Minnesota Law School, the Faculty Director of the Energy Transition Lab, and Chair of the American Society of International Law's observer delegation to the Paris negotiations.

Lisa Benjamin is an Assistant Professor at The College of The Bahamas.

Michael Gerrard is a Professor and Director of the Columbia Law School Sabin Center for Climate Change Law.

Jacqueline Peel is a Professor at the Melbourne Law School in Australia.

David Titley is a Professor of Practice in the Department of Meteorology at Penn State University.

Hari Osofsky: The Paris Agreement on Climate Change,¹ which is often referred to as historic, represents a major step forward in international negotiations, though I know our panelists have varying views about how much that major step actually translated into what is needed.²

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1. U.N. Framework Convention on Climate Change, Adoption of the Paris Agreement, Dec. 12, 2016, U.N. Doc. FCCC/CP/2015/10/Add.1, available at http://unfccc.int/files/home/application/pdf/paris_agreement.pdf.
 2. The panelists spoke on behalf of themselves individually and not on behalf of any of the organizations they may have represented at the Paris negotiations.

We're going to first talk about the background to the agreement, including the climate science background. Next, we'll talk about the three primary issues that really came to a head at the end of these negotiations: namely, the level of ambition, differentiation, and financing. Third, we will turn to the agreement itself and analyze what it is legally and what that means. Finally, we're going to look at its implications, such as long-term implementation issues and economic transition issues.

Lisa Benjamin is an assistant professor at The College of The Bahamas, a member of the Bahamian national delegation to the United Nations Framework Convention on Climate Change (UNFCCC) Advanced Durban Platform (ADP) negotiations, and a member of the Compliance Committee (Facilitative Branch) of the UNFCCC. Michael Gerrard is director of the Columbia Law School Sabin Center for Climate Change Law and worked with the delegation of the Republic of the Marshall Islands at the Paris Conference. The Marshall Islands' foreign minister led the high-ambition coalition that the United States joined. Jacqueline Peel is a professor at the Melbourne Law School and a co-chair of the International Environmental Law Interest Group of the American Society of International Law. Last, but not the least, David Titley is a professor of practice in the Department of Meteorology at Penn State University, founding director of Penn State's Center for Solutions to Weather and Climate Risk, retired U.S. Navy rear admiral and originator of the Navy's Task Force on Climate Change, and former chief operating officer for the National Oceanic and Atmospheric Administration (NOAA). David will get us underway with a little background in climate science.

David Titley: There is ample evidence that the climate is changing. The question is why, and the answer is pretty simple. In 1842, Joseph Fourier figured out the basic physics of greenhouse gases. These gases ensure that not all the heat coming back out of the earth's surface escapes into space, but instead some is re-radiated back to the earth and to the lower atmosphere. That's the greenhouse effect. Parenthetically, the earth would be a frozen ice ball and uninhabitable without some greenhouse gases, but too high a concentration of these gases causes the earth to warm to levels not seen since before human civilization. John Tyndall and Svante Arrhenius continued to research this

subject in the 19th century. By 1896, the basics were very well-known and they have withstood the test of time in the science community. While there still are climate-related issues to research, the basic understanding of why the climate is changing is known very well. Sometimes, that point gets lost, but I think that's actually pretty important.

A seminal article in the history of change was James Hansen's 1981 *Science* article,³ where he showed that the signal of global warming would become clearly detectable from natural climate change by the end of the century, with significant impacts on the polar ice sheets, global sea-level rise, and expansion of drought-prone areas in North America and Asia. Unfortunately, Hansen's predictions came true. Despite the overwhelming physical evidence of human-induced climate change, not everyone accepts this basic science.

I addressed climate science when I recently testified before Sen. Ted Cruz (R-Tex.) on climate change.⁴ You'll hear some people say that since 1998, there's been no global warming. I used a graphic at the hearing and told the senator that while I'm probably just a "simple sailor," to me, it looks like the global warming pause has come and gone. Again, we know why because it's basic, simple physics. The question that our panel will address is, what do we do about it?

Hari Osofsky: Continuing with the background portion of our discussion, we turn to Jacqueline Peel, who will discuss the UNFCCC and a subset of meetings, negotiations, and agreements that form the backdrop of how we got to the Paris Agreement.

Jacqueline Peel: It's important when we look at the Paris Agreement to understand where we came from because it's been very much shaped by its history. We've been waiting for over 20 years for this kind of agreement to come about. The Paris Agreement is the latest evolution in the development of the international climate regime. The foundational treaty instrument of that regime is the UNFCCC, which was opened for signature at the Earth Summit in Rio de Janeiro in 1992 and came into force in 1994.⁵

The UNFCCC at the international level was, as the name suggests, intended just to set the general framework for dealing with climate change. It had, and still has, an objective of trying to stabilize greenhouse gas emissions to prevent what the treaty refers to as "dangerous anthropogenic interference" with the climate system. However, that treaty didn't do anything in terms of specifying particular actions, e.g., emissions targets that countries should undertake to reverse and address climate change. Thus,

since 1992, the international climate regime has been in an almost constant state of negotiation trying to agree to more specific standards for what countries should do. The first round of attempts came with the Kyoto Protocol in 1997, which adopted a model that had been successfully used in other areas of international environmental law, in particular in dealing with the problem of ozone, and tried to use that in the climate context.⁶

In the ozone context, we've been very successful in reducing ozone-depleting substances by having a series of targets that countries must meet across different time-tables. Developed countries had to take the lead in terms of reducing ozone-depleting substances, with developing countries coming on board in a more phased manner. That was the model for the Kyoto Protocol. Developed countries took on targets; developing countries did not. However, the protocol did not come into force until 2005, stalled by the decision of the United States not to ratify the protocol. While the Protocol eventually entered into force with the participation of other developed countries, the U.S. non-participation seriously limited the scope for the Protocol to achieve its goals of emissions reduction.

The Kyoto Protocol limped on for many years. It was clear that a new model was needed—not the top-down approach that the Kyoto Protocol adopted, setting targets and requiring countries to meet those—but something different. What that something different might be began to emerge starting about 2009 and is the basis of the approach that we now have in the Paris Agreement. In 2009, the conference of the parties (COP) under the UNFCCC thought they were going to agree on a new climate agreement. This was the Copenhagen Conference that President Barack Obama attended and where all hopes of reaching a new agreement were dashed.

What emerged from the conference was a political declaration known as the Copenhagen Accord.⁷ It was a soft political instrument, but it set the basis for what we have now. It turned toward an approach where countries, rather than having obligations imposed under international law for them to reduce emissions, to achieve set targets across given timetables, would put forward their own contribution that they are going to make to reducing emissions and addressing the adaptation challenge.

The language of what those commitments are called has evolved over time. We now call them nationally determined contributions (NDCs). And from Copenhagen, there was a gradual process that recognized this transition from the top-down model of the Kyoto Protocol to a bottom-up process. That culminated in the Paris Agreement, which embodies the idea that countries will put forward their own NDCs as part of the global response to climate change.

3. James Hansen et al., *Climate Impact of Increasing Atmospheric Carbon Dioxide*, 213 *Sci.* 957 (Aug 28, 1981).

4. *Magnitude of Human Impact on Earth's Climate, Hearing Before the Comm. on Commerce, Science, and Transportation* (Dec. 8, 2015) (statement of Rear Admiral David W. Titley, USN (Ret.)). See <http://climatecrocks.com/2016/01/16/watch-admiral-titley-deconstruct-ted-cruz/>.

5. U.N. Framework Convention on Climate Change, May 29, 1992, U.N. Doc. A:AC.237/18 (1992), reprinted in 31 *I.L.M.* 849 (1992).

6. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc. FCC/CP/1997/L.7Add.1, reprinted in 37 *I.L.M.* 22 (1998).

7. U.N. Framework Convention on Climate Change, Copenhagen Accord, Dec. 18, 2009, U.N. Doc. FCC/CP/2009/11/Add.1, available at <http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>.

So, two things that drove the eventual form of the Paris Agreement came from the history of what went before. First, dissatisfaction with the top-down model, or at least acceptance that it wasn't a model that was going to work in a climate context. Second, that it was hard to go it alone without the United States on board. Nonparticipation by the United States fatally wounded the Kyoto Protocol approach. There were extra efforts made with the Paris Agreement to accommodate the preferences of the United States, and that agreement was very much shaped by the need to ensure that there will be U.S. participation this time around.

Hari Osofsky: That transitions us perfectly to Mike Gerard, who is going to talk about the structure of NDCs.

Michael Gerrard: As Jackie said, the Paris Agreement represented an abandonment of the top-down approach and the adoption instead of a bottom-up approach. Almost every country, about 96% of the emissions, came up with self-determined pledges for what they would do. They were all phrased in different terminology. The nongovernmental organization (NGO) Carbon Tracker and some others have tried to add up what those pledges would accomplish. The U.S. commitment, for instance, is to reduce greenhouse gas emissions against the 2005 baseline by 26-28% by 2025. Other countries phrased their commitment in different fashions. Some of them do it in terms of emission intensity. Some of them do it in terms of the percentage of energy that will be provided by renewable sources.

The pledges are completely voluntary and unenforceable, largely because, as Jackie said, the United States didn't want to have to submit this agreement to U.S. Senate ratification. The U.S. State Department knew that it wouldn't get ratified, so they were not willing to commit to anything more than they had already committed to in signing onto the 1992 Rio agreement. So, we have a collection of pledges that take us to a world that is not the 2° Celsius goal or 3.6° Fahrenheit goal, but instead is well above that. Nonetheless, it is still much better than what would have been business-as-usual. Those intended nationally determined contributions (INDCs) are one of the central parts of the Paris Agreement.

Hari Osofsky: Next up, Lisa Benjamin will talk about the growing emphasis on adaptation and, in particular, the transition into acknowledging the category of loss and damage that has taken place over the past few years.

Lisa Benjamin: I also want to make a short note on the whole process leading up to Paris about the INDCs and NDCs. Even though collectively and globally it was clear that there were obstacles to the United States signing onto a legally binding treaty or protocol or agreement, it was very clear before and during the Paris conference that it was very important to the Alliance of Small Island States

(AOSIS)⁸ to have legally binding commitments. Not contributions, but commitments to be housed in an annex to the Paris Agreement, and that was the position that was maintained for a long time. Even though the agreement did not end up with legally binding commitments, all parties were not very happy with what has happened in terms of NDCs. That point leads me into the two issues of adaptation and loss and damage (separate concepts in the Paris Agreement), which I was able to follow in some of the negotiations and meetings.

First, adaptation: There was a desire to have stronger language on adaptation so that there would be a global vision or global goal on adaptation. What that consisted of was a movement among several negotiating blocs to have countries submit, effectively, adaptation contributions. So, there will be plans that are submitted on adaptation, and the language that is included in those plans is really up to the parties to determine, but there was a general movement to raise adaptation to the level of mitigation to ensure they're considered equally, particularly with respect to financing. Financing for adaptation was an important issue. Financing language, for a long time, was included in its own section as well as in other areas of the drafts, such as in the adaptation section, and then it was consolidated to one area on finance once people were comfortable with the finance section.

Second, the concept of loss and damage has been included in the Paris Agreement. That is a really significant achievement, although the novel language on loss and damage in the agreement has been watered down significantly from what was originally submitted. The concept of loss and damage is that which exceeds a country's ability to adapt. It goes beyond what you're capable of adapting to. It was very important, particularly for vulnerable countries including members of the AOSIS, to have the concept of loss and damage removed from the concept of adaptation. It originally appeared in the Cancun Adaptation Framework⁹ and thus was caught under the adaptation language. It was a real achievement to have a separate section on loss and damage.

The original language on loss and damage that was submitted in the intersessional meeting in September 2015 on behalf of least-developed countries included compensation for loss and damage. It included a displacement coordination facility specifically in the agreement. What was called for was a separate international mechanism on loss and damage. We didn't end up getting that. Effectively, what has been achieved in the Paris Agreement is the Warsaw Implementation Mechanism¹⁰ plus (WIM+), that is, the ability to expand on the mandate of the WIM

8. For more information on AOSIS, see www.aosis.org.

9. U.N. Framework Convention on Climate Change, Cancun Adaptation Framework, Mar. 15, 2010, U.N. Doc. FCCC/CP/2010/7/Add.1, available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.

10. U.N. Framework Convention on Climate Change, Warsaw International Mechanism for Loss and Damage Associated With Climate Change Impacts, Jan. 31, 2015, U.N. Doc. FCCC/CP/2013/10/Add.1, available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>.

itself. That's not an ideal result, but it's better than what some of the options were, such as no language for loss and damage in the Paris Agreement at all. It was a hard-fought struggle to get language on loss and damage in the Paris Agreement itself.

What has happened, though (and this reflects the red-line on the other side for a number of developed countries), was that liability and compensation for loss and damage was specifically excluded in the COP decision language, so the exclusion language is not in the Paris Agreement itself. If you look at the COP decision language, liability and compensation is excluded for loss and damage.

Hari Osofsky: This is a helpful sequence from science to the agreement to the NDCs to the adaptation and loss and damage issues. I will build upon this discussion by talking about three things: the process, inclusiveness, and shifting multilateralism in broader geopolitical context.

The Paris Agreement builds on the lessons learned from the difficulties faced by the Kyoto Protocol and the Copenhagen negotiations. As Jackie noted, the Paris Agreement was the next step in moving beyond the two-track model represented in the Kyoto Protocol. Negotiators recognized that there had to be a level of differentiation, but the original structure of Kyoto wasn't working because of the countries that wouldn't get on board. In addition, one of the hard lessons of the Copenhagen negotiations was that the consensus-based process by which these agreements were made wasn't working. A few countries were able to block almost 300 countries. So, one of things that happened after Copenhagen was an evolution toward what was known as the fast gavel. The idea is that the chairs assess the room and figure out if the level of dissent is low enough that they can gavel in an agreement as consensus even if there is not unanimity.¹¹ This changing idea of the requirements of consensus is an important part of how the Paris Agreement was able to happen.

One of the most intriguing moments (which wasn't that obvious if you were watching it on television because the cameras were showing the front of the room) was the one following the President of the COP approving the agreement. After a few minutes of rapid corrections—which included the change back from “shall” to “should” in Article 4 to accommodate the United States¹²—President Laurent Fabius looked down and said that he saw that parties wanted to comment. He then explained that what he was going to do was move the session from the Comité de Paris to the final COP meeting and then allow all comments. So, he closed up the Comité. He then opened up the COP and immediately banged the gavel and said that the agreement is decided.

There was a moment in the back of the room that you don't see—maybe five seconds where people who weren't

in the know about what the COP president was doing were glancing back and forth saying, “Wait, did he just. . . ? What? He just. . . !”—and then all of a sudden, the room exploded in a standing ovation. As it turned out, only Nicaragua objected, making it clear that it would not block consensus, but that it wanted to be able to comment further on why a 1.5 degree goal was crucial prior to a decision. That one country pushing back was not enough to derail the consensus agreement or celebratory speeches by country after country.¹³ So, the “fast gavel” of “almost consensus” has been a real procedural change that made a difference in Paris.

It's also worth mentioning that something really apparent at the meetings is the concentric circles of access. When the negotiations reach the latter stages at an important meeting like this one, there is absolutely no access for non-parties to the meat of what is going on with the negotiations (in a less important meeting, there's more access). Not only that, but generally, the number of participants from any given party allowed to be in the room during these final stages of the Paris negotiations was limited.

What that meant was there was a very small handful of people actually in the negotiations at that point. Other entities were influencing them by sending backchannel input. For example, the Business and Industry NGOs (BINGOs) were sending comments into the negotiations every time a new draft came out, identifying changes they wanted. So, the process involved a small set of people from each party participating, and then another circle of the outer waiting parties. Lisa will talk later about the difficulties those concentric circles of access cause for small delegations participating in the negotiations.

The next circle out was people who had what was known as Blue Zone access; they were official observers. There were thousands of people with that status. And then there was another access circle of the thousands of people who couldn't even get into the complex, who were all over Paris during these negotiations and participating in other civil society events. There were a lot of side events going on both inside the Blue Zone and beyond.

When I first started in academia and was writing about the regulatory impact of climate change litigation, a senior professor asked me, “Don't you know climate change is about treaties?” I think there's been a growing recognition over the past decade that addressing climate change is about more than just treaties. In particular, parallel to the international negotiations among the nation states, there has been, ever since Bali, a series of agreements and meetings of sub-national actors, cities, and states who are making their own agreements and commitments using their governmental authority. At the same time, there are numerous businesses involved. In the aftermath of Paris, there have been over one thousand nonstate actors who've made a variety of commitments around the 2-degree goal.

11. Lisa Friedman, *A Near-Consensus Decision Keeps U.N. Climate Process Alive and Moving Ahead*, E&E PUB., Dec. 13, 2010.

12. John Vidal, *How a “Typo” Nearly Derailed the Paris Climate Deal*, GUARDIAN: ENV'T BLOG (Dec. 16, 2015), <http://www.theguardian.com/environment/blog/2015/dec/16/how-a-typo-nearly-derailed-the-paris-climate-deal>.

13. Video, Conference of the Parties, 11th Meeting, Dec. 12, 2015, <http://unfccc6.meta-fusion.com/cop21/events/2015-12-12-17-26-conference-of-the-parties-cop-11th-meeting>.

The final point I want to make is about the shifting geopolitics of the agreement. For a long time, as Lisa's reference to AOSIS highlights, countries have grouped themselves into negotiating blocks at these meetings. One of the interesting shifts in the Paris negotiation was how the coalition of ambition emerged and broke down divides among the traditional negotiating units (even though those negotiating units still formally existed and made presentations at the plenary sessions). You suddenly had major developed countries working together with the small island states, and more and more countries joining. One of the turning points was when some of the large developing countries from the Group of 77 (G-77), which represents a diverse set of developing countries,¹⁴ came in as well; Brazil's decision to join the group was particularly crucial.¹⁵ That recreation of the coalitions and the geopolitics of the meeting really helped get the agreement done. It was particularly striking when the Venezuelan representative spoke at the end, celebrating key women and the agreement. She was one of the people who had been a blocker at Copenhagen. That was a great moment, as was the United States and China speaking back-to-back in support.¹⁶

I'm going to turn our focus now to the key negotiating points at Paris. In particular, in the last week, it had boiled down to three main issues: the level of ambition, differentiation among parties, and financing. The level of ambition focused on what the temperature goal would be, and how countries would reach that goal. Regarding the second issue, if you're moving away to some extent from a two-track model in which only Annex One countries (major developed countries) have binding targets and timetables to a more universal set of obligations, how do you differentiate? Finally, we will discuss the financing that was absolutely crucial to the developing countries for mitigation, adaptation, and loss and damage.

Dave will talk first about one of the big debates that happened over the goal of keeping global warming to a 2-degree Celsius increase. Midway in the conversation, there were three options on the table: a 2-degree goal, a 1.5-degree goal, and what they eventually agreed to, which was a 2-degree goal with an aspiration toward 1.5 degrees, the compromise solution.

David Titley: When we talk about this 2-degree or 1.5-degree goal, probably the kindest thing you can say is that they are shorthand. An analogy might be, if you work in the Arctic, your whole Arctic program gets boiled down to how many ice breakers you have. What makes the shorthand attractive is that it's something people can grasp; it's something that you can more or less measure and you can more or less track.

When somebody tells you 2 degrees (Celsius) is kind of dangerous, but 1.5 degrees is okay, this is like measuring with a micrometer and then cutting with an axe. The reality is that we don't know exactly where these are. It's like a five-, six-, or seven-dimensional problem. If you're talking about heat as heat stress, the numbers that people are talking about, these shorthand figures are probably okay. It's probably a reasonable degree of confidence. We have an idea what extreme heat would look like in a 1.5-degree world or a 2-degree world.

But then, when you get into things like precipitation, well, how many flash floods are going to be an issue, because another law of basic physics is that for every degree you warm up the lower atmosphere, it can hold more water vapor. Periodically, all that water vapor decides it's tired of being a cloud and wants to become a flash flood and rain. That triggers a whole cascading series of events.

The paradox is that while you have more rain when it comes, it's easier to get droughts too. And again, how many more droughts are you going to have with a 1.5-degree or 2-degree increase in lower atmosphere temperature? We could make some guesstimates on that. The one that's really hard to get to with these shorthand numbers is the sea-level rise, and if you're a small island country, it's arguably one of the most important things to try to understand.

On a multi-century timescale, there are many credible climate scientists who believe that we have already locked in multi-meter sea-level rise. What that means in English is 10-20 feet of sea-level rise. Think about Lower Manhattan. Think about Miami. Go through the Marshall Islands. Go to Vanuatu, Tuvalu, name your island, a number of the Caribbean islands. These are existential threats for those locations. If we've already locked it in, then 2 degrees or 1.5 degrees isn't really going to help. Now, the question is, what do we do? Who caused it and who pays for it? All those issues come to the fore.

I think almost everybody agrees that less warming is better than more warming. There will be fewer unexpected cascading consequences with less warming than more warming. The risks of bad things happening are frankly on the bad side. The biggest risk in climate change is that we are underestimating the sensitivity and the cascading effects. Not that we're a bunch of Chicken Littles screaming that the sky is falling. When you look at the science behind the International Panel for Climate Change (IPCC), it's the consensus of a consensus of a consensus. Everybody has worked on committees and knows what revolutionary far-sided documents those things produce, right? That's the IPCC. If anything, the IPCC is more of a trailing edge than a leading edge on climate.

The risks are that even at a 1.5- or 2-degree increase, we're in for a much bumpier ride than we think. But to the point that less is better than more, I think everybody can sign onto that. In the next section, we're going to talk about how you get there, because that is a huge challenge. Understand that while we do know the basics, the specific impacts on a given country, a given region, or a given loca-

14. UNFCCC, Party Groupings, http://unfccc.int/parties_and_observers/parties/negotiating_groups/items/2714.php.

15. Joel Kirkland & Jean Chemnick, *Brazil Breaks From Longtime Group: Joins "Ambition" Coalition*, GREENWIRE, Dec. 11, 2015, <http://www.eenews.net/stories/1060029407>.

16. Video, Conference of the Parties, 11th Meeting, *supra* note 13.

tion are still very complex to understand. There are multiple impacts. And while the shorthand is something that we can try to put our hands around, let's not fool ourselves by believing that shorthand really encompasses all adverse climate impacts, and that if we keep to a certain number, life is good.

Hari Osofsky: The next panelist presentations will put together those three key negotiating issues (level of ambition, differentiation, and financing) with the agreement itself. I will play my usual cleanup role as moderator. Specifically, I was tasked with talking about what is legally binding in the agreement.

Jacqueline Peel: I just want to clarify. Dave was talking about the science behind the 1.5-degree versus 2-degree Celsius goal. The legal context for that is the Paris Agreement. Probably one of its signature achievements is that one of its objectives is to hold the increase in the global average temperature to well below 2 degrees and to pursue efforts to limit the temperature increase to 1.5 degrees above pre-industrial levels.

Part of the reason that that's been regarded as so important is because in the lead-up to the negotiations, 2 degrees had been regarded as basically what we're aiming at. Most people had disregarded the 1.5-degree goal, except small island states who were negotiating for it as hard as ever because sea-level rise associated with 2 degrees warming would pose an existential threat to those countries. So, it's important to realize that whatever the science is in terms of what those temperature goals actually mean, in the legal agreement we have a step forward in recognizing more ambitious goals.

Mainly though, what the Paris Agreement is, beyond the long-term temperature goal, is a process for how countries are going to get there over time. An important part of that process, besides setting the NDCs, is what is known in the agreement as the global stock-taking process. Essentially, this is a five-year cycle, a business planning kind of model where you say this is what we're going to do, and everybody meets to bed down their next NDCs two years before they are supposed to agree formally on what they're going to do over the next cycle. They will put their plans on the table, and then they agree on what their NDC will be for the next cycle. And those cycles will continue every five years into the future. This agreement doesn't have an endpoint, unlike previous agreements such as the Kyoto Protocol that had definite time frames that expired, and then the concern was, well, what happens next?

The hope of this agreement is that, by introducing a process where countries have to come together on a regular basis, they have to, in a transparent fashion, put on the table the actions and contributions that they want to make; they are assessed in light of the best available science; they're assessed in light of equity concerns; and the hope is that this collective process will enable countries

to ratchet up over time what they're doing to address climate change.

At the moment, where we're heading in terms of temperature rise, is well above 2 degrees. We are nowhere near the 1.5-degree goal. For this to be effective, you'd have to have a significant increase in ambition over time. But nobody really knows whether that's going to occur. It's largely an experiment and we'll have to see whether this new model forces countries to do more than they have in the past.

Michael Gerrard: I'll talk about financing. In Copenhagen in 2009, the agreement was that the developed countries, beginning in the year 2020, would come up with almost \$100 billion per year for adaptation and mitigation measures in the developing countries. There was no definition of which countries would pay how much or where it would go. There was a lot of attention devoted to creating the green climate fund, which, with various other financial instruments that would take in the money and disburse it, had very little definition of exactly where it would come from or where it would go. This was a subject of considerable discussion in Paris, but it didn't go a whole lot further.

If you look at the actual agreement, it said that developed countries are the donors. They're the ones coming up with the money intended to continue their existing collective mobilization goal through 2025. That's \$100 billion per year in the context of meaningful mitigation actions in transparency and implementation. Prior to 2025, they'll set a new collective quantified goal from a floor of \$100 billion per year, taking into account the needs and priorities of developing countries.

So, that's about it. There are lots of problems with that. One is that the \$100 billion per year is too little even for adaptation. There was a World Bank study around 2008 that talked about \$100 billion per year being needed for adaptation alone, but all the estimates since then are much higher, particularly since it appears there's a very good chance we'll blow past the 2-degree goal. With mitigation, the definitions are so loosey-goosey that they're depending a lot on private money, so private money that goes to solar and wind in developing countries counts against this goal.

The bottom line is there's not nearly enough money talked about here, and there's no clarity at all on where that money is going to come from. Had there been an attempt in the agreement to say the United States comes up with \$30 billion per year, and Europe with such and such, it would have all blown up, that would have been impossible. So we, on the financing side, have an extremely loose and vague set of commitments.

Lisa Benjamin: I'll touch on the level of ambition, which is really the key redline with loss and damage for AOSIS, and a little on differentiation. Just to give you some context, about 80% of The Bahamas is less than one meter above sea level. We're extremely vulnerable to sea-level rise as well as other impacts from climate change. I agree with Jackie that the Paris Agreement is really a process-based

agreement. There's very little in the way of substantive obligations in terms of ambition. That's why AOSIS always had a redline on a global temperature goal of below 1.5 degrees. We didn't get "below 1.5," and in fact, the 1.5 temperature goal is an aspirational goal in the agreement. Additionally, there is no obligation on countries to ensure that their collective NDCs meet the global temperature goal that's been established in the Paris Agreement at all, so we're really in a voluntary situation.

One of the stories that really hasn't been told about the 1.5-degree goal is that it resulted from an AOSIS-led campaign that originated in the Cancun 2010 meetings to initiate what's called the 2013-2015 scientific review, which ended up in a structured expert dialogue (or SED) that was tasked to review the current 2° Celsius global goal against a 1.5° temperature goal because, effectively, nobody was taking the 1.5 goal seriously at all. The mandate of the 2013-2015 review was to conclude in 2015, particularly so that the Paris Agreement ADP negotiators and the COP could take the results of the SED into account when considering the global temperature goal.

I wasn't able to attend the subsidiary body for implementation (SBI) and subsidiary body for scientific and technological advice (SBSTA) plenary meetings in the Paris negotiations, but those subsidiary bodies were tasked with assessing the outcomes of the SED. Effectively, even though the Durban Agreement¹⁷ says that the Ad Hoc Working Group on the ADP has to refer the outcomes of the SED to the COP for consideration, parties within SBI and SBSTA refused to agree to have the SED review forwarded to the COP because they specifically did not want the 2-degree temperature goal to be reviewed and, effectively, the level of ambition to be raised in the Paris Agreement. It was a really hard-fought struggle and I think it was the high-ambition coalition that really broke the deadlock on the long-term temperature goal. It was a five-year struggle to get this global temperature goal in the agreement. It's in there, but it's really only a marker of the ambition gap, and it will remain a marker of the ambition gap for years to come.

In terms of differentiation, Article 4.4 is the one that really sets out differentiation between developed and developing countries. Developed countries have some obligations for absolute economywide emissions reductions in their NDCs, whereas developing countries' obligations are for only economywide reductions and not absolute emission reductions. This language is better than the differentiation that had been in the agreement before, where developing countries were saying we're not committing to doing anything economywide if we don't get financing for it. The United States has a particularly unique role in that. AOSIS wanted everybody to commit. AOSIS didn't want a lot of differentiation on reduction targets because every-

body has to really reduce in order to get to the temperature goal that AOSIS was negotiating for survival. Effectively, 1.5 is a survival line for us.

Michael Gerrard: Since Article 4.4 is so important, let me just read the words: "Developed country parties should"—now, this word "should" is really important because the prior draft said "shall." Just a couple of hours before the gavel fell, the U.S. negotiators said, wait a minute, we really hate the word "shall" here because "shall" might require us to go to the Senate, and we don't want to go to the Senate. So, the language was changed to "should."

"Developed country parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets." So, the developed countries now, as before under the Kyoto Protocol, are the ones that need to be leading, and they need to reduce their absolute emissions. Their emissions can't grow. "Developing country parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances."

Now, you could count four, five, six, maybe seven weasel words in that sentence. It keeps on getting softer and softer from the cumulative effect of all these weasel words. So, there's no obligation on the developing countries to actually reduce their emissions levels, but several pledged to moderate their growth or take other measures. As Lisa quite rightly said, this is one of the major places where we have differentiation continuing. We no longer have stark Annex 1 and Annex 2. You're not in one or the other, but we do still have that concept built in.

Hari Osofsky: I've been given the task of parsing out the question of what exactly it means that the agreement is legally binding. A lot of it comes down to the distinction between a treaty under international law and a treaty under U.S. law. The Paris Agreement is structured as an annex to a decision by the 21st COP to adopt it.¹⁸ The Paris Agreement itself is a treaty under the Vienna Convention on Treaties and will be going through a ratification process in April. The reason for the delay is to prepare official versions in all of the languages.

One of the lessons learned from Kyoto was that it was very clear to the countries of the world that they wanted the United States on board. It was also very clear at the negotiations that the United States, at least as represented by the executive branch, wanted to be on board. Throughout the negotiations, not only did you have the United States by the second week joining the high-ambition coalition, but you also had a very active U.S. center. Within the big sprawling context of the Blue Zone, the different countries had centers that put on programs. The U.S. center had continuous programs on climate science going on in the background, and panels showing actions that the execu-

17. U.N. Framework Convention on Climate Change, Report of the Conference of the Parties on Its Seventeenth Session, Held in Durban From 28 November to 11 December 2011, U.N. Doc FCCC/CP/2013/10/Add.1, available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>.

18. U.N. Framework Convention on Climate Change, Adoption of the Paris Agreement, *supra* note 1.

tive branch, different states, and businesses were taking to address climate change.

It was very clear that the United States, represented by its federal executive branch and other domestic climate change leaders at the conference, was trying to counteract the messages that dominated by the U.S. domestic political newsfeed, which was obviously in the backdrop of all this. As the United States joined the high-ambition coalition, Senator Cruz was holding hearings on climate change science and Donald Trump was talking about not letting Muslims immigrate, et cetera. Every country went absolutely as far as it could under its political constraints to get to this agreement. It was the most ambitious agreement possible given the various internal political constraints facing each of the countries.

One of the things heard over and over again in the speeches and halls was that this was not a perfect agreement, but it was a good agreement. In particular, negotiators were constrained by wanting to structure an agreement that the United States could join. For those of you who want to read about this issue in more depth, both David Wirth and Dan Bodansky have written detailed analyses¹⁹ of what can be done through executive agreement rather than through a treaty under U.S. law. Essentially, what was being parsed at the conference was making sure that all the language that had “shalls,” the binding language in the binding part of the agreement that was a treaty under the Vienna Convention on Treaties, would already be covered by the obligations that the United States had taken on by becoming party to the UNFCCC. All of the “shoulds,” the suggestive but not legally binding obligations, the soft law elements of the treaty, were things that go beyond that, either under U.S. domestic law or existing U.S. treaty obligations, and that was to sidestep having to seek Senate approval.

Now, there may be litigation because some members of the Senate aren't happy about this. But that's essentially legal parsing that took place in the creation of the agreement, so that it was legally binding as a matter of international law. Also, the United States is joining it as a matter of international law, but doing so under the executive's authority to join international agreements rather than under the Senate's treaty power.

The final thing I want to mention is the human rights provision. That was not a massive operational provision, but it was a major point of media attention and political contention. I think there was a fairly strong sense going into the negotiations that it was probably going to end up where it ended up. Most people thought that human rights were going to get into the agreement, but only in the preambular language and not in the operational language. There was a huge, but ultimately unsuccessful, push by a

number of countries to try to get human rights into the operational language. It's not entirely clear what some of the obligations are; there's a mushiness to the agreement. It's not entirely clear what the implications would've been if human rights had been included in the operational rather than in the preambular language. Part of the reason it's not entirely clear is because there's already a pretty good set of documentation in various international agreements and by international bodies recognizing that climate change can have human rights implications. That's reasonably well-established in a number of international settings at this point, that you can apply existing rights in a variety of ways to climate change. So, even though the human rights community would have preferred it in the operational language, in terms of being able to bring human rights claims based on climate change, there's already quite a bit there that can probably be used.

With that, I want to turn to our final topic: Where do we go from here? There was a moment of celebration in Paris, a standing ovation, and country after country speaking for hours afterwards. But the real question is now that the rubber meets the road, where are we going to take things?

David Titley: I absolutely agree with Hari and many others who have said that this is the best agreement that we could have achieved, given every country's internal constraints. Fundamentally, this is risk management. There are no guarantees at any arbitrary target exactly what the consequences will be, but we do know that the more ambitious the target or the lower the temperature, the greater the chance that the risks will be manageable.

I'm going to use a couple of seconds to just talk about the financing, to put Mike's comments in scale. The Netherlands, which arguably has one of the most sophisticated flood-control systems in the world, has estimated that it will cost them between now and 2100 an additional €100 billion to just simply upgrade what they have. The coast of the Netherlands is roughly equivalent to the coast of Connecticut and Massachusetts. That's already from a really sophisticated baseline. When thinking about Mike's comment as to whether €100 billion is enough, keep that baseline in the back of your minds.

I'll talk about these baselines, and I'll talk about the temperature part. As I've said, if you look at the true pre-industrial age, you could make a pretty strong case that we're already today 1.2 degrees Celsius above the true pre-industrial level. If the target is 1.5 degrees, we're just about there, and 2.0 degrees is very close at hand. As professionals who are working on this, it's good to make sure you understand, when somebody gives a target, what was their baseline for carbon dioxide (CO₂) emissions and also for temperature, because we all say “Yeah, that makes sense,” but you could make a pretty good case that we're already there.

As for where do we go from here, the Paris Agreement was the easy part. As hard as this was, it was the easy part for us to do, compared to transforming the world's energy

19. David A. Wirth, *The International and Domestic Law of Climate Change: A Binding International Agreement Without the Senate or Congress?*, 39 HARV. ENVTL. L. REV. 515 (2015); Daniel Bodansky, *Legal Options for U.S. Acceptance of a New Climate Change Agreement* (May 2015), <http://www.c2es.org/docUploads/legal-options-us-acceptance-new-climate-change-agreement.pdf> (Center for Climate Change and Energy Solutions Report).

system. It will transform anyway. The U.S. energy system was 100% wood 250 years ago. These transformations take typically multiple decades to a century. We need to figure out how to move the next transformation to non-carbon-based fuels in a matter of a few decades, not a leisurely stroll through the rest of the 21st century. That's going to be the big challenge, on the order of when President John F. Kennedy said go to the moon and come back safely inside of a decade. It's on that kind of order.

When President Kennedy said that, you could see in the U.S. budget that the appropriation for space exploration went from \$5 billion to \$50 billion. Later, it came back down again. We have yet to do anything like that kind of magnitude in figuring out how we can transition to different types of energy generation, energy storage, and energy management, then use that to help the rest of the world. That's our challenge. It's quite literally a moon-shot-scale challenge.

Jacqueline Peel: I'd like to make three points. One is that, as Dave said, we've done the easy-hard part, which was getting an international agreement. In some sense, we don't need another international agreement now. We can improve on it through decisions of the COP to the UNFCCC to fill out the details of the Paris Agreement. It's an agreement that continues over time, that we can use as a basis for international action going forward.

The real action is going to have to be at the domestic level, because this agreement very firmly puts the obligations on countries to go through domestic processes on a regular basis that will look at what their contribution will be to the global response to climate change. In that respect, I want to say a few words about the developed countries outside the U.S. sphere. In the context of my own home country of Australia, a rich developed country with a fossil fuel-dependent economy, I think the Paris Agreement will be quite important in setting a long-term signal for what needs to be done in terms of domestic energy transition. One of the arguments that's also being put forward in Australian policy (as it is sometimes in the United States) is that we shouldn't do anything while the rest of the world is not acting. I think that argument no longer has legs after the Paris Agreement, and that will force smaller developed countries such as Australia, New Zealand, perhaps even Canada, to pick up the ball and run with it a bit more on their domestic climate change policy.

Before the Paris Agreement, a lot of us in the climate sphere would say nothing is happening at the international level, nothing will ever happen at the international level, and so we have to look at all of the multidimensional action that's going forward on climate change, e.g., at the state and sub-national level, by the private sector and NGOs. Now that we have the Paris Agreement, I don't think we need to change that perspective very much. We have something happening at the international level, but it's only going to be a small piece of the puzzle and we'll still be very reliant on other actors at the sub-national level,

corporations and civil society, to forward the actions and provide the momentum for greater ambition under this particular agreement.

The Paris Agreement itself doesn't speak much to those actors, but the decision of the COP that adopted the Paris Agreement says a lot more about the potential role of those actors. Particularly in the private sector, what has often been missing and has created a lot of uncertainty is some sense of where the world is going in terms of energy transition and whether there is international agreement on doing something about climate change. The 1.5-degree and 2-degree goals set clear boundaries that businesses at least can plan for on a longer-term horizon in terms of energy transition.

Finally, I want to speak about what's in the preamble of the Paris Agreement. There are a lot of concepts mentioned in there that have never made an appearance in an international climate agreement before. They include things like food security, ending hunger, eradicating poverty, a just transition in the workforce and ensuring that we have decent jobs for people, human rights and gender equality, climate justice, public awareness, participation and education, engagement of all levels of governments and actors, and sustainable lifestyles.

In general, what we've seen with the Paris Agreement and the process leading up to it is greater recognition of the need for integration across different international agendas. One of the reasons is that, while we are hopeful that we can do a good job on mitigation and reduce or even avoid the worst impacts of climate change, the reality is that we are going to be locked into some level of climate change and a lot of what's going to be occurring is adaptation or dealing with loss and damage. That's an activity that requires not just climate experts, it also requires disaster management experts and people who look at the human rights aspects or the development aspects. The Paris Agreement provides an indication of a greater sense of integration across those different international agendas than has been evident in the past, where the international climate regime was much more segregated from other areas of international law.

Michael Gerrard: As Jackie indicated, the principal action in the years going forward is going to be at the domestic level, not at the international level. Each country will undertake its implementation, its fulfillment of its pledges in accordance with its own domestic politics. China is working very hard to moderate its emissions, primarily because of the crisis they face is with killer air pollution in cities, as opposed to its international obligations. In the United States, almost all of you are environmental law professors who are all familiar with the Clean Power Plan (CPP), the principal U.S. measure in addition to the Corporate Average Fuel Economy Standards to move away from fossil fuels, and the litigation barrage that has been launched against it, and the political barrage that has been launched against it, and its vulnerability to the results of

the next presidential election. All of that is very much in play at the moment in the United States.

One provision that I want to highlight in the Paris Agreement is Article 4, Section 1, my favorite paragraph in the whole thing. “In order to achieve the long-term temperature goal,” we talked about that, “parties aim to reach global peaking of greenhouse gas emissions as soon as possible,” it doesn’t say just when, but as soon as possible, “recognizing that peaking will take longer for developing country parties,” again, that instance of differentiation, “and to undertake rapid reduction thereafter in accordance with the best available science.”

Here’s the phrase that I think is really important: “So as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.” Now, the sinks of course are mostly the forests and the oceans, but the amounts of greenhouse gases that are absorbed by these sinks are really small compared to the greenhouse gases that come from the emissions of fossil fuel. So, the only way you can achieve an equal amount of emissions going out and emissions being sucked back in would be basically to eliminate the use of fossil fuels—unless you can sequester them through carbon capturing and sequestration, which as we know is a technology that is sort of limping along, or engage in a massive air capture program, which is also a set of technologies that are now being developed but are nowhere near scale, plus massive reforestation.

All these things combined could give you a little flexibility to continue emitting fossil fuels, but the numbers, to keep within the temperature goals, don’t add up unless you basically eliminate the use of fossil fuels. Even then, you have to get into the era of negative emissions, meaning you have to find some way to draw back the CO₂ through air capture of various devices that are very far away from commercial applications.

So, we have this wonderful aspiration in the agreement, and I think it accurately sets forth what the science says needs to be done. I don’t know how many people have confidence that that will in fact be done, but this agreement is a good clear articulation. It may also have domestic legal implications in terms of securities disclosures if you’re in the fossil fuel business, the Securities and Exchange Commission has guidance saying that there should be disclosure of international accords and their business impact, and here we have an international accord that’s calling for the elimination of fossil fuel use. So, if you are a fossil fuel company, I think you have an obligation in your securities disclosures to talk about the implications if the international accord is actually carried out.

Lisa Benjamin: I have a couple of quick points on the next steps. First of all, the agreement has to be ratified and come into force, and it has a double trigger of 55 parties and 55% of global emissions. The international community is a little gun-shy about Kyoto, but actually this all has to be ratified by the parties before it comes into force.

My second point is that between 2015 and 2020, there will be the ad hoc working group on the Paris Agreement. There’s not a lot of detail in the Paris Agreement itself. It is fairly short, 12-13 pages, so the details of the modalities of the committees and the mechanisms that have been established are going to have to be hammered out over the next four years without a lot of the international spotlight that was on the Paris negotiations. It’s going to be an uphill battle to get all of these things agreed.

The third point I want to make is that I am not sure that the Paris Agreement has the force it needs to really counter existing market forces. There was language in early drafts that suggested subsidies for fossil fuels had to be eliminated. That language didn’t make its way into the Paris Agreement. Maybe I should be more hopeful, but I’m a little pessimistic. There is an implementation and compliance mechanism and I was able to sit in on some of the negotiations for that. The details of that are extremely brief, which is what everybody anticipated because we didn’t really know what the obligations would be in the Paris Agreement to be able to craft a compliance mechanism.

What’s very interesting is that developing countries will be subject to an implementation and compliance committee in the climate regime for the first time in history. In order to help with that, the agreement establishes some important committees. The first is the capacity-building committee, which was argued for specifically by developing countries. The second interesting mechanism that has been established is on transparency—a capacity-building initiative on transparency. I think the transparency provisions are the strongest things we have in the Paris Agreement. In order to help developing countries that are not yet subject to the extensive reporting requirements that hopefully will be submitted, that initiative was established.

I have to put in a bit of a plug for the Kyoto Protocol since I sit on a committee underneath it. There are really useful reporting mechanisms that have been used under the Kyoto Protocol, including an expert review mechanism where experts review national communications and do in-country reviews. That is important expertise that has been built up under the Kyoto Protocol that should be built upon in what is essentially a process-based agreement, so there are some important lessons that can be learned from that.

Finally, just to mirror what others have said, I think this is really a high-stakes experiment on multilateral cooperation, and I hope it ends up being as ambitious as it should be.

Hari Osofsky: I’m going to wind up this third section by touching on two issues that have not been fully covered. The first is the U.S. INDC. The United States said that it intends to achieve an economywide target of reducing its greenhouse gas emissions by 26-28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%.²⁰ The key political issue in the United States right

20. *United States—Intended Nationally Determined Contribution*, UNITED NATIONS FRAMEWORK CONVENTION CLIMATE CHANGE, <http://unfccc.int/fo>

now is how are we doing this. The United States divides things between regulatory actions it has completed since 2009, and things it's working on at this time.

Well, regarding the regulatory actions that it has completed, part of them involve the less controversial part of its *Massachusetts v. EPA*²¹ implementation—in other words, the actions it has been taking on transportation to reduce motor vehicle greenhouse gas emissions. There was a convergence of the federal government, California, and the auto industry that resulted in the joint U.S. Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration regulation of fuel efficiency and tailpipe greenhouse gas emissions.²² Moreover, car companies are ahead in meeting those targets²³ which, for the most part, are not particularly controversial and not as subject, I think, to the 2016 presidential election outcome as the electricity side of things (though low gas prices do not help the market for more efficient vehicles).²⁴

But the power plant and automobile regulations are only a piece of the puzzle. The U.S. government has also done some things, for example, in the building sector that we don't hear a lot about because they're not as controversial,²⁵ as well as around chlorofluorocarbons, which, of course, are important because even though they're a small percentage of emissions, they have a very high impact in terms of warming potential.²⁶

But even with these accomplishments, a key complexity for U.S. implementation involves domestic politics over power plant regulations. In particular, an important piece of the U.S. plan under its INDC involves these politics—the INDC lists five things, but one of the five things that is going to account for a good chunk of emissions are the regulations that they're imposing on new

and existing power plants, and, in particular, the controversial CPP.²⁷

Hannah Wiseman and I have a piece coming out where we're looking at some of the questions around regional implementation of the CPP.²⁸ We hear a lot about the domestic politics over the CPP and those will be very influenced by the upcoming presidential election and the outcomes of pending court cases. The hope is that there are some industry and utility lock-ins between now and the election.

That being said, for the most part, even states that oppose the CPP are working toward implementation. One of the key things is finding ways of bringing together an environmental law regime based on cooperative federalism, where states implement federal standards, together with an energy law regime that is regionalized for the most part. Our energy markets are regionalized and energy governance is largely regionalized.²⁹

While EPA recognized this in creating interstate implementation options under the CPP, the way it designed those options doesn't necessarily make it easy for the ways in which states cooperate, which everybody agrees will save money and is good, to align with existing regional energy markets and governance. That's a real challenge in implementation. It's very technical, it doesn't make for good sound bites, but it's an important piece of the implementation puzzle.³⁰

The final thing I want to address is to pick up on what others were saying about corporate energy transition. Jackie and I, together with my corporate law colleague, at Minnesota, have just obtained a grant from the Australian government to work on corporate energy transition. Corporate energy transition has a lot of different pieces. There's the investment financing transition that needs to happen, and there is the asset transition that needs to happen. It's about companies like Best Buy and Target shifting what they do, not just about utilities and energy companies shifting what they do, and it's also about what is needed to help investment transition.

Something we find quite promising are the changes to securities law going on around the sharing economy and the promise that that might help foster more clean energy investment. One of the topics that came up a lot with economists during the Paris negotiations in the Blue Zone event was that when you get beyond just the developed countries and you start thinking about financing around energy transition, it's important to remember that a lot of that is going to be public financing, not corporate financing. So, some of these entities like the World Bank are playing a key role in what our energy transition looks like moving forward, and that transition is a key point in how close we get to meeting the ambitions of this agreement.

[cus/indc_portal/items/8766.php](http://www.epa.gov/indc_portal/items/8766.php).

21. 549 U.S. 497, 37 ELR 20075 (2007).

22. EPA Reports: Automakers Beat Greenhouse Gas Emissions Standards for Third Straight Year, Dec. 16, 2015, <http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/bd39fd8e80dd703585257f1d006040fe!OpenDocument>.

23. John Lippert & Jeff Plungis, *With \$1.68-a-Gallon Gas, America's Big MPG Goals Are in Trouble*, BLOOMBERG BUSINESS, Jan. 12, 2016, <http://www.bloomberg.com/news/articles/2016-01-12/automakers-regulators-debate-fuel-economy-as-gas-prices-fall>.

24. EPA Reports: Automakers Beat Greenhouse Gas Emissions Standards for Third Straight Year, Dec. 16, 2015, <http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/bd39fd8e80dd703585257f1d006040fe!OpenDocument>. While opposition exists to these standards, the controversy over them is much less than over stationary source regulation, such as the Clean Power Plan.

25. For an example of the Obama Administration's latest efforts under the President's Better Buildings Program, see Press Release, White House, Fact Sheet: Cities, Utilities, and Businesses Commit to Unlocking Access to Energy Data for Building Owners and Improving Energy Efficiency, Jan. 29, 2016, <https://www.whitehouse.gov/the-press-office/2016/01/29/fact-sheet-cities-utilities-and-businesses-commit-unlocking-access>.

26. U.S. Dept. State, The Montreal Protocol on Substances That Deplete the Ozone Layer, <http://www.state.gov/e/oes/eqt/chemicalpollution/83007.htm>. For analyses of the Montreal Protocol's role in addressing climate change, see Guus J.M. Velders et al., *The Importance of the Montreal Protocol in Protecting Climate*, 104 PNAS 4814 (2007); Mark W. Roberts & Peter M. Grabel, *A Window of Opportunity: Combating Climate Change by Amending the Montreal Protocol to Regulate the Production and Consumption of HFCs and ODS Banks*, 22 GEO. INT'L ENVTL. L. REV. 99 (2009).

27. See *United States—Intended Nationally Determined Contribution*, *supra* note 21.

28. Hari M. Osofsky & Hannah J. Wiseman, *Regional Energy Governance of U.S. Carbon Emissions*, __ ECOL. L.Q. __ (forthcoming 2016).

29. *Id.*

30. *Id.*

Audience Member: One thing Jackie discussed that was particularly important related to the action that's taking place at the local level. There are communities all over the world that established zero-carbon programs and objectives, including communities in European countries and in California and New York. Action is also being taken in the corporate world. For example, I believe Microsoft has an internal carbon trading system; each of its divisions is charged with paying the carbon price for its operations. Those payments are put into a fund for energy efficiency and renewable energy. I think that's extraordinary. Other corporations are following that lead.

Another thing I'm seeing is action taken by oil-producing countries. For example, Abu Dhabi, which I believe is the third largest oil-producing country, is doing a fabulous job in helping developing countries in establishing renewable energy. I have students from Saudi Arabia and Kuwait sent here to learn how to establish renewable energy companies.

Hari Osofsky: I agree that there are exciting things being done both by sub-national governments and by corporations, and a good chunk of my scholarly work over the past decade has focused on that and in particular on cities. There is a big challenge around cities, though, which is that action by them has to be scaled up. So, when you look at the number of cities making commitments, whether it's under the Mayors' Agreement in the U.S. context³¹ or whether it's under the Compact of Mayors that was created in 2014,³² you see wonderful commitments and wonderful actions by a number of cities and sub-national actors.

But one of the challenges when you look at it globally is that a lot of major cities are in metro regions, and there tends to be a lot of focus on actions by center cities, but not on those by the smaller suburbs that surround them, and there isn't a lot of differentiation in giving models to different types of suburbs for how to do things. There's important work to be done. Something I push for in my work on how to scale up local climate change is the need to create models for different kinds of cities for how they can get the win-wins and do more, because we need more cities to do more to get us to the goal. Cities represent 70% of global emissions, but we need more work to be done in the suburbs also.³³

Another of the challenges is that different networks have different toolkits and different standards that cities have to meet. So, what happens is that a city that wants to be ambitious ends up having to waste a ton of time showing things, and then there's the question of whether they're

measuring and reporting using the same metrics so that they can be compared.³⁴ Efforts are being made to make this better, but we're not all the way there yet. I agree that there are wonderful steps being taken. I'm not necessarily doom-and-gloom, and I don't think others are either, but we have a long way to go. We need to celebrate Paris and then we need to roll up our sleeves and really figure out how we start to do the various things we need to do to scale up to reduce the ambition gap.

Michael Gerrard: I'm a little closer to gloom-and-doom. Yes, there's a huge amount going on at the state and municipal levels, much of which the national governments are taking credit for when they report on their compliance with the INDCs. The question, as Hari says, is does it add up to enough? We don't necessarily have the uniform reporting system that will allow us to quantify what the goal will add up to. But notwithstanding all of that, The Bahamas, the Marshall Islands, and all these other countries are in grave danger and that will continue to be the case.

David Titley: When I talk about this, I tell people to prepare for catastrophic success. At some (probably unpredictable) point in the future, we will reach a so-called tipping point and the public will demand action on climate change and transforming our energy system. When that moment arrives, we need to have policies and programs ready to implement, as these windows of opportunity do not stay open forever. Unfortunately, we're not there yet. I watch the topline metrics and they're pretty depressing. The topline metrics of CO₂ emissions growth has been pretty much unchanged. That curve is going to have to bend down substantially and quickly in order to meet the 1.5 degrees Celsius goal. That's just physics.

It's great that we've run the first 100 yards of the marathon in good time, but we've got a long way to go. Congress is key. As I mentioned earlier, I recently testified before the Senate, and let me tell you, it's La-la Land. Congress is key because they can either be a headwind or a tailwind on this issue. Right now, they're a headwind. That doesn't mean people can't still accomplish stuff. I personally think the administration has done pretty well given the congressional environment, but the fact is that if we want real change in this country, Congress has to be part of it. Right now, they're not part of that change. I would be much more optimistic if they became part of it.

Audience Member: We've seen more public acceptance of climate science over the past few years, but we need something we can do about it. Everybody is celebrating, "We've done it," based on headlines where we've got this historic international climate change agreement. But there's not a word about actually changing anything in the United States as a result of this historic agreement. Even people who accept the climate science think that now we're all

31. Mayors Climate Prot. Ctr., *About the Mayors Climate Protection Center*, U.S. CONFERENCE OF MAYORS, <http://www.usmayors.org/climateprotection/about.htm>, archived at <http://perma.cc/5ZZC-98KL>.

32. *Compact of Mayors Launched at UN Climate Summit*, INT'L INST. FOR SUSTAINABLE DEV. (Sept. 23, 2014), <http://climate-l.iisd.org/news/compact-of-mayors-launched-at-un-climate-summit/>.

33. Hari M. Osofsky, *Rethinking the Geography of Local Climate Action: Multi-Level Network Participation in Metropolitan Regions*, 2015 UTAH L. REV. 173; Hari M. Osofsky, *Suburban Climate Change Efforts: Possibilities for Small and Nimble Cities Participating in State, Regional, National, and International Networks*, 22 CORNELL J. L. & PUB. POL'Y 35 (2012).

34. Osofsky, *Rethinking the Geography of Local Climate Action*, *supra* note 33; Osofsky, *Suburban Climate Change Efforts*, *supra* note 33.

good because of the Paris Agreement; we've taken care of the problem. So, I guess my question to you is whether the Paris Agreement is going to turn out to be a step forward or a step backward.

Hari Osofsky: Before we address that, I'm going to take our last two comments because I want to make sure we have time to hear from everybody in the audience. Then we'll let panelists wrap up collectively.

Audience Member: I'm curious to know more about NGOs' effect on the development and relative effect of the Paris Agreement versus other treaties.

Audience Member: I'm curious whether you understood the agreement to provide that the INDCs would become more stringent every five years.

Michael Gerrard: I think that Paris was a step forward. It was not a great leap forward, but I think it was a step forward to the extent we have rational argumentation going on, although that is happening to only a limited extent in Congress. But to the extent that we have any rational argumentation, I think the Paris Agreement goes a long way to take away the argument that the United States shouldn't have to go it alone, where we can see that China, for example, has already taken on commitments to control its emissions.

I mentioned the relevance of the securities disclosure. I think the agreement is also relevant to the kinds of disclosures that need to be made under the National Environmental Policy Act.³⁵ I think the Paris Agreement is generally helpful and at least establishes that there is hope. There is a possibility that it might work. I think it's a net mild positive.

Lisa Benjamin: I like George Monbiot's blog entry for Dec. 15, 2015, at *The Guardian's* website. He said, "By comparison to what it could've been, it's a miracle. By comparison to what it should've been, it's a disaster."³⁶ That encapsulates the Paris Agreement for me. Unless you're in there trying to fight for word after word and lines of text, it's so difficult to understand how challenging it is to get positions agreed to because of countries' conflicting economic and political considerations. I'm very sympathetic with the position that we ended up with in Paris even though it's not sufficient. It's much better than it could have been.

We've come out of 20 years of bitter, sometimes acrimonious, climate negotiations. The atmosphere has almost been poisonous in some of these rooms, so I think there was a collective goodwill to get something done at Paris. That something was not enough from my perspective, but I think it is positive. I agree that the fanfare seemed overdone. I was a little surprised when I read the agreement

after all the fanfare, but I think people were just relieved that something was actually agreed to.

Jacqueline Peel: One of the audience questions was whether the Paris Agreement is a victim of its own success. That's an interesting perspective, and certainly the way it played out in the media, it did seem that the whole problem is considered solved. An important part of sessions like this and the academy in general in talking about the Paris Agreement is to communicate that the international agreement is just the start of a process that depends very heavily on domestic actions, and that the impetus will fall on domestic governments, legislatures, sub-national governments, and other actors to take this forward. That's an important message to keep repeating in respect to the Paris Agreement, that it's not all solved, it's just the international part that has achieved some progress.

There was a question about the progressive aspects of the NDC provision. I can't speak to the trickier question about whether that's outside the scope of U.S. executive authority, but the language that's in the agreement is pretty soft. Each party's successive NDC will represent a progression beyond the party's then-current NDC and be reflective of its highest possible ambition, reflective of common but differentiated responsibilities and respective capabilities in the light of different national circumstances. That's a provision in Article 4.3 and you couple that with the Agreement's stocktaking process that says you should be doing regular global reviews of NDCs and their adequacy, and looking at this in the light of science and equity concerns.

You could go back to the UNFCCC in 1992 to which the United States is a party. That has language about developed countries taking the lead and pursuing progressive contributions to reducing emissions. I don't know that this language (in the Paris Agreement) is so revolutionary that it's significantly different from what we've had before except that it does express some kind of no backsliding principle, that you can't do worse than you were doing before.

David Titley: Hari was in Paris, so she can comment on the effect of the NGOs. What I saw in Copenhagen, Cancun, and Durban was that many of the fights start up well before and the fights are for access, about what is the color of your ID badge that gets you into the building and where in the building you can go, how much you can get in, literally, real-time access to U.S. Special Envoy for Climate Change Todd Stern or Todd Stern's assistant. NGOs worked very hard to get their people placed so that they could have that kind of access in addition to all the media things that the people do. That's what I saw at previous COPs.

The question as to whether the Paris Agreement is a step forward or a step backward—that's interesting. The general public's interest in climate is so low. I'm not sure people will remember Paris except those who work on it here. A few months from now, most people will be on to *American Idol* last season or whatever the things are that people

35. 42 U.S.C. §§4321-4370f, ELR STAT. NEPA §§2-209.

36. George Monbiot, *Cop-Out*, GUARDIAN, Dec. 15, 2015, <http://www.monbiot.com/2015/12/15/cop-out/>.

worry about nowadays. I would say that the agreement is a net positive. Many people were worried that it was going to be another disaster like Copenhagen or worse, and it wasn't. At least there's some degree of international will to tackle the problem. It's necessary, but far from sufficient.

I said earlier that now is when the hard work begins and many people have used similar phraseology, but at least this is a better conversation to have than, "We can't even agree if the climate is changing, let alone what to do about it." Or an approach of every person for themselves, the argument that "Why should America do anything when X isn't going to do anything?" I am a glass-half-full person. Is the Paris Agreement everything? No. Is it for all the things we've talked about here? It is. It's interesting that one person says we're too gloom-and-doom and then the next person says we're too Pollyannish.

Hari Osofsky: A few questions were directed at me throughout. I'll try to address them. On the BINGO question, there are nine constituency groups under the UNFCCC. The BINGO constituency group is one of the nine. There are also environmental NGOs, trade union NGOs, indigenous peoples' organizations, local government and municipal authorities, research-oriented and independent organizations, youth NGOs, faith-based NGOs, gender-based NGOs.³⁷ These constituency groups have official points during the negotiations when they are allowed to present. For example, at the very end of the final night, after all the state parties had spoken at about midnight, they let each of the constituency groups make a statement. They came up with common statements, but one of the more interesting moments was when the youth NGOs started a chant and the women representing them stood up and said what a disaster the agreement was. They can be quite colorful.

There were a lot of complaints about access from civil society groups. Each day, the constituency groups had a briefing. There were points where they got to officially meet with Christiana Figueres, executive secretary of the UNFCCC, and Manuel Pulgar-Vidal, the former president of the COP. During those meetings, one of the complaints concerned access. In response to those complaints, in one of the Comité de Paris meetings, Manuel Pulgar-Vidal, Minister of the Environment of Peru in addition to the former president of the COP, used his floor time to represent some of those concerns. In doing so, he said, "I promised them I would convey their concerns." So, sometimes it gets conveyed on the floor in a formal way. There were various formal ways constituency groups could convey things.

However, most of what happened that was important wasn't done in formal moments; it was done through back channels. Representatives of business groups may be on national delegations, so they had influence that way. It's also about their personal contacts to people who were on

the delegations; they were passing notes into the delegations for the negotiations. A lot of it was happening informally.

The second question is the tricky part: whether the Paris Agreement is exceeding the president's authority to make an agreement without the advice and consent of the Senate. My answer is no. The agreement was carefully designed not to exceed that authority. The State Department lawyers and negotiators put a great deal of effort into making sure that the Paris Agreement could be treated as an executive agreement under domestic law. That's part of why there was a crisis at the very end where, all week, the agreement read "should" and then it read "shall." The United States couldn't agree to the language if it said "shall" because the State Department lawyers knew they couldn't get it through.

All that language around emissions targets is soft. It's intentionally soft so that it doesn't exceed current U.S. commitments. Remember, any treaty we join, we can also unjoin. Even if we become party to the Paris Agreement, that doesn't mean we cannot later be *not* party to the agreement. Future administrations aren't bound to maintain the same treaty obligations; they can withdraw from treaties under their terms. I certainly hope that isn't the outcome with respect to the Paris Agreement.

Finally, on the question of the agreement being a victim of its success, I largely agree with everybody else on this point. I think this was so much more successful than what has happened for many years. That's why I made the reference to the hundred yards not being very fast. It is a moment that we can celebrate, when you finally make progress at an international level that previously seemed so impossible. A lot of people talked in their speeches about the progress it represented for multilateralism. I think that's right. It was an exciting moment in multilateralism. They had almost 200 countries standing up and saying: We support this. It doesn't reflect what we want completely, but there's enough there and we will compromise.

One thing that was really interesting was when the president of the COP, Laurent Fabius, said, as they moved into the final set of negotiations, "We're going to have an indaba of solutions." An indaba is a concept that came out of the Durban COP, drawing from Zulu and Xhosa traditions, and involves creating a forum in which all views are represented with a focus on seeking common ground. Numerous indaba were held during the Paris COP to try to move the negotiations forward on various key issues. But for the final indaba of solutions, President Fabius told negotiators that they were no longer allowed to state positions; they were only allowed to propose compromises. President Fabius worked hard to get the countries to move beyond stating the same concerns over and over again, and to focus on getting to an agreement.

Is the Paris Agreement enough? Of course not. Is there a huge gap? Yes. Is this a major problem that there's a huge gap? Of course. And is it enough on the local radar screen? No. If you just look at Facebook as a barometer of this, the extent to which terrorist attacks, for example,

37. UNFCCC, Non-Governmental Organization Constituencies, https://unfccc.int/files/parties_and_observers/ngo/application/pdf/constituency_2011_english.pdf.

galvanize national attention, or the economy galvanizes national attention, is way above the climate change issue. Could we end up electing a climate denier as president in this country? Yes, because people for the most part won't be voting on that. Even if they believe climate change is real, that might or might not be the issue that determines their vote.

So, there's a huge set of barriers and problems and struggles, but what's exciting is that for the first time since the UNFCCC was created, we have significant progress at the international legal level, and we have the United States willing to join in. To me, that is something we can celebrate even as we struggle with all of the implementation details.