
WHATEVER WORKS: THE LONG AND WINDING ROAD TOWARD CLIMATE ACTION

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INTRODUCTION

This Article examines the international climate change regime, its development, and future prospects in a manner that incorporates Dick Stewart’s evolving view of the climate problem and my own earlier experience as a practitioner at the Environmental Defense Fund (EDF). Although I have no formal education in international law or politics, I have learned a tremendous amount about these subjects during collaborations with Dick, Bryce Rudyk, Bob Keohane, Annie Petsonk, Scott Barrett, and others. My perspective as a scientist and erstwhile professional environmental activist joined with that of an administrative law scholar, Dick, leads to a different emphasis in attempting to explain the slow, or even retrograde, movement at the international level to reduce greenhouse gas emissions than does the theory of international politics, with its focus on the problem of free-riding. Hence, I focus on a different range of solutions, particularly those involving non-state actors, and the need for some level of domestic political consensus. I see development of the latter as a necessary condition for grappling successfully with the need to reduce the potential for free-riding. This Article begins with

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an appraisal of the climate regime based on a thumbnail history that makes no attempt at comprehensiveness.¹

I. THE CLIMATE REGIME²

Attempts to develop a mode of international cooperation over climate change began with scientific exchanges dominated by developed countries. These evolved into activities undertaken by individuals and formal and informal organizations operating at the boundary between science and public policy. Governments, inter-governmental organizations, NGOs, scientists, and policy entrepreneurs inside and outside of governments each played a significant role.

Global negotiations emerged in 1991 leading to adoption of the United Nations Framework Convention on Climate Change (UNFCCC) the following year.³ Although nearly every country

¹ Earth has warmed by more than 1°C since the late 19th Century and most of that warming is attributed to the accumulation of human-generated greenhouse gases in the atmosphere, primarily carbon dioxide (CO₂) from fossil fuel combustion and deforestation. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2014: SYNTHESIS REPORT 2, 5, 88 (2014). CO₂ has a very long lifetime once emitted as it is only slowly removed by natural processes, primarily dissolving in the ocean. *See id.* at 16, 45. A significant portion of emissions already in the atmosphere will remain for a millennium or more regardless of emissions mitigation policy. *See id.* at 16. Artificial means to remove it are theoretically possible but are yet to be demonstrated as commercially feasible, and where to store the removed carbon—underground reservoirs or absorption by minerals on Earth’s surface—is contested. *See id.* at 81, 89. Impacts of climate change such as increases in extreme heat, sea level rise, and intensification of precipitation with resulting flooding are already attributable to greenhouse gas emissions and damaging to individuals, ecosystems, and society. *See id.* at 7–8. Other observed impacts associated with warming include increasing severity of tropical cyclones, severe drying in some regions with increased risk of wildfire, loss of Arctic sea ice and disintegration of parts of the large ice sheets in Greenland and Antarctica, adding to sea level rise. *See id.* at 42, 53. An acceleration of both warming and these impacts over this century is projected, especially in high-emission scenarios. *See id.* at 8–9. With a warming of as much as 5°C over late twentieth century global mean temperature expected in this century—dependent on future emissions and other uncertainties—worsening of impact will doubtless occur regardless of policy but much more manageable impacts are foreseen under low-emission than high-emission pathways. *See id.* at 17–19.

² For a history of the international climate regime, see DANIEL BODANSKY ET AL., INTERNATIONAL CLIMATE CHANGE LAW (2017).

³ *See id.* at 118–29.

eventually ratified this agreement,⁴ it embodies no enforceable obligations on any Party to reduce its greenhouse gas emissions.⁵ In 1997, the UNFCCC spawned the Kyoto Protocol (KP) which included specific and stringent emissions reduction obligations on developed—but notably, not developing—countries.⁶ At the time, China was becoming an economic superpower and competitor with Organization for Economic Co-operation and Development (OECD) countries, and less than a decade away from becoming the world's top CO₂ emitter.⁷ India and other developing countries were likewise producing more goods and emitting more CO₂, and, like China, were not subject to the KP's binding emissions reduction obligations.⁸ The emergence of these economies and the resulting tensions disrupted the expectation of optimists that the KP would be the first step along a path lined with agreements progressing toward lower global emissions.⁹ The KP will provide value, however, as an important experiment in design of various institutional arrangements, including emissions markets.

The United States' withdrawal from the KP in 2001 led to reconsideration of the means to obtain international climate cooperation.¹⁰ Stewart and Jonathan Wiener averred that:

It's time for a new, more pragmatic approach. Smart climate policy does not have to choose between extremes. A pragmatic climate policy would balance benefits and costs, heed warnings without being panicked, recognize uncertainty without being paralyzed, employ economic incentives to accomplish results cost-effectively, and learn from experience with regulatory

⁴ See *Status of Ratification of the Convention, United Nations Climate Change*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC), <https://unfccc.int/process-and-meetings/the-convention/status-of-ratification/status-of-ratification-of-the-convention> (last visited Mar. 4, 2021).

⁵ See BODANSKY ET AL., *supra* note 2, at 119–20.

⁶ See *id.* at 160.

⁷ See *id.* at 8.

⁸ See *id.* at 160 (discussing China and India's unwillingness to pursue voluntary emission reductions); *Total Greenhouse Gas Emissions (% Change from 1990)*, WORLD BANK, <https://data.worldbank.org/indicator/EN.ATM.GHGT.ZG> (showing the estimated change in emissions from 1991 to 2012, by country).

⁹ See generally DAVID G. VICTOR, *THE COLLAPSE OF THE KYOTO PROTOCOL AND THE STRUGGLE TO SLOW GLOBAL WARMING* (2011).

¹⁰ See Robert O. Keohane & David G. Victor, *The Regime Complex for Climate Change*, 9 *PERSP. ON POL.* 7, 10 (2011); Richard B. Stewart & Jonathan B. Wiener, *Practical Climate Change Policy*, 20 *ISSUES SCI. & TECH.* 71, 72 (2004).

design. It would engage key countries in a new regime parallel to the Kyoto Protocol (or an adaptation of Kyoto led by the EU) that would allow us to test and evaluate international climate regulation over time instead of making an all-or-nothing choice today.¹¹

In this 2004 paper, there are echoes of the authors' 1992 paper that argued for a comprehensive approach with respect to both sources and sectors of greenhouse gas emissions. That paper included several perceptive and prophetic insights—for example, that methane ought to be regulated along with CO₂ due to the potential for fuel switching.¹² Today, the switch from coal to natural gas is increasing an important source of methane emissions due to leaks in the natural gas production, transmission, and distribution system.¹³ The 2004 article also noted:

The United States and China will not join a serious climate regime without each other. Joint accession by the United States, China, and other developing countries would provide leverage to persuade Europe to fix the flaws in Kyoto as well as establishing greater price stability in the allowance trading market.¹⁴

The idea of joint action by the two dominant emitters came to fruition in a 2014 bilateral declaration by the United States and China, which opened the possibility of success in shaping the Paris Agreement (PA).¹⁵ By then, the idea of leverage to fix flaws in the KP was becoming superfluous as the PA pathway nudged the Kyoto pathway aside.

As Stewart and Wiener suggested it would, the bilateral declaration provided a pivotal step in the development of a new type of climate agreement, the outlines of which had begun to emerge at

¹¹ Stewart & Wiener, *supra* note 10, at 71.

¹² See Richard B. Stewart & Johnathan B. Wiener, *The Comprehensive Approach to Global Climate Policy: Issues of Design and Practicality*, 9 ARIZ. J. INT'L & COMPAR. L. 83, 91 (1992).

¹³ See Ramón Alvarez et al., *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, 361 SCIENCE 186, 188 (July 13, 2018).

¹⁴ See Stewart & Wiener, *supra* note 13, at 72.

¹⁵ See Press Release, Off. of the Press Sec'y, White House, U.S.-China Joint Announcement on Climate Change, (Nov. 11, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>; Press Release, Off. of the Press Sec'y, White House, *Fact Sheet: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation* (Nov. 11, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/11/11/fact-sheet-us-china-joint-announcement-climate-change-and-clean-energy-c>.

COP-15, held in Copenhagen in 2009,¹⁶ and which were finalized at COP-21 in Paris in 2015.¹⁷ At the time the KP was signed, advocates of mandatory emissions reductions inside and outside the U.S. government had envisioned a rather different future for the climate regime. The emissions allowance system pressed by the United States in the negotiations at Kyoto was intended to limit the cost of implementation of emissions targets.¹⁸ Proponents of negotiated, mandatory emission targets for developed countries had expected the KP to spearhead a global emissions market that would both minimize United States abatement costs and gradually entrain developing countries into acceding to mandatory obligations. Instead, emissions markets play a decidedly subsidiary role in the PA. National emissions targets are self-determined by all Parties, developed or developing, and their implementation is nonbinding.¹⁹ The KP, with its negotiated binding targets for developed countries and exclusion of obligatory targets for developing countries, became a model of what many parties decided to avoid as they moved toward a new framework for agreement in Paris.²⁰

The PA embodies key elements that the United States and China could agree on, as foreshadowed both by Stewart and Wiener's political analysis and some of their proposed elements of a post-KP accord: the comprehensive approach to regulation encompassing all significant, long-lived greenhouse gases rather than CO₂, developing country obligations that each could match to its self-perceived capacity to reduce emissions, and, while no longer a central element, a nod to emissions trading.²¹ Notably, Stewart and Wiener's ideal system involved national targets determined by balancing cost and benefits, as opposed to the KP's politically-negotiated national targets.²² The PA rejected both approaches in favor of "nationally-determined contributions," which are nonbinding national targets.²³ This approach had the effect of letting Parties do their own

¹⁶ See Daniel Bodansky, *The Copenhagen Climate Change Conference: A Postmortem*, 104 AM. J. INT'L L. 230, 232 (2010).

¹⁷ See Daniel Bodansky, *The Paris Climate Change Agreement: A New Hope?*, 110 AM. J. INT'L L. 288, 293 (2016).

¹⁸ See Stewart & Wiener, *supra* note 10, at 72.

¹⁹ See BODANSKY ET AL., *supra* note 2, at 212.

²⁰ See *id.* at 222.

²¹ Compare *id.* at 163–67, with Stewart & Wiener, *supra* note 10, at 76–78.

²² See sources cited *supra* note 21.

²³ See BODANSKY ET AL., *supra* note 2, at 212.

cost-benefit calculus, where costs are more broadly defined to include the domestic political calculus of those in power.

II. ENFORCING INTERNATIONAL ENVIRONMENTAL TREATIES: CARROTS AND STICKS

Notably, the Stewart-Wiener proposal makes no mention of either compliance or enforcement of targets.²⁴ Here, I arrive at a core element of Stewart's beliefs that arises from the distinction between domestic and international law, providing an opportunity to digress into Stewart's deeper philosophical beliefs. I cannot here do justice to these, but other papers in this symposium surely will do so. With thanks to conversations with Bryce Rudyk, a very brief summary, especially relevant to the climate problem, is this: government operates best if its role is seen as mediating between interests of individuals, organizations in the private sector, and the larger society—which government represents, with obligations spelled out for each. In Dick's primary bailiwick, the domain of domestic administrative law, government has clear powers to compel compliance with regulations, and thus government has the potential to be both supreme and effective, if not always cost effective. The Stewart-Wiener vision was based on cost-effectiveness, through both flexibility and cost-benefit analysis, and also on an overall set of obligations that might satisfy most players who were interested in reining in climate change.²⁵

In the real world, two key problems arose: (1) substantial state-to-state variation at the domestic level in the seriousness of commitment to deal effectively with climate change, and (2) the resulting difficulty of dealing with the risk of free-riding. First and foremost, at the time the KP was negotiated, and even seventeen years later when the United States and China stepped up to announce their bilateral accord, it was abundantly clear that state-to-state prioritization of the climate problem varied tremendously. It is one thing to argue that, with the 2014 accord, China and the United States showed a new willingness to act against greenhouse gases, but one cannot convincingly argue that their commitments to steep, binding, and enforceable emissions mitigation were so strong that each was willing to pay the perceived near-term cost to their economies, face

²⁴ See generally Stewart & Wiener, *supra* note 10.

²⁵ See generally *id.*

down domestic interests dependent on fossil fuels, and use diplomatic pressure at the highest level to assure that unwilling states would come along anyway. China was serious about reducing CO₂ emissions—committing to reach a peak in emissions by 2030—primarily for the sake of the co-benefit of reducing domestic air pollutants like sulfur dioxide and fine particles from coal combustion; slowing climate change was secondary.²⁶ Among other concerns, it had its own domestic fossil fuel interests in mind, and over the succeeding period, partly satisfied those interests by vastly expanding its lending for construction of new coal-fired power plants elsewhere in Asia.²⁷ Externally generated emissions would not be a large source of air pollution in China due to their short lifetime, but CO₂ emitted anywhere has a warming effect everywhere. Meanwhile, in 2014, the Obama administration was only willing to go so far—a 26–28 percent reduction in emissions by 2025²⁸—arguably because several Congressional members of the President’s own party regarded climate change as unimportant compared to the needs of their constituents, such as coal miners and others dependent on energy-intensive industries. Earlier, the reality of those considerations had helped sink the House-passed Waxman-Markey bill before it came to the Senate floor.²⁹

It is usually argued that the key problem of treaty-making is the lack of a central enforcer of international law, a role that neither the U.N. Security Council nor any state has shown the least willingness to take on in the context of environmental problems. As a result, free-riding becomes the central concern. The challenge for negotiations, as laid out by Scott Barrett, is to reduce this risk through measurement of performance, such as emissions monitoring; specific compliance determinations based on that information; incentives for participation by reluctant states; and credible enforcement powers to deter both non-participation and non-compliance.³⁰ However,

²⁶ See Teng Fei, *A View from China*, in *TOWARDS A WORKABLE AND EFFECTIVE CLIMATE REGIME* 99, 102–04 (Scott Barrett et al. eds., 2015).

²⁷ See Phillip M. Hannam et al., *Developing Country Finance in a Post-2020 Global Climate Agreement*, 5 *NATURE CLIMATE CHANGE* 983, 983–87 (2015).

²⁸ See Press Release, Off. of the Press Sec’y, White House, U.S.-China Joint Announcement on Climate Change, *supra* note 15.

²⁹ See ERIC POOLEY, *THE CLIMATE WAR: TRUE BELIEVERS, POWER BROKERS, AND THE FIGHT TO SAVE THE EARTH* 415–20 (2010).

³⁰ See SCOTT BARRETT, *ENVIRONMENT AND STATECRAFT: THE STRATEGY OF ENVIRONMENTAL TREATY-MAKING* 49–84 (2005).

free-riding becomes the main issue only once a number of key states—which, when taken together, have the ability to solve the problem or coerce others to join in doing so—recognize that a problem exists and must be solved, and have generated a domestic political commitment to measures that match the scope of the problem. It is rare that an international agreement outside the security domain is first negotiated at a level of detail and commitment that would arguably “solve” an important problem and that following such agreement the issue somehow levitates to a high level of domestic concern among key parties.³¹ Weak or nonexistent domestic concern usually will not support strong agreements.³² As important a threat as free-riding is to the effectiveness of treaties, it becomes a crucial factor only once key states decide they can make the case to domestic constituencies that they should act decisively and attempt a cooperative solution.

By 2014, both China and the United States had a substantial interest in solving the climate problem. China had released a report on the threat of climate change in 2006 as a sort of informal announcement of its belief in the international scientific consensus laid out by the Intergovernmental Panel on Climate Change.³³ The report contained an honest description of the threats climate change posed to China and discussion of possible policy initiatives.³⁴ In the United States, climate change had been a public issue since 1988,³⁵ and the public supported action as a general proposition, but its willingness to pay remained doubtful. That the U.S. House of Representatives passed strong climate legislation in 2009³⁶ is some measure of the issue having gained sufficient domestic support for the United States to proceed to reinvigorate international negotiations. Absent demonstration of such a credible level of domestic commitment, it

³¹ See Thomas Hale, *Catalytic Cooperation*, 20 GLOB. ENV'T POL. 73, 73–74 (2020).

³² See *id.*

³³ See Ding Yihui et al., *China's First National Climate Change Assessment Report on Climate Change (I): Climate Change in China and the Future Trend*, 3 ADVANCES CLIMATE CHANGE RSCH. 1 (2007).

³⁴ See *id.*

³⁵ See, e.g., MICHAEL OPPENHEIMER & ROBERT H. BOYLE, *DEAD HEAT: THE RACE AGAINST THE GREENHOUSE EFFECT* (1990).

³⁶ See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009).

is doubtful that other states would have taken the eventual United States position at Paris seriously.

However, American and Chinese levels of commitment, and those of other key states like the E.U. countries as a whole, were insufficient for them to take the next step to avert free-riding, which would have required that the Paris agreement have strong participation, compliance, and enforcement provisions. Instead, Paris relies on a “name-and-shame” process of mutual review to encourage states to meet their self-determined, nonbinding commitments in each period and then offer stronger commitments in subsequent periods.³⁷ Hence the reality of enforcement under Paris pales in comparison to what is available under domestic administrative law. Stewart’s skepticism runs even deeper: to paraphrase, I have often heard him ask, “how can parties come to be convinced that the threat of sanctions is credible?” even in reference to treaty arrangements that provide incentives for participation and compliance, such as the strong trade sanctions embodied in the Montreal Protocol on Substances that Deplete the Ozone Layer (MP).³⁸ Again, paraphrasing Dick, “what assures Parties, including those who may intentionally fail to comply, as well as other states considering whether to join such a compact, that sanctions will actually be implemented in the face of non-participation and non-compliance?” The answer must circle back to the question of how seriously key governments take the issue, what priority the issue has achieved in a state’s evaluation of domestic and international policy and politics, and ultimately, whether the public will support the mutual pain that accompanies, for example, trade sanctions.

The outstanding success of the MP, whose strong trade sanctions pertain explicitly to non-participating states, is often offered as an example of the potential effectiveness of sanctions *and* their credibility when the problem at hand has high priority among key Parties.³⁹ The perceived threat of sanctions apparently extends to reducing the risk of noncompliance among Parties, as occurred briefly among former Soviet states during the 1990s, but which was

³⁷ See Bodansky, *supra* note 19, at 290–91. The first commitment period ends in 2025. *See id.*

³⁸ See generally BARRETT, *supra* note 30, at 221–54 (2005); RICHARD ELLIOT BENEDICK, *OZONE DIPLOMACY: NEW DIRECTIONS IN SAFEGUARDING THE PLANET* (1991).

³⁹ See generally Scott Barrett, *The Strategy of Trade Sanctions in International Environmental Agreements*, 19 RES. & ENERGY ECON. 345 (1997).

resolved relatively quickly.⁴⁰ However, a new test of both the priority among key states of protecting the ozone layer and the seriousness of the threat of sanctions looms: direct observations of atmospheric levels of a banned substance, CFC-11 or Freon-11, indicate illegal production at facilities in China, while production of other substances that deplete ozone—being either controlled but not yet banned or not subject to control due to their very short lifetimes—are also growing unexpectedly, all of which threatens to slow the recovery of the ozone layer.⁴¹ China claims it is cracking down on the responsible facilities, and very recent atmospheric observations do suggest a reduction has occurred in emissions of CFC-11.⁴² Among the various tensions between central and provincial governments over environmental enforcement, will this particular problem draw sufficient and ongoing priority from Beijing that it will continue to take steps to completely solve the problem? How will Beijing balance its domestic political concerns, its international reputation, the potential threat of sanctions—which, strictly speaking are not directed at Parties but could be threatened against them anyway—and the precedent that its own lack of domestic enforcement might set for other Parties? How will the United States government respond, given current trade tensions between the two countries? Perhaps Stewart’s skepticism about the credibility of sanctions, even those that appeared to be self-enforcing,⁴³ will be shown to be justified.

III. AFTER PARIS

A New Strategy for Global Climate Protection,⁴⁴ authored by Stewart, Rudyk, and me, was published two years before COP-21,

⁴⁰ See BARRETT, *supra* note 30, at ch. 8 (2003).

⁴¹ See Martyn P. Chipperfield et al., *Renewed and Emerging Concerns over the Production and Emission of Ozone-Depleting Substances*, 1 NATURE REVS. EARTH & ENV'T 251, 254–56 (2020); K.M. Stanley et al., *Increase in Global Emissions of HFC-23 Despite Near-total Expected Reductions*, 11 NATURE COMM. 1 (2020).

⁴² See Sunyoung Park et al., *A Decline in Emissions of CFC-11 and Chemicals from Eastern China*, 590 NATURE 433, 433–37 (2021).

⁴³ See, e.g., Alexandra E. Cirone & Johannes Urpelainen, *Trade Sanctions in International Environmental Policy: Deterring or Encouraging Free Riding?*, 30 CONFLICT MGMT. & PEACE SCI. 309, 329 (2013).

⁴⁴ Richard B. Stewart, Michael Oppenheimer & Bryce Rudyk, *A New Strategy for Global Climate Protection*, 120 CLIMATIC CHANGE 1 (2013) [hereinafter *A New Strategy*]. See also Richard B. Stewart et al., *Building Blocks: A Strategy for*

but prefigures a set of solutions to the following puzzles that COP-21 grappled with, including: increasing concern about climate change among almost all high-emission states, although the issue had not yet achieved top priority status for most; among those same countries, widespread disenchantment with negotiated targets; no taste for strong compliance and enforcement provisions, reflecting both the level of priority placed on the issue and the uncertainty of achieving the substantial emissions reductions that might become a political, as well as scientific, necessity; and a receding commitment to a single, global emissions market in light of the ambiguous track record of the E.U. Phase I experiment, which was essentially a political failure.⁴⁵ Our paper also tackled other more fundamental, longstanding critiques of various proposals for dealing with climate change related to equity and transparency. Although elements of our proposal existed and were already functioning, taken as a package, our proposed institutional arrangements amounted to a new path toward solving the climate problem. Here I'll emphasize three aspects of our proposal. First, we predicted that gains previously conceptualized as co-benefits of greenhouse gas emissions reduction, such as improved air quality, would serve as the prime motivation for some states to engage in new, cooperative arrangements that produce greenhouse gas reductions as their co-benefit. Second, we anticipated that existing institutions with strong enforcement capabilities, such as the Montreal Protocol, would be repurposed to achieve climate objectives. And third, we recommended that policy entrepreneurs should press for new institutions that engaged not just states but subnational units, non-governmental organizations (NGOs), and industrial groups, sometimes with governments, sometimes without them.⁴⁶

The key aspects of this “building blocks” or “bottom-up” approach not only tied together the main themes woven through Stewart's philosophical stance, as discussed above, but extended them to the institutions, public and private, existing or hypothetical, that could be envisioned as governing and implementing greenhouse gas reductions. Building new institutions for this purpose was not a new

Near-term Action Within the New Global Climate Framework, 144 CLIMATIC CHANGE 1 (2017) [hereinafter *Building Blocks*] (summarizing a special issue of *Climatic Change* containing various perspectives on a number of bottom-up strategies).

⁴⁵ See Bodansky, *supra* note 17, at 299–302, 313.

⁴⁶ See generally *A New Strategy*, *supra* note 44.

idea and some such effort, like the Climate and Clean Air Coalition,⁴⁷ was already underway, but the paper combined these ideas into a new pathway by focusing on three key proposals. One such idea is that co-benefits of greenhouse-gas emissions mitigation would provide the main domestic rationale for many governments to agree to international cooperative arrangements aimed at climate change.⁴⁸ The political and economic value of co-benefits had long been clear, as previous scholars and other commentators had forwarded a menu of such co-benefits, including energy efficiency, energy supply security, and mitigation of air pollution.⁴⁹ Some had argued to invert the logic of co-benefits, ditch the discussion of climate change, and focus only on the former. What was new in the building blocks approach was the idea of envisioning co-benefits as the primary driving force toward cooperation on greenhouse gas mitigation.⁵⁰ In fact, a year after publication of the building blocks article, the Chinese-U.S. bilateral agreement of 2014 provided a lived example of the concept's power.

A telling critique, which we first heard from a conversation with Scott Barrett, is that co-benefits arising from building block institutions would produce little more in the way of greenhouse gas mitigation than what is embodied in a business-as-usual emissions pathway. This is very much an “economist’s argument” resembling the old joke about the twenty-dollar bill lying on a sidewalk—when a friend strolling with the economist points to the bill, the economist says it can’t be there because if it had been there, someone would have pocketed it already. As much as Stewart’s views are in line with those of many economists, his view of the building blocks approach is optimistic on this point—nongovernmental influences driving innovation of governments’ arrangements, like the views and actions of NGOs and firms, and inside influences like governmental policy entrepreneurs, can provide the vision that the mythical economist lacked. This is especially so in the context of multilateral relationships where multiple co-benefits present themselves simultaneously to different parties: for example, due to China’s growing

⁴⁷ See *The Climate and Clean Air Coalition (CCAC)*, WORLD HEALTH ORG. (Jan. 1, 2020), [https://www.who.int/news-room/detail/01-01-2020-the-climate-and-clean-air-coalition-\(ccac\)](https://www.who.int/news-room/detail/01-01-2020-the-climate-and-clean-air-coalition-(ccac)).

⁴⁸ See *A New Strategy*, *supra* note 44, at 6.

⁴⁹ See, e.g., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE 138 (2007).

⁵⁰ See *id.* at 2.

dominance in renewable energy markets, it was able to feed policy-driven demand from Germany and the United States while improving its own air quality and providing a benefit to domestic renewable energy firms.⁵¹ Arrangements like that can occur accidentally, but the building blocks framework envisions them as occurring more rapidly and more broadly when forethought goes into imagining the possibilities.

The second key twist in our building blocks approach related to participation and compliance. Among the three institutional types recognized in the article and described below, one involved already-existing institutions that could be partially repurposed and whose enforcement powers could be extended to greenhouse gases emissions.⁵² The Montreal Protocol provided us with a handy example of this type because some Parties were already discussing the extension of the MP to cover hydrofluorocarbons, which are greenhouse gases as well as substitutes for the ozone depleting CFCs (Freons) and related compounds.⁵³ The MP is a multifaceted case of a building-block institution: it was organized for a different purpose than greenhouse gas mitigation, but since hydrofluorocarbons were originally produced to satisfy the needs of Montreal Parties for substitutes, it did not require a wholesale change of purpose to include them. After all, greenhouse gas reductions have long been a desirable byproduct, or co-benefit, of the Protocol, as CFCs were potent greenhouse gases as well as ozone depleters.⁵⁴ In the process, the hypothetically strong trade sanctions serving as enforcement of participation—and conceivably, compliance—under the Protocol could be leveraged to provide a credible enforcement mechanism for hydrofluorocarbons of the sort totally absent from the UNFCCC and the KP. It is also worth noting that while the MP Parties were states, the level of collaborative, formal support for the MP from industry, NGOs, and relevant expert communities prefigured the sort of formal arrangements involving nonstate Parties envisioned by the building blocks.⁵⁵

⁵¹ See, e.g., Rainer Quitzow, *Dynamics of a Policy-driven Market: The Co-evolution of Technological Innovation Systems for Solar Photovoltaics in China and Germany*, 17 ENV'T INNOVATION & SOCIETAL TRANSITIONS 126, 143 (2015).

⁵² See WORLD HEALTH ORG., *supra* note 47.

⁵³ See BENEDICK, *supra* note 38 at 231.

⁵⁴ See *id.* at 112.

⁵⁵ See BARRETT, *supra* note 31, 221–54; BENEDICK, *supra* note 38, at 7, 134.

Two examples of repurposing existing institutions with strong enforcement capabilities have since come to fruition. With the adoption of the Kigali amendments to the MP, signed in 2016, the Protocol has been partly repurposed to cover a category of non-depleting greenhouse gases and the possibility of trade sanctions presumably applies as well.⁵⁶ Interestingly, the stretching of enforcement to cover non-depleting substances did not appear to stir broad controversy as the amendments were negotiated. Another application of this concept arose that same year when the Council of the International Civil Aviation Organization (ICAO), which can choose to encourage Parties to exercise strong enforcement through their control of landing rights—permissions to land aircraft at a particular location—adopted a relatively weak agreement on greenhouse gas emissions for aircraft tied to an offset system to allow flexibility in compliance.⁵⁷ If and when ICAO increases the stringency of these limits, it will provide another test of the durability of strong enforcement as the domain of such agreements is stretched.

A third key idea of the building blocks model is the suggestion that policy entrepreneurs should use the three institutional forms emphasized in the paper—existing institutions whose power can be redirected to greenhouse gas mitigation, new club-like arrangements that penalize free-riders, and dominant market actors—to innovate new arrangements that transcend the traditional state/nonstate models.⁵⁸ I will return to this idea later.

The building blocks concept is consistent with a KP-type global market in emissions allowances, motivated by a desire for efficiency that would lower overall cost of compliance. But implementing such a system is now a long way off. Yet the market can be mobilized differently: the market power of firms could be leveraged to increase

⁵⁶ See Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Oct. 15, 2016, 56 I.L.M. 193. For a brief explanation of the significance, see *World Takes a Stand Against Powerful Greenhouse Gases with Implementation of Kigali Amendment*, U.N. ENV'T PROGRAMME (Jan. 3 2019), <https://www.unenvironment.org/news-and-stories/press-release/world-takes-stand-against-powerful-greenhouse-gases-implementation>.

⁵⁷ See *What Is CORSIA and How Does It Work?*, INT'L CIVIL AVIATION ORG. (ICAO), https://www.icao.int/environmental-protection/pages/a39_corsia_faq2.aspx (last visited Mar. 27, 2021); Jocelyn Timperley, *Corsia: The UN's Plan to 'Offset' Growth in Aviation Emissions*, CARBONBRIEF (Feb. 4, 2019) <https://www.carbonbrief.org/corsia-un-plan-to-offset-growth-in-aviation-emissions-after-2020>.

⁵⁸ See *A New Strategy*, *supra* note 44, at 3–4.

emissions mitigation. The interests of dominant market actors in maintaining or enhancing their positions under a regulatory transition can be mobilized in favor of a regulatory race-to-the-top as opposed to a weaker compromise.⁵⁹ For example, in the run-up to the Montreal Protocol, the DuPont Corporation, which had invested years earlier in research to synthesize non-depleting substitutes for ozone-depleting coolants, made an historic switch in dropping its opposition to the agreement and supporting strong limitations on production of the latter chemicals.⁶⁰ This concession made it far easier for the United States to reach agreement on the MP and succeeding amendments that rapidly eliminated production of the key ozone-depleting chemicals, while not undermining DuPont's market position.

Stewart's argument underscores the importance of aligning the profit motive—and if not profit maximization, at least an improved outcome compared to the competition—with the goal of increased environmental stringency. It follows naturally that policy entrepreneurs should take the political economy of regulation seriously at an early stage of their efforts and identify such opportunities as fundamental to solving the problem at hand. However, it remains unclear how many opportunities exist in the real world that could prove as effective as DuPont's 1986 intervention in the Montreal case. Nonetheless, in sectors where market power is in the hands of fewer and fewer players, seeking out dominant market actors could become a major strategy for climate policy entrepreneurs. But when new regulation of previously unregulated aspects of large sectors, like energy, looms, and firms are engaged politically, historical behemoths may refuse to go along, dig in their opposition, and either win or expire. The current division in oil and gas producer strategies between U.S. and E.U. firms will provide an interesting test of which strategy wins. It will be enlightening to watch the political actions of Big Oil—not merely their public pronouncements or even their investments—to see if some begin to press seriously for greenhouse gas limitations. If they do, the dominant market actor strategy will hold considerable promise.

⁵⁹ See Anu Bradford, *The Brussels Effect*, 107 NW. U. L. REV. 1, 4 (2012).

⁶⁰ See OPPENHEIMER & BOYLE, *supra* note 35, at 159–60; BENEDICK, *supra* note 38, at 111–12.

IV. WHERE IS PARIS HEADED?

The ways in which the Paris Agreement addresses problematic aspects of the Kyoto Protocol are complemented by the building blocks framework. Where the KP is based on negotiated political targets, apparently to be updated every five years after torturous negotiation, the PA offers states the opportunity to define their own objectives, also every five years and, in principle, the building blocks approach provides a growing non-governmental source of experience and information to support evolution of the national plans.⁶¹ Where the KP feigned strong enforcement with penalties that simply backloaded obligations onto subsequent compliance periods, the PA instead relies explicitly upon the name-and-shame or pledge-and-review approach, creating a role for building blocks institutions in auditing emissions data and calling out poor performance. Some building blocks would go further than the PA by repurposing strong enforcement by, or associated with, existing institutions in the service of greenhouse gas mitigation.⁶² Where the KP envisioned a global emissions trading system that relied upon a hypothetical transparency of national emissions data to support the market value of emissions allowances,⁶³ the Paris approach to transparency remains to be fully codified and its ultimate shape is unclear.⁶⁴ Will the return of the United States to the Paris Agreement offset China's preference for an opaque approach that would undermine the entire global market concept which survives, if in tentative

⁶¹ See Kyoto Protocol to the United Nations Framework Convention on Climate Change arts. 3, 4, Dec. 10, 1997, 37 I.L.M. 22 (1998); 2303 U.N.T.S. 148.

⁶² See Paris Agreement to the United Nations Framework Convention on Climate Change art. 15, ¶ 2, Dec. 12, 2015, T.I.A.S. No. 16-1104. ("The [compliance] mechanism referred to in paragraph 1 of this Article shall consist of a committee that shall be expert-based and facilitative in nature and function in a manner that is transparent, non-adversarial and non-punitive."). On compliance with quantitative obligations under the Kyoto Protocol, see *An Introduction to the Kyoto Protocol Compliance Mechanism*, UNFCCC, <https://unfccc.int/process/the-kyoto-protocol/compliance-under-the-kyoto-protocol/introduction> (last visited at Feb. 25, 2021).

⁶³ See Kyoto Protocol to the United Nations Framework Convention on Climate Change, *supra* note 61, at art. 6.

⁶⁴ For a discussion of the significance of transparency provisions in the Paris Agreement, see, e.g., *COP 25: Implementing Article 6 of the Paris Agreement*, ENV'T DEF. FUND (Dec. 9, 2019), <https://www.edf.org/climate/implementing-paris-climate-agreement> and *COP25: Key Outcomes Agreed at the UN Climate Talks in Madrid*, CARBON BRIEF (Dec. 15, 2019), <https://www.carbon-brief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid>.

form, in Article 6 of the PA? Especially if transparency is lacking in the end, the building blocks framework could provide a backup capability for tracking, accounting, and verifying emissions, if only for certain sectors, especially as detection by remote sensing achieves greater resolution.

With regard to a role for nonstate actors, the KP was a states-to-states agreement, whereas the PA explicitly recognized the political and practical importance of firms, NGOs, subnational government units, and others by underscoring the Non-State Actor Zone for Climate Action (NAZCA), initiated at COP-20.⁶⁵ This arrangement evolved into the Global Climate Action platform at COP-22. The latter provides for expert meetings and high-level events at which non-state actors could play a dominant role.⁶⁶ It created ministerial high-level “champions” to encourage, among other initiatives, the development of outside coalitions and clubs which are reminiscent of the building blocks.⁶⁷ These ideas are all consistent with the spirit of the building block concept and its emphasis on flexibility in the form of participation in the diplomatic and implementation process. This calls for an evolution away from a state monopoly on the influence that arises from participation in the various diplomatic mechanisms, while maintaining the states’ monopoly of ultimate power. In other words, without displacing state authority, non-state actors should be invited to actively partake of roles formerly reserved for diplomats.

Can a traditional form of power and newly developing structures that allow flexibility on targets and participation and thus diverse channels of influence, proceed collaboratively? Or will stresses arising from the inherent difference between power and influence undermine the effectiveness of such arrangements? Whether the PA is effective in the long term will be partly determined by an analysis of the tradeoff between, on the one hand, broader

⁶⁵ On nonstate actors and the Paris Agreement, see, e.g., *About*, GLOBAL CLIMATE ACTION NAZCA, <https://climateaction.unfccc.int/views/about.html> (last visited Feb. 3, 2021); *Climate Initiatives Platform*, U.N. ENV’T PROGRAMME, <http://climateinitiativesplatform.org/index.php/Welcome> (last visited Feb. 3, 2021).

⁶⁶ See U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, MARRAKECH PARTNERSHIP FOR GLOBAL CLIMATE ACTION 2–5 (2016), https://unfccc.int/files/paris_agreement/application/pdf/marrakech_partnership_for_global_climate_action.pdf.

⁶⁷ See *id.* at 6.

participation and more flexibility, and on the other, weak overall enforcement and, potentially, a lack of transparency. Only time will tell if this tradeoff works to encourage or discourage state, nonstate, and private action. For comparison, the Montreal Protocol process succeeded partly by including scientists and industry experts in developing, evaluating, and projecting the effects of potential regulations. Its Technical Advisory Panels⁶⁸ are often cited as examples of successful multi-sector collaboration aimed at understanding solutions to a complex problem involving scientific, technological, and socioeconomic components—as most problems do. The International Civil Aviation Organization embodies similar arrangements with respect to developing air pollution and other standards.⁶⁹ Such inclusiveness had, before the PA, been notably absent in the UNFCCC structure, which for instance, holds the Intergovernmental Panel on Climate Change (IPCC) at arm’s length—perhaps by mutual agreement. As noted above, however, both ICAO and the MP embody the potential for strong enforcement.⁷⁰ If the inclusive approach, absent strong, credible, and comprehensive enforcement in the PA itself, succeeds, the PA will be hailed as having perceived how an ever more complex world, with multiple actors vying for influence, could cooperate to solve a problem vastly more complex than any that other international institutions had tackled. If the PA fails, it may be remembered as a pusillanimous attempt by states who caved in to current political reality instead of leading the way to transcending it.

V. UNFCCC ARTICLE 2 – A KEY TO THE FUTURE OF PARIS?

I’ll make a final point that hints at what the future may hold. Recall that Article 2 of the UNFCCC articulates the long-term objective of that Convention, providing the injunction to avoid “dangerous anthropogenic interference with the climate system” by

⁶⁸ See BENEDICK, *supra* note 38, at 129–30, 221.

⁶⁹ See Alejandro Piera, *The Challenge of Finding a Legal Vehicle to Enforce Compliance with a Global Aviation Emissions Scheme*, GREEN AIR (Nov. 19, 2014), <https://www.greenaironline.com/news.php?viewStory=2007> (discussing non-compliance situations and the possibility of enforcement of greenhouse-gas offsets and standards under ICAO). While strong provisions pertain to safety issues (e.g., suspension of landing rights), the extent to which these can be stretched to greenhouse gas obligations is unclear. Such actions, if any, would likely be enforced by states because ICAO itself has no direct enforcement capability.

⁷⁰ See, e.g., *id.*

stabilizing greenhouse gas concentrations.⁷¹ Article 2 is an aspirational goal with questionable legal force. Even if it had legal force, it is doubtful that it could be enforced in practice, because it is a goal that can only be achieved collectively, meaning that no individual state can be accused of failing to implement it. Article 2 initially received little attention from negotiators. However, in 2004, the Council of the European Union adopted a numerical temperature target, 2°C above preindustrial temperatures, and in 2008, the G-8 recognized this target, followed the next year by recognition of the target at COP-15.⁷² At the same time, developing countries argued strenuously for a 1.5°C target, and the Paris Agreement contains both objectives, albeit with more rigorous language attached to 2°C.⁷³ By that time, hope among many observers was scarce that either target could actually be achieved without first exceeding it for an extended period.

However, the Paris Agreement took one additional step in this direction by requesting a report from the IPCC on the consequences and implementation of a target of 1.5°C of warming.⁷⁴ Whether also due to the exogenous circumstance of a concatenation of extreme weather events; or a global recoiling from the hostility to the entire climate issue on the part of the Trump administration; or the IPCC's credibility combined with what much of the interested media considers its caution and the contrast of the latter with the stern tone of the resulting report; or the brewing concern about the issue among the younger generation and the advent of youth activism, as embodied by Greta Thunberg, the climate world seemed to erupt in response to publication of the report in 2018. The report became Exhibit A in the prosecution of governmental failure to act to stem emissions.

The eruption changed everything in terms of the public framing of the issue but nothing so far in terms of action. What it did

⁷¹ United Nations Framework Convention on Climate Change art. 2, May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

⁷² See Michael Oppenheimer & Annie Petsonk, *Article 2 of the UNFCCC: Historical Origins, Recent Interpretations*, 73 CLIMATIC CHANGE 195, 215 n.1 (2005); Carlo C. Jaeger & Julia Jaeger, *Three Views of Two Degrees*, 11 REG'L ENV'T CHANGE, S15, S15–S17 (2011).

⁷³ See Paris Agreement to the United Nations Framework Convention on Climate Change, *supra* note 62, at art. 2.

⁷⁴ UNFCCC Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 at para. 21 (Jan. 29, 2016).

demonstrate is how inviting nonstate actors, such as the IPCC and its scientists, into the state process, even tangentially, can alter public perceptions considerably. Intentionally or not, the power of states combined with the expertise and messaging of nonstate actors to reframe the issue of governmental commitments around the largely-ignored Article 2. Nobody knows where this will end but it provides a useful demonstration of the possibilities embodied by a more inclusive approach. Policy entrepreneurs are surely taking heed.