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Linking climate policies to advance global mitigation : Joining jurisdictions can increase efficiency of mitigation

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The latest round of annual climate negotiations, held last November in Bonn, Germany, under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC),⁴ validated that the Paris Agreement⁵ (2015) has met one of two necessary conditions for ultimate success. By achieving broad participation including 195 countries accounting for 99% of global greenhouse gas (GHG) emissions,⁶ the Paris Agreement dramatically improves upon the 14% of global emissions associated with countries acting under the Kyoto Protocol,⁷ the international agreement that it will replace in 2020.

But the second necessary condition for ultimate success is adequate collective ambition of the Nationally Determined Contributions (NDCs) countries have individually pledged. That condition has not yet been met. As the negotiators in Bonn began the process of elaborating details of the Paris Agreement, a critical question remains how to incentivize countries to increase ambition over time.

The ability to link different climate policies, such that emission reductions undertaken in one jurisdiction can be counted toward the mitigation commitments of another jurisdiction, may help Parties increase their ambition over time. In this essay, we explore options and challenges for facilitating such linkages in light of the considerable heterogeneity that is likely to characterize regional, national, and sub-national efforts to address climate change. The three of us engaged in this topic in Bonn. This article draws in part on our experience there.

BACKGROUND. Linkage is important, in part, because it can reduce the costs of achieving a given emissions-reduction objective.⁸ Lower costs, in turn, may contribute politically to embracing more ambitious objectives. In a world where the marginal cost of abatement – that is, the cost to reduce an additional ton of emissions – varies widely, linkage improves overall cost-effectiveness by allowing jurisdictions to finance reductions in other jurisdictions with relatively lower costs while allowing the former jurisdictions to count the emission reductions towards targets set in their NDCs. In effect, linkage drives participating jurisdictions toward a common cost of carbon, equalizing the marginal cost of abatement and producing a more efficient distribution of abatement activities. These benefits are potentially significant: a report by the World Bank estimated that international

linkage could reduce the cost of achieving the emissions reductions specified in the initial set of NDCs submitted under the Paris Agreement 32% by 2030 and 54% by 2050.⁹

In addition to lowering the costs of achieving emission-reduction targets, linkage can improve the functioning of individual markets: by reducing market power by enlarging the scope of the market; and by reducing price volatility by thickening markets. Beyond such direct economic benefits, significant political benefits exist. As jurisdictions band together, linking can signal political momentum that contributes to more ambitious policies. This can, as well, influence non-linking countries to join the fold and participate. Additionally, administrative economies of scale can be achieved through knowledge sharing in policy design and operation, as well as through shared administrative costs. Finally, and importantly, linkage can allow for the important UNFCCC equity principle of “common but differentiated responsibilities and respective capabilities” to be pursued without sacrificing cost-effectiveness.

There are also legitimate concerns with linkage, including distributional impacts within and across jurisdictions, even though aggregate abatement costs are reduced. Because linking is inherently voluntary, however, it will generally not occur unless both parties to a link anticipate that overall benefits of the link – including revenue from selling emission reductions – will outweigh costs. Likewise, individual exchanges made between compliance entities operating under a link are voluntary.

Transferring pollution obligations can also raise concerns about environmental justice. While greenhouse gases (GHGs) are a global pollutant, changes in GHG emissions can affect emissions of correlated local pollutants. This is a reasonable concern, but note that linkage could help reduce correlated local pollution in developing countries, because jurisdictions taking on increased mitigation obligations as a result of linkage, many of which will be low income developing countries, will see local pollution fall along with lower GHG emissions. A more serious concern of linkage stems from the automatic propagation of some design elements from one system to another, including, in particular, cost-containment mechanisms in cap-and-trade systems – banking, borrowing, and price collars. This means there is decreased autonomy, as rules are set jointly by linked parties.

All of this refers to what we think of as “hard linkage,” namely a formal recognition by a mitigation program in one jurisdiction of emission reductions undertaken in another jurisdiction for purposes of complying with the first jurisdiction’s mitigation program. Examples of such “hard linkage” are the links between the cap-and-trade systems in California and Québec, as well as, more recently, the European Union and Switzerland. But another possibility is “soft linkage,” by which we mean an agreement – explicit or implicit – to harmonize carbon prices either at a level or within overlapping bands. This could happen with carbon taxes set at a specific rate (or within a target band), via cap-and-trade systems with price collars, or through some mixture of the two.

A HOME FOR LINKAGE IN THE PARIS AGREEMENT. Article 6.2 of the Paris Agreement provides a foundation for linkage by recognizing that Parties to the Agreement may “choose to pursue voluntary cooperation in the implementation of their” NDCs through “the use of internationally transferred mitigation outcomes” (ITMOs).¹⁰ In contrast to the Kyoto Protocol (which likewise included provisions for international cooperation), the voluntary and flexible architecture of the Paris Agreement allows for wide variation, not only in the types of climate policies countries choose to implement, but also in the form and stringency of the abatement targets they adopt.

To be clear, there are three conceptually – and operationally – distinct aspects of international policy linkage: (1) provisions in Article 6.2 of the Paris Agreement and related guidance that can facilitate international linkage, by providing – for example – for ITMOs to be used as an accounting mechanism when “compliance” with NDCs is measured; (2) agreements between two jurisdiction (Parties to the Paris Agreement or possibly sub-national jurisdictions) to recognize emission reductions generated in the other jurisdiction; and (3) two compliance entities, one in each of the linked jurisdictions, engage in an exchange, such as with allowances moving between two cap-and-trade systems.

HETEROGENEOUS LINKAGE. Linkage is relatively straightforward when the policies involved are similar. However, linkage is possible even when this is not the case: for example, when one jurisdiction is using a cap-and-trade system to reduce emissions while another jurisdiction is relying on carbon taxes or performance standards. More broadly, there are several potential sources of heterogeneity: type of policy instrument (for example, taxes vs. cap-and-trade vs. performance or technology standard); level of government jurisdiction involved (for example, regional, national, or sub-national); status under the Paris Agreement (that is, whether or not the jurisdiction is a Party to the Agreement – or within a Party); nature of the policy target (for example, absolute mass-based emissions vs. emissions intensity vs. change relative to business-as-usual); and operational details of the country’s NDC, including type of mitigation target, choice of target and reference years, and sectors and greenhouse gases covered.

ANALYZING POTENTIAL LINKAGES. Most forms of heterogeneity – including with respect to policy instruments, jurisdictions, and targets – do not present insurmountable obstacles to linkage. In principle, the most straightforward case of international climate policy linkage would be a pair of national cap-and-trade systems in Parties to the Paris Agreement with each utilizing an absolute (mass-based) target in its NDC. A real-world example of this case could be a link between the cap-and-trade systems in New Zealand and Switzerland.

A less obvious case would be a pair of sub-national policies – one a carbon tax and one a cap-and-trade system. An example here would be a link between the carbon tax in British Columbia and the cap-and-trade system in Tokyo. Yet another case of heterogeneous

linkage might be between the European Union’s Emissions Trading System and California’s cap-and-trade program. All of these would be conceptually feasible and merit consideration, although each raises issues that require attention and call for specific accounting guidance if linkage is to include the use of ITMOs under the Paris Agreement.

ISSUES FOR CLIMATE NEGOTIATORS. Parties are currently working to elaborate guidance on Article 6.2, but have expressed widely differing views on what issues to include in such guidance.¹¹ During the latest discussions in Bonn, Parties signaled agreement on the need to offer at least minimal guidance on how to account for transfers of ITMOs. Beyond that, however, positions diverge on whether to address broader questions that bear on linkage under Article 6.2. Particular divisions center around issues of environmental integrity, governance, and the contribution of ITMO transfers to sustainable development.

From our analysis, it appears important that guidance on Article 6.2 set out a robust accounting framework to prevent double-counting of GHG reductions, to ensure that the timing (vintage) of claimed reductions and of respective ITMO transfers is correctly accounted for, and to ensure that participating countries make appropriate adjustments for emissions or reductions covered by their NDCs when using ITMOs. In other work, we offer specific approaches for ITMO accounting under Article 6.2.¹² Additional issues that would benefit from guidance include how to quantify ITMOs and how to account for heterogeneous base years, different vintages of targets and outcomes, and transfers between Parties and non-Parties to the Paris Agreement.

Given their limited negotiating mandate, however, Parties should exercise caution when developing guidance under Article 6.2 that goes beyond accounting issues. Onerous conditions related to the ambition or integrity of domestic action, for instance, could deter linkage. This does not mean that such concerns should be neglected; but they are best addressed under the corresponding negotiating tracks, such as the Talanoa Dialogue to take stock of the collective efforts of Parties, or the enhanced transparency framework under Article 13 of the Paris Agreement.

A PATH FORWARD. Clear and consistent guidance for accounting of emissions transfers under Article 6.2 can contribute to greater certainty and predictability for Parties engaged in voluntary cooperation, thereby facilitating expanded use of linkage. Too much guidance, however, particularly if it includes restrictive quality or ambition requirements, might impede linkage and dampen incentives for cooperation.

A combination of common accounting rules and an absence of restrictive criteria and conditions may accelerate linkage and allow for broader and deeper policy cooperation, which in turn can increase the potential for Parties to scale up the ambition of their NDCs.

And that may ultimately foster stronger engagement between Parties (and non-Parties), as well as with regional and sub-national jurisdictions.

The Parties to the Paris Agreement will continue their negotiations in Bonn this May, as they seek to make progress toward agreeing to a finalized rulebook for Article 6 at the December 2018 annual climate summit, to be held in Katowice, Poland. The decisions the negotiators reach this year could greatly advance or – conversely – impede international climate policy linkage, and thereby play a key role in determining the ultimate fate of the Paris Agreement.

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REFERENCES

¹ Massachusetts Institute of Technology, and University of Strathclyde.

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³ Harvard University, National Bureau of Economic Research, and Resources for the Future.

⁴ United Nations Framework Convention on Climate Change. Rio de Janeiro, Brazil, 1992.

⁵ “Paris Agreement.” Paris, France, 2015.

⁶ “Paris Agreement: Status of Ratification.” UNFCCC Secretariat, accessed January 3, 2018. http://unfccc.int/paris_agreement/items/9444.php.

⁷ “Kyoto Protocol to the United Nations Framework Convention on Climate Change.” Accessed November 20, 2017. http://unfccc.int/kyoto_protocol/items/2830.php.

⁸ Mehling, Michael A, Gilbert E. Metcalf and Robert N. Stavins. “Linking Heterogeneous Climate Policies (Consistent with the Paris Agreement).” Discussion Paper, ES 17-6, Harvard Project on Climate Agreements, October 2017.

⁹ World Bank, Ecofys, and Vivid Economics. “State and Trends of Carbon Pricing 2016.” Washington, D.C., 2016.

¹⁰ “Paris Agreement.” Article 6, pages 7-8. Paris, France, 2015.

¹¹ Obergassel, Wolfgang, and Friederike Asche. “Shaping the Paris Mechanisms Part III: An Update on Submissions on Article 6 of the Paris Agreement.” JIKO Policy Paper, 05/2017, Wuppertal Institute for Climate, Environment and Energy, November 2017.

¹² Mehling et al. (2017), cited in note 8.