

Double counting and the Paris Agreement rulebook

Poor emissions accounting could undermine carbon markets

Lambert Schneider, Maosheng Duan, Robert Stavins, Kelley Kizzier, Derik Broekhoff, Frank Jotzo, Harald Winkler, Michael Lazarus, Andrew Howard, Christina Hood

The 24th international climate conference in Katowice, Poland, in December 2018 was a major achievement in the multilateral response to climate change. More than 190 countries managed to agree on nearly all elements of a comprehensive rulebook that puts flesh on the bones of the 2015 Paris Agreement. The rules require, for the first time, that all countries provide detailed information on their climate change mitigation targets and regularly report on their progress in implementing and achieving them. However, one important chapter is still missing: rules for international carbon markets discussed under Article 6 of the Paris Agreement. Competing views on how to avoid “double counting” — counting the same emission reduction more than once to achieve climate mitigation targets — were a major roadblock to reaching consensus. Completing the missing chapter on Article 6 will be one of the key tasks when countries reconvene at the 25th international climate conference in Santiago, Chile, in December of this year. We highlight why resolving double counting is critical for achieving the goals of the Paris Agreement and identify essential ingredients for a robust outcome that ensures environmental effectiveness and facilitates cost-effective mitigation.

Carbon markets can involve three distinct yet closely related levels of actions. First, national or regional jurisdictions can establish policies, such as emissions trading systems, that enable firms to trade emission permits, or credits for having reduced emissions relative to a baseline. Second, jurisdictions can link their policy instruments, which allows these permits or credits to be traded across international borders (1). Third, and our focus, Article 6 of the Paris Agreement establishes a framework that allows countries to count these international transfers when demonstrating achievement of their targets under the Paris Agreement. Carbon markets provide flexibility in where and when greenhouse gas (GHG) emissions are reduced and thereby can lower the aggregate cost of achieving climate mitigation targets. This could help governments adopt more ambitious targets (1–3). Efficiency gains associated with carbon markets could thus help achieve the deep emissions cuts that are necessary to reach the goal of the Paris Agreement of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit it 1.5°C. If not robustly designed and implemented, however, carbon markets could lead to greater emissions and higher costs and thus undermine the agreement (4).

AVOIDING DOUBLE COUNTING

Double counting of emission reductions is one of the main ways in which the integrity of carbon markets could be undermined. If it is not prevented, actual GHG emissions could end up being greater than the aggregated achievement that the countries (or private sector entities) participating

in the carbon market report (5, 6). Avoiding double counting is thus fundamental for the integrity and healthy functioning of any carbon market and critical for the credibility of the Paris regime.

In the context of the Paris Agreement, a robust system to account for international transfers of emission reductions is the main ingredient needed to avoid double counting. The basic principle is simple: The international transfer of emission reductions should not lead to higher total emissions than if the participating countries or entities had met their targets individually (5, 6). Article 6.2 of the Paris Agreement establishes such an accounting framework. It avoids double counting through a form of double-entry bookkeeping, referred to as “corresponding adjustments.” As with bank transfers, an entry in one account requires a corresponding, opposite entry to another account. Under the Paris Agreement, the relevant currency is emission reductions: The country selling emission reductions makes an addition to its emission level, and the country acquiring the emission reductions makes a subtraction. Both countries prepare an emissions balance in which the country’s target level is compared with its emissions, adjusted for any international transfers of emission reductions (7).

To implement this approach, negotiators are considering various further ingredients — in particular, requirements for countries to clarify their targets in terms of GHG emissions; to track international transactions of emission reductions through electronic registry systems; and to regularly report on their emissions and carbon market transactions, subject to a technical review.

Addressing double counting is critical because nearly half of the Parties to the Paris Agreement have signalled their intent to use carbon markets, many of them as sellers of emission reductions (8). The European Union and Switzerland, for example, agreed to link their emissions trading systems and to count the resulting transfers of emission reductions toward their targets under the Paris Agreement. A similar arrangement might be made if the United Kingdom leaves the European Union. Several countries have announced their intent to achieve net-zero emissions between 2030 and 2050, including through the purchase of emission reductions from other countries. Some countries, such as Japan and Switzerland, have already started purchasing emission reductions.

The largest demand for emission reductions may not come from a country but from airlines. Because of the difficulty of attributing emissions from international aviation to a particular country, the Kyoto Protocol mandated the International Civil Aviation Organization (ICAO) to address these emissions. In 2016, ICAO adopted a new global scheme that requires airlines to offset any increase in carbon emissions from international flights above 2020 levels. Over the scheme’s operational period from 2021 to 2035, airlines could demand as much as 1.6 billion to 3.7 billion emission reduction credits (9), compared with about 2 billion credits purchased by countries to meet their Kyoto commitments in the period from 2008 to 2020.

Next to using carbon markets for compliance purposes, organizations and individuals increasingly purchase emission reductions to voluntarily offset their emissions. There is considerable debate whether double counting needs to be avoided for such purchases or whether these emission reductions can be used by both countries to achieve the Paris targets and the organizations or individuals to offset their emissions (10).

If these transactions are to be credible, they must be underpinned by international accounting rules that prevent double counting. But why are such rules so highly controversial in international negotiations? Resolving double counting is politically challenging because countries have different

interests and hence different interpretations of what the requirements of the Paris Agreement mean. It is also technically challenging because countries communicated rather diverse mitigation pledges under the Paris Agreement, which makes accounting complex.

POLITICAL OBSTACLES

The Paris Agreement is explicit that double counting shall be avoided. Still, countries wrangle not only over how double counting should be avoided but also what constitutes double counting and whether it should be avoided under all circumstances (11).

Some countries have proposed that seller countries should not have to apply corresponding adjustments if the emission reductions are generated under the new, internationally governed crediting mechanism established by Article 6.4 of the Paris Agreement. This new mechanism is commonly viewed as a successor to the Clean Development Mechanism (CDM), which allows developed countries, who have mitigation commitments under the Kyoto Protocol, to acquire emission reduction credits generated from projects in developing countries, who do not have such commitments under Kyoto. The CDM and the new Paris mechanism both require that certified emission reductions must be “additional” (that they would not have occurred without the carbon market incentives). Brazil, supported by a few others, has argued that the requirement of additionality obviates the need for corresponding adjustments by seller countries because it ensures that the emission reductions go beyond the climate action that the country would pursue to achieve its Paris mitigation target. This position would implement accounting similar to the Kyoto Protocol, in which only developed countries have climate mitigation targets, so there would be no need for developing countries to account for transfers of emission reductions. However, it could result in double counting in the new context of the Paris Agreement, under which all countries have pledged climate mitigation contributions. Most countries therefore support that corresponding adjustments be applied by both selling and acquiring countries under the new Paris mechanism. Disagreement over this matter was central to the failure to reach consensus on carbon market rules in Katowice (12).

Countries are also wrestling with avoiding double counting across different United Nations regimes. Under ICAO, countries have formally agreed that double counting between countries’ mitigation targets and ICAO’s aviation scheme should be avoided (13). Yet under the Paris Agreement, some countries, most vocally Saudi Arabia, have taken the position that international rules under Article 6 should not address such double counting, arguing that Article 6 only refers to transfers of emission reductions to achieve Paris targets but not transfers to airlines, and that ICAO and the Paris Agreement are independent treaties. Without a requirement for countries to apply corresponding adjustments for emissions reductions sold to the aviation industry, however, there is a risk that these reductions are double counted: once by the selling countries to achieve their Paris targets and once by airlines to achieve their obligations under ICAO. Failure to resolve this matter could undermine the integrity of ICAO’s scheme and cause some countries to abandon it.

Another controversy relates to how much international oversight is needed to ensure robust accounting (11, 12). To preserve integrity and avoid the risk of a race to the bottom, some countries, including Senegal and South Africa, argued for more international oversight — not only for the mechanism established by Article 6.4 but for any carbon market cooperation among countries. This could, for example, include more detailed rules rather than principles, or participation requirements that countries must satisfy to engage in transfers. Other countries — including Australia, Canada,

Japan, and the United States — had opposed strong international oversight for bilateral carbon market approaches, arguing for more national sovereignty and flexibility in implementing bilateral carbon market cooperation. Countries are now moving toward an approach in which they report on how they ensure accounting in accordance with the Paris rulebook and their reports are subject to a technical review.

DIVERSE CLIMATE PLEDGES

Climate pledges made by countries under the Paris Agreement are diverse. Many countries have formulated their pledges as some form of GHG emissions targets, whereas others have used different metrics, such as targets for the penetration of renewable sources. Some pledges do not cover all sectors of the economy or all GHGs; some are conditional on the provision of support from other countries; and some have no quantitative targets whatsoever, only qualitative descriptions of actions or strategies. Countries have also chosen different time periods for their targets; many have pledged targets for a single year — most 2030, some 2025 — whereas some have chosen a multiyear period, such as 2021 to 2030. And some pledges are simply unclear; for example, they lack a clearly defined scope of the target or express a target as a deviation from business as usual without having determined their business-as-usual emissions (14). All of these factors make accounting complex. One important matter is how best to account for transfers in the context of different target time frames (5, 6, 11, 12). For example, South Korea has proposed that countries should be allowed to count emission reductions achieved in another country over many years (for example, from 2021 to 2030) to achieve a target for a single year only (for example, 2030). This could undermine environmental integrity in various ways—for example, if the seller country would only account for transfers that occurred in its target year (for example, 2030) (5, 6). But how to account for transfers of emission reductions generated in pre-target years is an open question. Adopting multiyear targets or trajectories, although potentially politically difficult, would be much more tractable for carbon market accounting. It would ensure continuous accounting over time and provide for integrity and transparency.

There is also debate whether, and under which conditions, countries should be allowed to sell emission reductions from GHGs or economic sectors that they have not included in their targets under the Paris Agreement (for example, a country reducing and selling CH₄ emissions, whereas its Paris target only includes CO₂) (15). In this case, the transfer of these emission reductions would not lead to double counting, and corresponding adjustments would thus not be necessary on the part of seller countries. However, allowing such transfers without adjustments by seller countries could create a disincentive for them to include more sectors and GHGs in their future targets because doing so would compel them to make adjustments any time they wish to sell such emission reductions.

To address this concern, some countries have proposed that international rules require that seller countries apply corresponding adjustments for all transfers, regardless of whether the emission reductions occur within or outside the scope of their Paris targets. This would create incentives for seller countries to expand the scope of their targets and make accounting simpler because it would avoid the need to determine whether emission reductions occur inside or outside the scope of their targets. However, such an approach could make it more difficult to use international carbon markets for reducing emissions that occur outside the scope of Paris targets. To resolve these issues, one

option considered in the negotiations is a grace period for the application of corresponding adjustments.

TO SUCCEED IN SANTIAGO

Common international accounting rules for cooperation through carbon markets are essential, for two reasons. First, the credibility and integrity of the international climate regime could be undermined if countries would pursue their own, less robust accounting approaches. Second, countries or firms might refrain from using carbon markets if they do not have clarity regarding whether they can claim the emission reductions they acquire. Success in Santiago is therefore critical. We propose several principles to guide the negotiations.

First, a single set of common international accounting rules should apply under the Paris Agreement, irrespective of which carbon market mechanism is used to generate emission reductions and irrespective of whether these reductions are used by countries to achieve their Paris targets or by other entities, such as airlines to achieve their mitigation obligations under ICAO. This is important for avoiding double counting and for creating a level playing field for international carbon markets.

Second, ensuring robust accounting, regardless of how mitigation targets are expressed, is essential. This is most easily achieved by accounting in common GHG emission metrics and over continuous multiyear periods, with corresponding adjustments applied to all relevant years, rather than only to single target years. For some countries, this could require clarifying what their current mitigation pledges mean in terms of GHG emission levels over time.

Third, the Paris Agreement foresees that over time, all countries will move toward economy-wide targets. Robust accounting would be greatly facilitated if all countries adopted targets that are economy-wide, cover all GHGs, apply to common multiyear time periods, and are expressed as GHG emissions. Next to resolving double counting, negotiators will need to address other controversial matters to reach agreement in Santiago, including whether a proportion of carbon market transactions revenue levied to pay for climate change resilience should only apply to the mechanism under Article 6.4 or to all international transfers under the Paris Agreement; whether tradable emission units left over from the CDM or from overcompliance with the Kyoto Protocol targets may be used to achieve Paris targets after 2020; and how other environmental integrity risks, such as transfers that are not backed by actual emission reductions, should be addressed.

To build a solid basis for international cooperation that can cost-effectively combat climate change, the Paris Agreement needs international carbon market rules that ensure environmental integrity and avoid double counting. Otherwise, international carbon markets might instead seriously undermine this carefully constructed climate agreement.

REFERENCES AND NOTES

1. M.A. Mehling, G. E. Metcalf, R. N. Stavins, *Science* 359, 997 (2018).
2. D. M. Bodansky, S.A. Hoedl, G. E. Metcalf, R. N. Stavins, *Clim. Policy* 16, 956 (2016).
3. C. Flachsland, R. Marschinski, O. Edenhofer, *Clim. Policy* 9, 358 (2009).
4. L. Schneider, S. La Hoz Theuer, *Clim. Policy* 19, 386 (2019).

5. C. Hood, G. Briner, M. Rocha, GHG ornot GHG: Accounting for Diverse Mitigation Contributions in the Post-2020 Climate Framework (OECD/IEA, 2014).
6. L. Schneider et al., "Robust accounting of international transfers under Article 6 of the Paris Agreement," discussion paper (German Environment Agency, 2017).
7. H. Winkler et al., "The balance sheet summary: An essential tool for transparency and robust accounting in mitigation and markets," policy brief (Energy Research Centre, University of Cape Town, 2018).
8. World Bank, *Ecofys, State and Trends of Carbon Pricing 2018* (World Bank, 2018)
9. C. Warnecke, L. Schneider, T. Day, S. La Hoz Theuer, H. Fearnough, *Nat. Clim. Chang.* 9, 218 (2019).
10. International Carbon Reduction & Offsetting Alliance (ICROA), *Guidance Report: Pathways to Increased Voluntary Action by Non-State Actors* (ICROA, 2017).
11. W. Obergassel, F. Asche, *Shaping the Paris Mechanisms Part III. An Update on Submission on Article 6 of the Paris Agreement* (Wuppertal Institut, 2017).
12. A. Marcu, M. Rambharos, *Rulebook for Article 6 in the Paris Agreement. Takeaway from the COP 24 outcome* (European Roundtable on Climate Change and Sustainable Transition, 2019).
13. ICAO, *Assembly Resolution A39-22/2: "Consolidated statement of continuing ICAO policies and practices related to environmental protection—Global Market-based Measure (MBM) scheme"* (ICAO, 2016).
14. J. Graichen, M. Cames, L. Schneider, "Categorization of INDCs in the light of Art. 6 of the Paris Agreement," discussion paper (German Environment Agency, 2016).
15. R. Spalding-Fecher, *Article 6.4 Crediting Outside of NDC Commitments Under the Paris Agreement: Issues and Options* (Carbon Limits, 2017).

ACKNOWLEDGMENTS

M.D. acknowledges funding from National Natural Science Foundation of China (project 71690243) and Ministry of Science and Technology of China (project 2017YFA0605304). C.H. has participated in the past 3 years in paid consultancies relating to avoiding double counting that were funded by the Center for Clean Energy and Climate (C2ES) and by the New Zealand government.