ARTICLE 6 NEEDS AMBITION, NOT TIME WASTING

THE CARRYOVER OF PRE-2020 CREDITS COULD FATALLY UNDERMINE THE PARIS AGREEMENT

SUMMARY

Existing market mechanisms under the Kyoto Protocol have accrued an available supply of some 4.65 Gt CO2 worth of carbon offsets, largely allocated to China, India, and Brazil. Were these credits to be rolled over into the mechanisms outlined by Article 6 of the Paris agreement, nearly **40% of existing ambition outlined by countries in their NDCs would be wiped away.**

Present NDC ambition will likely lead to total warming of **2.8°C** above the pre-industrial average. If the available supply of existing credits were to be carried over post-2020, an additional **0.1°C or more of warming** could be realised, dependent on where credits are consumed.

By contrast, to **move onto a trajectory compatible with limiting warming to 1.5°C would mean increasing the ambition of the current NDCs by 50%**. Carry over of Kyoto units would therefore take us in the wrong direction, further away from a pathway that is faithful to the 1.5°C limit, and could lock-in carbon intensive infrastructure for the longer term.

Allowing roll-over of credits prior to 2020 would also potentially destroy the nascent Article 6 market by **flooding it with pre-existing credits**. Some of these credits could also be double counted if they are also used to meet 2020 targets.

It is imperative that mitigation credits generated prior to 2020 not be applied towards the Article 6 market mechanism; otherwise, **already inadequate NDC targets will be made artificially easier to achieve**, resulting in even less ambitious action toward the goals of the Paris Agreement.

The dire need for increased ambition

Present global climate action is grossly inconsistent with the Paris Agreement's long-term temperature goal of limiting warming to below 1.5°C. The current Nationally Determined Contributions (NDCs) presented by countries would bring the world to warming of around 3°C by 2100 -- a level of warming that is inconceivable for the most vulnerable countries. To limit warming to 1.5°C, the ambition contained within the NDCs needs to double.[1]

Market mechanisms under Article 6 of the Paris Agreement are envisioned to enable more cost-effective mitigation: those countries facing more challenging or expensive emission reductions can offset their excess emissions with less expensive and easier emissions reductions elsewhere. However, the rules for the market mechanisms under the Paris Agreement's Article 6 are currently being negotiated at COP 25, chief among which is how to deal with existing credits in the Kyoto Protocol's Clean Development Mechanism (CDM). Some Parties have proposed that unused credits from the Kyoto Protocol's flexible mechanisms should be permitted for "carryover" to the Paris Agreement, to help Parties meet their NDCs. But others argue that this could severely undermine the delivery of promised reductions under the first set of NDCs.

[1] Climate Analytics 2019, How can Paris Agreement commitments be improved now to close the gap to 1.5°C, https://climateanalytics.org/media/ndc_closing_the_gap_to_1p5c.pdf

Existing carryover mechanisms within the Kyoto Protocol have already proven to be counter-productive to enhanced mitigation goals: instead of stimulating deeper and faster emissions reductions, these mechanisms have allowed governments to put off action on those sectors that are more difficult to decarbonise to a later date, locking in carbon intensive infrastructure. With no time to lose in lowering emissions, the market mechanisms should, first and foremost, be used to deliver real and effective emissions reductions. In this briefing we take a look at the risks that carry over of Kyoto era carbon credits for use in the Article 6 mechanisms could have for national and global efforts to limit warming to 1.5°C.

Kyoto carryover poses a significant risk to global ambition

In our analysis we focus on two primary "Kyoto units": Assigned Amount Units (AAUs), which are credits generated by Annex I parties, and Certified Emissions Reductions (CERs), which are credits generated via mitigation projects by non-Annex 1 countries. There are an estimated **4.65[2] billion registered CERs**[3] and **~0.7b[4] CERs** in the process of being validated. What is more, Australia has indicated its intention to use some **~0.4b[5]** domestically accounted AAUs[6]. In combination, these credits comprise the equivalent of **5.8 Gt** of CO2-equivalent emissions, and carrying all of these CERs into the post 2020 period would **reduce ambition over 2020-2030 by 38%** (see Figure 1).

The global mean temperature response to these increased emissions depends on where the credits are used. If all available credits were consumed by OECD countries, the resulting realised end-of-century temperature increase is estimated to be **~0.1°C** above a global NDC pathway (from 2.8°C to 2.9°C). However, if the credits were consumed domestically by the countries that generate them, the resulting delay in critical energy system and economic transformation on the longer-term emissions trajectories for these non-Annex I Parties could result in a realised temperature increase of **more than 0.1°C**.

[2] Schneider, L., Day, T., La Hoz Theuer, S. and Warnecke, C. (2017). Discussion paper: CDM supply potential up to 2020. NewClimate Institute. https://newclimate.org/wp-content/uploads/2017/08/cdm-supply-potential-up-to-2020.pdf

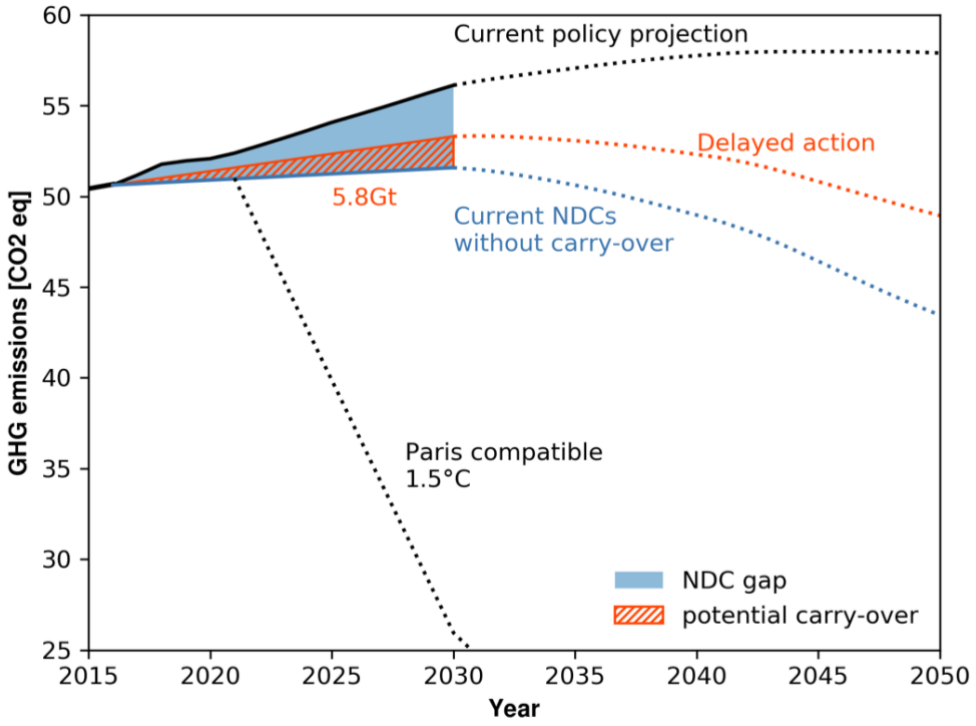
[3] CERs are measured in tonne CO_2-equivalents

[4] Source: chttp://www.cdmpipeline.org/publications/CDMPipeline.xlsm

[5] https://climateanalytics.org/media/ca_-_australian_political_party_positions_and_the_paris_agreement_-_2019.05.10_1.pdf

[6] AAUs are measured in tonne CO_2-equivalents

Figure 1. Comparison between CAT[7] projected pathways under current policies, NDCs, and Paris-agreement compatibility. Carrying over existing pre-2020 credits would lead to delayed action and further hamper already insufficient ambition to achieve the goals of the Paris Agreement.



By contrast, to move onto a trajectory compatible with limiting warming to 1.5°C would mean **increasing the ambition of the current NDCs by 50%.** Carryover of Kyoto units would take us in the wrong direction, further away from a pathway that is faithful to the 1.5°C limit.

What does this mean for the longer term? The IPCC's special report on global warming of 1.5°C has shown that the next one to two decades are critical for transforming our energy, industrial, urban and land systems. Any delay in accelerating these switches risks locking in high carbon infrastructure, with the result of making the low carbon transition more difficult and expensive, and, as shown in Figure 1, leaving a legacy of higher annual emissions out into the longer term.

Kyoto Carryover Could Cancel Out Key NDC Ambition

Carryover could also have a substantial impact on ambition at the national level. Within the existing CDM pipeline, five countries comprise ~81% of all existing registered and ~85% of issued CERs: China, India, Brazil, Mexico, and Indonesia (see Figure 2), whereas other non-Annex 1 parties have small shares (e.g., SIDS and LDCs combined are responsible for some 85m CERs). Three of these countries - China, India and Brazil - have all signalled an interest in using their Kyoto era CERs either to achieve their domestic targets or to sell on the carbon market.

[7] https://climateactiontracker.org/

Domestic use:

Our analysis shows that if China and Brazil were to use their CERs domestically to meet their own NDCs, they would be able to completely close their NDC gaps (see table 1). Here we use the term "NDC gap" to mean the difference between the emissions level implied by the current, most stringent NDC level and the level projected under current policies (see methods). Even with restricting carryovers by 50% of their present volume, existing domestic CERs would completely cover Brazil's stringent NDC gap and cover almost half (45 %) of China's.

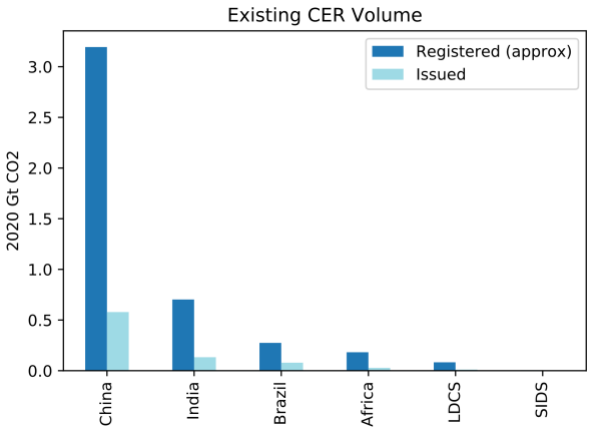


Figure 2. Geographic distribution of registered and issued CERs. Estimates of registered volume are assessed using the fraction of CERs available for supply relative to the total volume of registered CER projects.

One Party - Australia - has stated its intention to use surplus allowances (AAUs) from the pre-2020 period to meet its NDC. This carryover would substantially reduce the ambition of Australia's NDC: with an estimated ~400 MtCO2 of units available, Australia could close well over 50% of its NDC gap[8].

Illustrative example

If China and Brazil use their CERs domestically to meet their domestic NDCs, and if Australia uses its surplus AAUs towards its NDC, this would reduce global ambition by 25%.

[8] See Climate Analytics 2019, 'Australian political party positions and the Paris Agreement: an overview'. Note that this analysis is based on data from 2018; updated analysis based on Australia's recent national projections, released in 2019, suggests that AAUs could close closer to, or even more than, 100% of Australia's NDC gap.

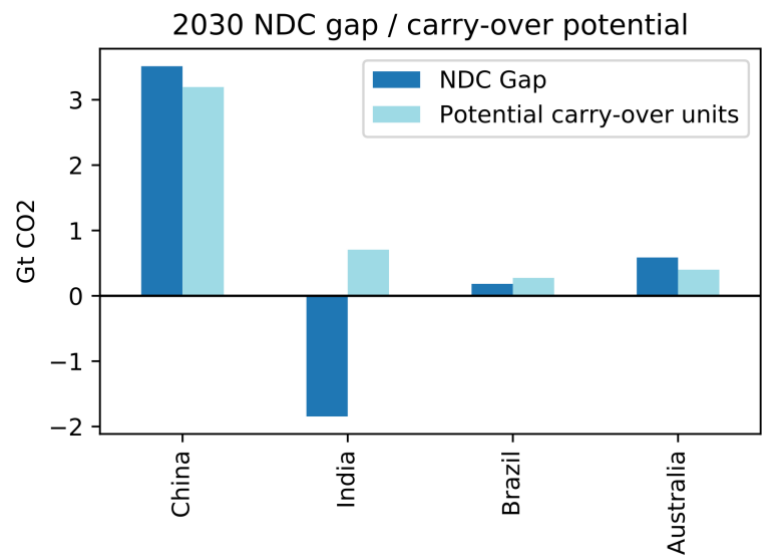


Figure 3: NDC gaps for China, India, Brazil and Australia (calculated as the difference between the emissions levels under each Party's NDC (taking the most stringent NDC targets) and those anticipated under current policies. A negative gap indicates that the NDC will be overachieved with current policies. Pale blue bars show the volume of carry-over units available for use towards NDCs.

Selling CERs on the market

India is already set to overachieve its NDC, hence its NDC gap is zero, and all of its CERs would be available for sale on the market in the case of full carry over. China could also overachieve its NDC through its current policies, given that there is considerable uncertainty in the 2030 emissions level under China's NDC. What would happen if China, India and Brazil were to place all of their available CERs on the market?

Seven Annex I Parties have indicated an intention to use market mechanisms to meet their NDCs (Canada, Japan, Liechtenstein, Monaco, New Zealand, Norway, South Korea and Switzerland). Of these Parties, Canada, New Zealand and Switzerland all have an emissions gap to close between their current policies and their NDC target, resulting in an aggregate gap of ~0.8-1.2 GtCO2, depending on the conditionality of the NDCs considered. If all available CERs were sold on the market, the aggregate NDC gap of these three Parties could be reduced to zero (see table 1), while only reducing the available carbon credits by ~20% to a total of 4.2b CERs. Even if we assume that only 50% of available CERs would be carried over, the NDC gap could still be reduced to zero.

Table 1. Coverage of existing NDCs (either domestic or second-party) by potentially available 2020 CERs.

Party / Parties	CERs used domestically or sold on the market	% NDC achieved with 2020 existing credits
China	Domestic	91 % (ambitious NDC)
Brazil[9]	Domestic	>100 %
India	Domestic	overachieving
Canada, Norway, New Zealand	Market	>100 %

Carryover is not compatible with the need for markets to contribute to global mitigation

The potential downsides for carrying over of Kyoto credits go beyond the artificial reduction in required NDC ambition under the already-inadequate current set of NDCs. According to the OECD[10], further risks include but are not limited to: a lack of ability to generate additional emissions reductions past the Kyoto mechanism, a reduction in incentive to invest in new projects given the glut of existing credits in the market, and double counting of credits between the recipient and host countries. Double counting of pre-2020 credits is especially problematic because host countries (those generating credits) have no obligation to adjust their emissions accounting under current mechanisms. The above outlined risks not only may lead to the rolling back of recent environmental gains, but also further compound the potential knock-on effects further eroding society's ability to meet the goals of the Paris Agreement.

METHODS AND ASSUMPTIONS

In this analysis we compute two primary quantities: the NDC gap and pre-2020 CER Kyoto carryover potential.

The NDC gap is computed using data from the Climate Action Tracker (CAT). 2020 values are estimated from CAT Current Policy Projections (CPPs) in 2020 for each country. 2030 /2025 values are estimated from both CAT CPPs as well as the most stringent (ambitious) estimation of NDC (see Figure 4). We then take the area under each curve to calculate the total cumulative CO_2 emissions in each scenario. The "NDC gap" is then calculated by subtracting the cumulative NDC CO_2 emissions from the CPP CO_2 emissions. A positive value indicates additional effort and ambition needed to meet a country's stated NDC goal, whereas a negative value would indicate that their stated NDC goal would be reached with current policies. Importantly, the CAT estimates are ***conservative*** in that only non-land-use (LULUCF) targets are taken into account. Therefore, actual NDC gaps may be even **smaller** when comparing with existing CERs and would hence make the effect of carry-over even **larger.**

[9] Note that for Brazil we estimate the gap for its 2025 NDC target, rather than for its indicative 2030 NDC.

[10] Markets negotiations under the Paris Agreement: a technical analysis of two unresolved issues. OECD. 2019.

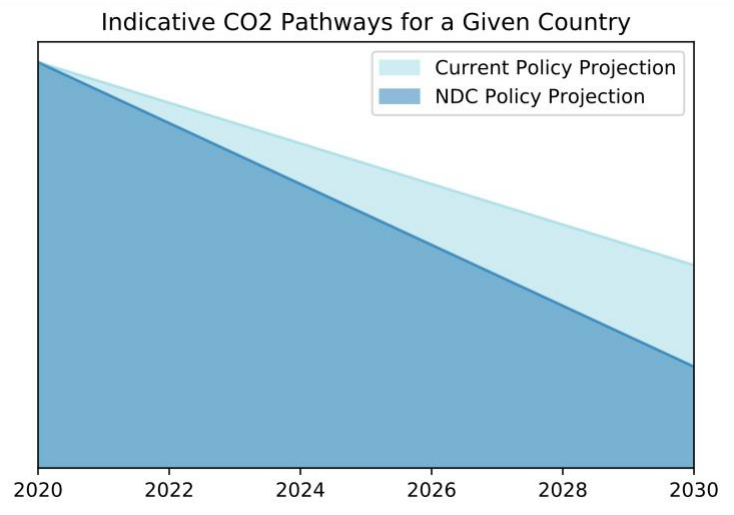


Figure 4: Illustrative example of the trajectories taken for CPP and NDC scenario estimates from the CAT

We estimate pre-2020 CER Kyoto carryover potential by analysing the existing CDM pipeline (UNEP DTU) in conjunction with estimates of the total CER supply potential (Scheider et al.). We consider estimated CERs expected to be generated by projects in the pipeline until 2020, including projects that are registered or in the process of being validated. For registered projects, we estimate the total available supply from Schneider et al. to be 4.65b CER (equivalent to 4.65 Gt CO2). The dataset lacks specific information about the regional supply availability of projects, so we assume that the fraction of projects available for supply is consistent across localities. In order to estimate the total potential supply for a given country, we sum expected 2020 CERs across projects for each country and apply the fraction available for supply.

For the estimation of the temperature response in the year 2100, we added the carryover credits to the current NDC pathway as described above. A range of emissions pathways from the IPCC AR5 scenario database11 are used to extend the short-term CAT analysis pathways from 2030 to 2100. For a detailed methodology of the pathway extension, we refer the reader to the CAT methodology description12. The aggregate Kyoto pathways are transformed into a multi-gas pathway using the Equal-Quantile-Walk method13. This pathway is used as input to the reduced-complexity climate model MAGICC6[14] in order to assess end-of-century climate outcomes.

[11] IPCC AR5 scenario database: https://secure.iiasa.ac.at/web-apps/ene/AR5DB/

[12] https://climateactiontracker.org/methodology/global-pathways/

[13] Meinshausen M, Meinshausen N, Hare W, Raper S C B, Frieler K, Knutti R, Frame D J and Allen M R (2009) Greenhouse-gas emission targets for limiting global warming to 2 °C. Nature 458 1158–62

[14] www.magicc.org