

Backgrounder for Developed country targets as the atmosphere really seems them

version of December 13, 2009

[Loopholes and targets may grow, shrink or disappear as negotiations progress and our information accumulates. We try to keep the analysis current. Make sure to get the current version of this document]

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Introduction

To stay below two degrees warming with reasonable certainty, science requires Annex 1 reductions of more than 40%. In the climate negotiations Annex 1 targets are a central issue, but the nominal reduction percentages don't tell the whole story. There are 'loopholes' that must be accounted for before we can assess where we stand versus the 40% goal, or for that matter, the (in our eyes) inadequate agreement in Bali to aim for 25-40%.

The aim of this paper is to

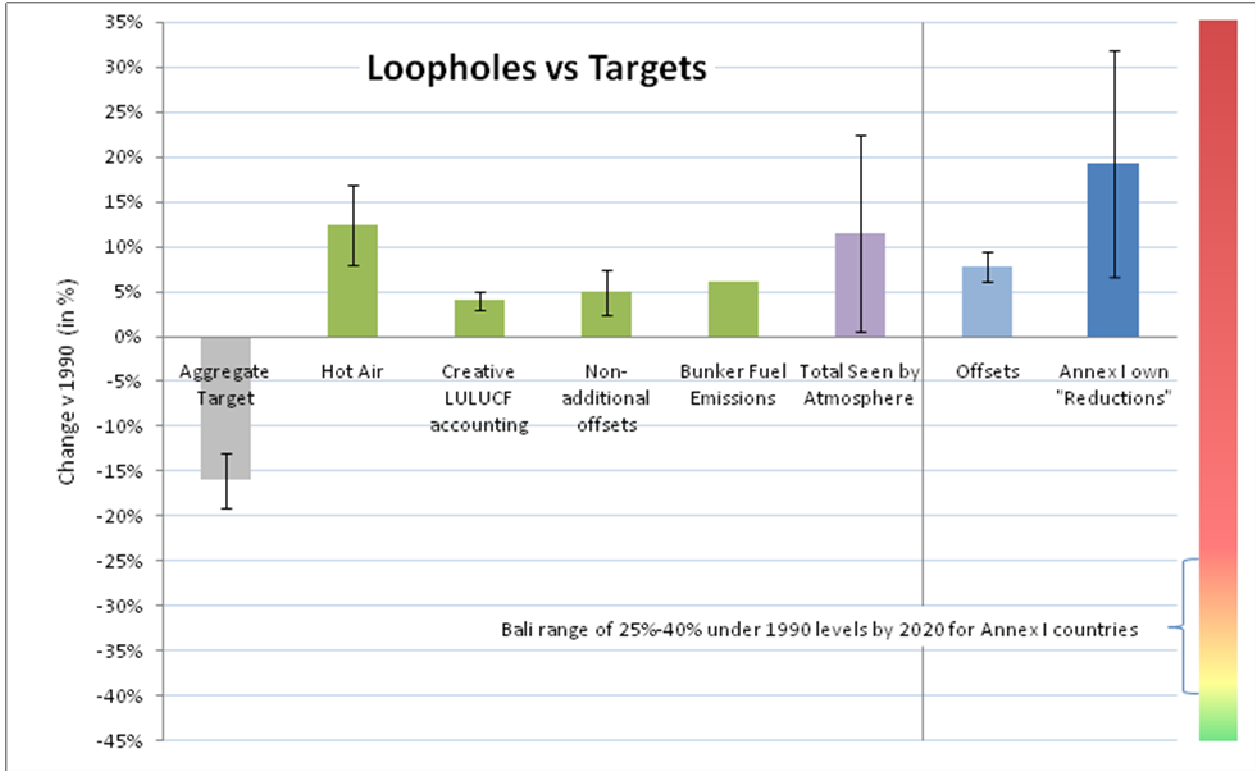
- 1) assess the magnitude of potential loopholes in the new climate treaty currently being negotiated in Copenhagen at the COP15.
- 2) assess what the atmosphere actually 'sees' as opposed to what is accounted for on paper [we could call this the 'mitigation gap'] in order to evaluate the adequacy of Annex 1 efforts as a whole.

We have tried as best we can to assess how much each of these issues could influence overall emissions that we think should reasonably be attributed to Annex 1 parties if the loopholes remain inadequately addressed. We stress that these loopholes can all be removed, and our attempt to quantify the loopholes magnitude is intended to facilitate their elimination.

Overview

The figure below graphically displays the magnitude of what we see as loopholes in the proposals now on the table. The first bar is the level of nominal reductions pledged by developed countries as a group (as of 10 December 2009). The next four bars, hot air, creative LULUCF, nonadditional offsets and bunkers show the magnitude of four 'loopholes' each resulting in more emissions going into the atmosphere than the nominal targets indicate. The total seen by the atmosphere is how the atmosphere 'sees' the targets, if the loopholes are used to the fullest extent.

The offsets are ways to meet the targets without doing action domestically (paying for reductions abroad), though these result in additional emissions to the atmosphere only when offsets are 'nonadditional' (projects that would have happened anyway). The final bar is the level of mitigation within Annex 1 (domestic or 'own' action), when full use is made of offsets and other loopholes. The error bars indicate low and high estimates. This is less directly relevant to the atmosphere, but tells of the speed of transition to less carbon intensive economies.



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Developed country pledges

Developed country pledges are the proposed emissions reductions for 2020 for the Annex 1 countries, relative to 1990 levels. These have been aggregated, where the low end of the range represents the formal pledges and the high end the conditional or otherwise uncertain pledges, e.g. the EU prospect of increasing the target to 30% if other countries increase their ambitions adequately. After Barcelona, UNFCCC put the aggregated range at 11-17%, but this excludes Russia. The 13-19% range here is based on the December 9 assessment by Climate Analytics¹ and this aggregate includes the 20-25% target of Russia.

Hot Air

Some countries, like Russia and Ukraine have Kyoto targets so high that they can emit as much as they want and still have emission credits (AAUs) to spare. Russia could in fact emit more than 30% more than today, Ukraine over 50% more by 2012 and still meet their targets. Countries with a surplus, like Russia, can sell the surplus to another country. The buying country would then be able to

¹ See <http://www.climateactiontracker.org/developed.php>

emit more. That's bad for the climate because the buying country emits more than it was otherwise allowed to, while the selling country with hot air emits as much as it would in any case.

Various estimates were made in late 2009 for the amount of hot air, including PointCarbon², and PBL³. Total hot air is "Kyoto Hot Air" (KHA; the hot air from the first commitment period) plus "Copenhagen Hot Air" (CHA; the hot air for the period 2013-2020). KHA is to be between 7.5 and 11.5 Gt or around 10.3 Gt⁴. CHA is estimated to be between 4.1Gt⁵ and 13 Gt⁶. The amount of CHA depends strongly on 2020 "reduction" pledges by Russia/Belarus/Ukraine (RUBYUA) and on the how the "allowance pathway" between 2012 and 2020 is defined (i.e. the question whether allowance levels in 2013 start from actual emission levels in 2013 or from KP target levels). The total of KHA+CHA is between 7.5+4.1=11.6Gt (low end) and 11.5+13.0=24.5Gt (high end). The "hot air" volume in 2020 is considered to be 1/8 of the total volume of KHA+CHA, as the hot air is assumed to be distributed evenly over the 8-year period.

In the worst case, this loophole may result in over 15% more greenhouse gases going into the atmosphere than if the loophole would not be fixed. This loophole alone could at worst nullify any reductions achieved under the low pledges. This upper range may only be relevant if the pledges of Annex 1 countries are considerably strengthened, as there would otherwise be a vast oversupply.

These figures assume a target of 20-25% for Russia. At the time of writing, Russia is backpedaling on its target and hence the amount of hot air may be even higher still. Curiously, fixing the loophole completely would strengthen the emission achievements of Annex 1 as a whole with 2 percentage points, which has to do with the fact that Russia's proposed target for 2020 is above business as usual.

Creative LULUCF accounting

Under the current LULUCF⁷ rules, if Annex I parties' forest management activities are a net source (i.e. overall emit more than they sequester), they can simply choose not to account for these emissions. However, if their LULUCF sector sequesters carbon, they can account for this sequestration and receive credits (even if the rate of this sequestration is actually declining and, thus, the atmosphere is 'seeing' net emissions and not, as the accounting would suggest, net

² See "Assigned Amount Unit: Seller/buyer analysis and impact on post-2012 climate regime. A report by Point Carbon for CAN Europe, 26 October 2009.

³ M.G.J. den Elzen, M. Roelfsema, S. Slingerland, (2009) "Too hot to handle? The emission surplus in the Copenhagen negotiations". Netherlands Environmental Assessment Agency (PBL), Bilthoven, The Netherlands

⁴ den Elzen et al 2009, see table 2.2

⁵ den Elzen et al 2009: table 2.2

⁶ den Elzen et al: 17, note 3

⁷ LULUCF stands for Land-Use, Land-use Change and Forestry.

sequestration). These credits can then be used to allow for higher emissions in other sectors, i.e. hide parts of their fossil fuel emissions.

With some of the proposed changes, planned or expected *increases* in emissions from forest management would not have to be accounted for. Thus, while the atmosphere would 'see' this increase in emissions, the increase would not be seen in emissions accounting of parties. This is akin to claiming that building a new coal fired power plant every year was a planned development and thus the resulting emissions increases should not be accounted for.

There are various figures for the magnitude of the LULUCF loophole. The European Commission estimated that unconstrained accounting for forest management applied together with the current rules of gross-net accounting would lead to very large credits from the LULUCF sector in the order of -8.7% of 1990 emissions for the EU and -9.2% for the whole group of developed countries.⁸ In their assessment of aggregated Annex 1 targets, Climate Analytics estimates the contribution of LULUCF accounting at 5%⁹. The estimates of our own Climate Action Network are a little more conservative, using a range of 3-5%¹⁰.

Bunker emissions

Bunker emissions is the technical term for emissions from aviation and maritime transport. These emissions are growing faster than almost any other sector. Countries have not been able to find a way to figure out what share of the global emissions should be assigned to each country, partly because most of the emissions take place in international territory. The emissions are not included in the Kyoto targets, and the pledges do not cover bunker emissions. Naturally, the inability to agree who emissions belong to may make emissions disappear on paper, but not to the atmosphere. There are various proposals for how to deal with bunker emissions, but there are no commitments and as yet no agreement. If the issue is left unsolved and the sector grows under business as usual, this adds another 6% to the emissions of rich countries, as compared with 1990. In this analysis, we assume bunker emissions will continue growing at the same rates from 2005-2020 as they have done 1990 to 2005. The global warming impact of airplanes is known to be about a factor two greater than the emissions of greenhouse gases alone would suggest, due among others the effects of contrails on cloud formation¹¹. Accordingly, we have adjusted the total to account for this. The final result is an emission increase of just over 1 Gigatonne CO₂e since 1990. This is 6% of 1990 emissions of Annex 1.

⁸ European Commission Copenhagen communication staff working document, SEC(2009) January 2009, http://ec.europa.eu/environment/climat/pdf/future_action/part1.pdf

⁹ See <http://www.climateactiontracker.org/developed.php>

¹⁰ See [internal CAN document December 2009]

¹¹ See IPCC: Aviation and the global atmosphere.

Annex 1 Bunker emissions (Mt CO₂e)

	1990	2005	2020 BAU	increase since 1990	adjusted increase
Marine ships	320	406	510	190	190
Aviation	240	410	700	460	920
Total	560	816	1210	650	1110

Data from 1990 and 2005 are from UNFCCC¹². There is no consensus on what share of *global* bunker emissions should be allocated to specific countries, but we believe the UNFCCC numbers give a fair indication of what should be attributed to Annex 1.

We do not take into account the planned inclusion of aviation in EU ETS. This would lower the overall estimate slightly but not dramatically.

Offsets

Offsets refer to current mechanisms, like the Clean Development Mechanism, by means of which a developed country can emit more greenhouse gas emissions than their target by paying for emission reductions in other countries. This was conceived in order to save money, by making use of cheaper reductions in developing countries. This obviously delays the much needed transitions to a carbon free society in the countries that are currently the biggest emitters of greenhouse gases. Besides, there are many other environmental and social concerns to be addressed.

We estimate the use of offsets in 2020 between 1.1 to 1.7 Gt CO₂e¹³, corresponding to between 6% and 9% of 1990 emissions.

Non-additional offsets

While offsets are theoretically carbon neutral, as they merely shuffle around where reductions take place, in practice they actually contribute to increased emissions to the atmosphere.

Here's the problem, if by means of analogy we say a Northern country wants to offset the emissions for four planned coal-fired power plants by paying a southern country to build the wind farms it was

¹² http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php based on national inventory reports.

¹³ [Payal Parekh , Pers. Comm., based on analysis of offset limits in existing or proposed EU and US legislation, figures in line with Stefan Singer estimate, upper end is estimated offset demand in 2020 from UNFCCC financial flows paper (2008?)].

building anyway, the northern country gets a 'license' to pollute more, while the southern country pollutes as much as it would have done anyway. The northern country gets off the hook, the southern country gets money. There is a loser, and that's the climate, as total emissions increase instead of balancing out. While it is conceptually challenging to make estimates of additionality, there have been various estimates ranging from 20% to 79% of all projects.¹⁴ We use this range to provide a range of nonadditionality of offsets in general. There is not currently an agreed successor for the CDM, so it is unclear what role unadditionality will play in a post-2012 offset mechanism, but we don't consider the issue adequately addressed in current proposals, so we assume provisionally that nonadditionality could exist on similar levels as today.

1990 emissions

The 1990 baseline for emissions that we use UNFCCC figures for total GHG emissions incl. LULUCF¹⁵. As we're also assessing bunker emissions, we have added 1990 bunker emissions (adjusted with the radiative forcing impact factor for aviation.)

Other factors affecting reduction achievement

- Compliance. Hard to quantify, but with big risk of no effective compliance and no enforcement in the agreement, risk is high that emissions will exceed pledges (long history of missed environmental targets).
- REDD?
- Albedo and other non-greenhouse gas related global warming? Included for aviation. Could be big factor for deforestation northern versus tropical.

¹⁴ Barbara Haya study circulated on CAN mailing lists [add published sources]

¹⁵ http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php

Original article (figures updated slightly since then)

Annex 1 loopholes

ECO 4, December 10 2009 [chart: see pdf of original]

<http://www.climatenetwork.org/eco/copenhagen-2009/ECOCOP15-4.pdf>

Those of us who don't like playing Russian roulette with the planet are looking for aggregate developed country targets greater than -40% from 1990 levels by 2020. In that light, the nominal pledges from developed countries, adding up to a humble 13-19%, look quite bad. But if one includes loopholes that could still make their way into the final deal, they look still worse. You may think you can fool the public with creative accounting, but you definitely can't fool the atmosphere.

Sadly, ECO concludes that when loopholes are used to the fullest extent, aggregate developed country pledges allow their emissions to increase from 1990 levels by 2020. Even partial use of these loopholes results in a terrible outcome for the planet (see figure on back page).

- Full banking and use of 'hot air' (surplus AAUs) from the first and second commitment periods may add up to an extra 6% of the Annex I aggregate emissions to the atmosphere, according to several studies.
- Creative free-for-all LULUCF accounting may add another 5% to the atmosphere, in line with several studies.
- Emissions from aviation and shipping are currently just a footnote to Annex I national totals, but they are certainly seen by the atmosphere. These emissions are best tackled through a global cap, but if this is not achieved they will continue to rise, requiring deeper cuts elsewhere to keep the climate safe. If we don't get a global agreement, the expected overall increase in bunker emissions until 2020 would add a further 6% to developed country emissions in 2020.

With these loopholes, the atmosphere sees 17% more in 2020 than the nominal pledges suggest, leaving an aggregate of -2% to +4% over 1990. But there's more. Developed countries plan to meet a significant portion of their reductions through offsets, between 1.1 and 1.5 Gt, according to ECO's estimates – equivalent to 6-8% of 1990 emissions. So domestic developed country emissions may even exceed 10% above 1990 levels in 2020. If, as under the CDM, non-additional projects make up a substantial part of the offsets (ECO has seen studies quoting a range from 40% to 79%), this further undermines the effectiveness of the targets.

If these loopholes are not closed, the gap between what's needed for a stable climate and current developed country pledges widens into a mighty chasm.

ECO is pleasantly surprised, though, to learn that the EU has beaten us to it and has been shining a light on Annex I loopholes in Kyoto Protocol discussions yesterday. Whatever next, a move to a 40% cut?