Climate Law & Policy Project

ACTION TARGETS: A BRIEF OVERVIEW [1]

I. INTRODUCTION

In the UNFCCC's Bali Action Plan, the Conference of the Parties agreed to consider:

> *Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.*[2]

Given the global nature of the climate crisis and the insistence of many developed countries on the active involvement of developing countries – particularly the rapidly emerging economies – it is essential that an acceptable mechanism be found for developing country participation in the post-2012 framework. Many developing countries, including China and India, have made it quite clear that they will not accept a hard cap on their emissions, and therefore another approach is necessary.

Action targets (ATs) may be that policy approach. With adequate compliance and enforcement mechanisms in place, action targets could have many benefits, including that ATs:

1) Provide countries with relative certainty about the level of effort they will need to put into achieving emissions reductions, even in the absence of strong initial greenhouse gas inventories; and
2) Allow developing economies to continue to grow while ensuring that their emissions trajectories bend downward.

This paper briefly describes action targets, their benefits, and how they might be implemented. The possible benefits of this approach warrant further study and consideration.

II. WHAT ARE ACTION TARGETS?

An **action target** (AT) is a commitment to achieve or acquire a quantity of greenhouse gas (GHG) *reductions* during a compliance period.[3] This quantity is usually expressed as a percentage of the country's actual business-as-usual (BAU) emissions during the period. Also sometimes referred to as "cut and trade", action targets involve a market, but rather than using emissions caps (which developing economies fear could have undesirable economic consequences), it sets reduction-based action targets, which reduce GHG emissions over the term of the commitment period in a way that is both responsive to and reflective of national environmental and economic circumstances.

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[1] This paper is a synthesis and update of prior articles, primarily Kevin A. Baumert & Donald M. Goldberg, *Action targets: a new approach to international greenhouse gas controls*, 5 CLIMATE POLICY 567-81 (2006).
[2] *Bali Action Plan*, UNFCCC, 13th Sess., at 3, para. 1(b)(ii), U.N. Doc. FCCC/CP/2007/6/Add.1 (2007), *at* http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3.
[3] Of course, the definition of 'reduction' first must be internationally agreed upon. *See* Section III below.

For example, if country A adopts an AT of 20% for the period 2013–17, it would need to demonstrate that during this period it has achieved or acquired GHG reductions equal to 20% of its BAU emissions. Another way to think of this is as a "pay-as-you-go" approach, where for each ton emitted, one-fifth of a ton of reductions must be achieved.

At the outset, country A would make a projection of what it thinks its BAU emissions would be, so it could get an idea of how many reductions it would need to achieve or buy. Ultimately, though, country A would need to show that it achieved or acquired reductions equal to 20% of its *actual* BAU emissions.

This may seem circular at first. How does country A calculate its BAU emissions if its emissions are steadily changing as the country implements its reductions? The answer is straightforward: BAU is defined as the sum of country A's emissions plus country A's domestic reductions during the commitment period. This is logical, since a country's BAU emissions are, in fact, the emissions that were emitted plus the emissions that would normally have been emitted but for the domestic actions taken. Mathematically, this can be expressed as:

$$BAU = E + R_{dom}$$

where E refers to country A's actual emissions during the commitment period and R_{dom} refers to the domestic reductions it achieved during the same period.

It therefore follows that the reductions it has agreed to achieve or acquire during the commitment period ("required reductions", or RR) can be expressed as:

$$RR = AT \times (BAU) = AT \times (E + R_{dom})$$

So, if country A emits 80 units and reduces 20 units domestically during the commitment period, its BAU emissions are 100 units. If its AT is 20%, then it has achieved its entire AT by reducing domestically, as shown below:

$$RR = AT \times (E + R_{dom}) = 20\% \times (80 + 20) = 20$$

Since country A emitted only 80 units during the commitment period, it might seem that country A's AT should be 16 units (20% of 80). But the fact that country A reduced its domestic emissions by 20 units tells us that, had country A done nothing, its BAU emissions would have been 100.

Trading, of course, is also an option for country A. Suppose that country A instead emitted 95 units during the commitment period, reducing its domestic emissions by only 5 units. Its BAU emissions are still 100, so with a 20% AT, its required reductions are still 20 units. But in this case, country A only achieved 5 units of reductions domestically; it therefore has to trade (T) for 15 more, as shown below:

$$RR = AT \times (E + R_{dom}) = 20\% \times (95 + 5) = 20$$

$$T = RR - R_{dom} = 20 - 5 = 15$$

Presumably this occurred because it was cheaper to acquire the additional 15 units on the market than to achieve them domestically.

III. ADVANTAGES OF ACTION TARGETS

So why might action targets be a better approach?

Developing countries generally face a challenge when considering emissions targets. Climate science makes clear that all countries must make significant reductions in greenhouse gas emissions to avert the most dangerous climate impacts. But developing countries also must prioritize economic development and will reject any emissions reduction targets they view as posing economic constraints (or even having the potential to do so). Unreliable greenhouse gas inventories and volatile economies make matters even more complicated. It can therefore be difficult for developing countries to pick targets that are achievable, meaningful, and politically and economically viable.

Action targets may be able to help because, with adequate compliance and enforcement, developing countries can feel relatively certain about the level of effort they will need to put into achieving emissions reductions (even in the absence of strong initial greenhouse gas inventories). Action targets may also allow developing economies to continue to grow while ensuring that their emissions trajectories bend downward.

A. *Greater Certainty about Effort*

Compared to other types of emissions targets, ATs appear to provide greater certainty to developing countries about the "level of effort" they will need to put in.

For most types of targets, a country must accurately predict the level of effort that will be required to meet its commitment, an analysis that usually depends on a country's ability to accurately project its business-as-usual (BAU) emissions years in advance. For example, the cap-and-trade mechanism under the Kyoto Protocol establishes a fixed level of emissions that must be achieved at some specific point in the future. Projected BAU scenarios, however, are often highly speculative, particularly in developing countries. In fact, historical inventories show that developing country emissions vary considerably from one year to the next, reducing projected BAU emissions to little more than guess work. And this speculation is compounded by the fact that the historical inventories used to make such projections are often unreliable.

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Given that projected BAU emissions and projected GDP are both highly speculative, both intensity targets (emissions per unit GDP) and fixed targets based on such predictions can produce a range of outcomes. For instance, under conditions of low economic growth and industrial stagnation, countries may need to do very little (or nothing) to achieve a fixed level of emissions, whereas under conditions of robust economic growth resulting in higher energy demand, countries may find it exceedingly difficult to reach their fixed targets. Intensity targets yield the opposite result, requiring greater reduction efforts under conditions of low economic growth and requiring very little (or no) effort under conditions of robust economic growth (partly because GDP tends to grow faster than emissions, so a stronger economy tends to yield faster

declines in emissions intensity, requiring less effort to meet a target). With either mechanism, levels of effort can vary widely.

To illustrate the uncertainty in levels of effort, **Table 1** provides a comparison of three types of international targets – *fixed*, *intensity*, and *action* – in five large emerging economies (Brazil, China, India, South Korea, and Mexico) where GHG emissions are expected to grow rapidly. In the table, both the fixed target and the intensity target are set at 2% below the U.S. Energy Information Administration (EIA) "reference case" scenarios for each country. The action target is similarly set at 2%. Using EIA's "High GDP" and "Low GDP" projections, we can then compare the levels of uncertainty about the necessary level of abatement effort. The differences are clear.

Table 1. Comparisons of uncertainty in level of effort: fixed, intensity, and action targets

A	B	C	D	E	F	G	H	I	J	K	L	M
				–2% Fixed Targets			–2% Intensity Targets			–2% Action Targets		
Country	Scenario	Projected GDP in 2015 (billion $)	Projected BAU Emissions in 2015 (MtC)	2015 Emissions with Target (MtC)	Required Change in Emissions (MtC)	Required Change in Emissions (%)	2015 Intensity with Target (MtC / billion $)	Required Change in Emissions (MtC)	Required Change in Emissions (%)	2015 Emissions with Target (MtC)	Required Change in Emissions (MtC)	Required Change in Emissions (%)
Brazil	Low	1228	131	149	+18	+14%	0.105	-2	-2%	128	-3	-2%
	Ref.	1421	152	149	-3	-2%	0.105	-3	-2%	149	-3	-2%
	High	1641	167	149	-18	-11%	0.105	+5	+3%	164	-3	-2%
China	Low	2066	989	1293	+304	+31%	0.438	-83	-8%	969	-20	-2%
	Ref.	2949	1319	1293	-26	-2%	0.438	-26	-2%	1293	-26	-2%
	High	3392	1456	1293	-163	-11%	0.438	+31	+2%	1427	-29	-2%
India	Low	934	342	368	+26	+8%	0.341	-23	-7%	335	-7	-2%
	Ref.	1077	375	368	-7	-2%	0.341	-8	-2%	368	-8	-2%
	High	1241	412	368	-44	-11%	0.341	+11	+3%	404	-8	-2%
South Korea	Low	975	158	174	+16	+10%	0.155	-7	-4%	155	-3	-2%
	Ref.	1126	178	174	-4	-2%	0.155	-4	-2%	174	-4	-2%
	High	1298	200	174	-26	-13%	0.155	+1	+1%	196	-4	-2%
Mexico	Low	838	150	171	+21	+14%	0.176	-2	-1%	147	-3	-2%
	Ref.	967	174	171	-3	-2%	0.176	-3	-2%	171	-3	-2%
	High	1114	198	171	-27	-14%	0.176	-2	-1%	194	-4	-2%

Notes: All data is from EIA International Outlook 2003, Tables A3, A10, B3, B10, C3, and C10. "MtC" is millions of tons of carbon. **Fixed targets** are 2% below the EIA reference case BAU emissions scenario (D_{Ref} in the table). **Intensity targets** (emissions per unit GDP) are 2% below the projected EIA reference case intensity level ($D_{Ref.} / C_{Ref.}$); the required change in emissions (column I) can be derived by multiplying the intensity target (column H) by GDP (column C) and then subtracting BAU Emissions (column D). **Action targets** (column K) are, by definition, a 2% reduction below actual emissions in 2015, which means they are based not on the reference case (D_{Ref}) but on the actual emissions, whether high or low (here presumed to be equal to the high or low projections in column D).

Source: EIA, *International Energy Outlook 2003*, *at* ftp://ftp.eia.doe.gov/pub/pdf/international/0484(2003).pdf.

As the table shows, fixed targets can have a wide range of results, particularly for developing countries whose emissions are expected to grow significantly relative to historical levels. In China, for example, a fixed target set at 2% below BAU levels (reference case) could entail

either large reductions in emissions (11% or 163 MtC, High GDP scenario) or significant amounts of surplus emission allowances (31% or 304 MtC "hot air", Low GDP scenario). The results are similar (although smaller) for the other countries shown; in each case, higher-than-expected GDP growth results in potentially burdensome reductions (-11% to -14%), whereas lower-than-expected GDP growth results in hot air (+8% to +31%).

Intensity targets also exhibit uncertainty in the level of effort required to reach a target, although less than with fixed targets. In the scenarios examined, the overall level of abatement effort ranges from absolutely none (+3% hot air Brazil and India, High GDP scenario) to an 8% reduction (China, Low GDP scenario). A troubling outcome, however, is that higher levels of effort are generally required when GDP is lower than expected. In other words, for Brazil, China, India, and South Korea, the greatest level of abatement effort is required to achieve targets in the Low GDP scenarios. Considering that economic stagnation may reduce the capacity of a country to take actions on climate due to other priorities, this outcome is problematic. Although this problem may be remedied mathematically, as the target proposed by Argentina in 1999 attempted to do,[4] such refinements could only be achieved at the expense of added complexity and less transparency, both during the climate negotiations and throughout the commitment period.[5] Moreover, each refinement or "fix" is likely to require a different approach, which would further complicate negotiations and enforcement.

Unlike fixed and intensity targets, the level of abatement effort required under action targets varies little between the different scenarios. This is due to the fact that the reduction requirement is based on actual rather than projected BAU emissions. If GDP (and consequently emissions) growth levels are lower than expected, then slightly fewer tons of reductions will be needed. Conversely, if growth levels are higher than expected, slightly more emission reductions will be required. China provides the clearest example, due to the large uncertainties in future emissions. A 2% action target for China would entail emissions abatement of between 20 and 29 MtC, depending on the economic scenario that actually unfolds. That is a difference of 9 MtC. Under a 2% intensity target, the range for China was between 83 MtC of reductions or 31 MtC of hot air (a difference of 114 MtC, and again, the greater reductions occurred under the Low GDP scenario). Under a 2% fixed target, China's situation ranged from 163 MtC reduced to 304 MtC excess (a difference of 467 MtC). This pattern holds across the countries in the table – the greatest certainty comes from action targets (though in the case of Mexico, the certainty appears comparable to intensity targets). Under action targets, countries will have a relatively good idea of what they will actually have to do to reach their targets.

Because action targets minimize the risk associated with target setting, they enable developing countries to choose a target that matches a level of effort to which they are politically and economically able and ready to commit. As such, every country should be able to adopt a target that is politically viable. Broader participation by developing countries would then eliminate the false but persistent perception in many industrialized countries – notably the United States – that

[4] Daniel Bouille and Osvaldo Girardin, "Learning from the Argentine Voluntary Commitment," *in* Kevin A. Baumert et al. (eds.), *Building on the Kyoto Protocol: Options for Protecting the Climate* (2002), *at* http://pdf.wri.org/opc_chapter6.pdf.

[5] Yong-Gun Kim and Kevin A. Baumert, "Reducing Uncertainty through Dual-Intensity Targets," *in* Kevin A. Baumert et al. (eds.), *Building on the Kyoto Protocol: Options for Protecting the Climate* (2002), *at* http://pdf.wri.org/opc_chapter5.pdf.

developing countries are not contributing to global climate protection efforts, a perception that is used as part of a justification for their own lack of commitment.

B. *Economic Growth and Emissions Reductions*

Developing countries will continue to develop. That is an imperative and a reality. Accordingly, emissions from developing countries are likely to grow. The global climate crisis, however, would be greatly exacerbated by the unchecked growth in developing countries' GHG emissions. The key, then, is to ensure that the emissions trajectories of developing countries bend downward. Action targets require that a country's emissions be reduced by a specified percentage below whatever its emissions normally would have been (BAU emissions), thereby bending the emissions curve downward. In other words, because ATs are tied to actual BAU emissions, they guarantee emission reductions while allowing economic growth. In contrast, attempting to meet a fixed target (such as an emissions cap) that turns out to be too stringent could have undesirable economic consequences for developing economies.

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One frequent criticism of relative targets like action targets is that they provide less environmental certainty than fixed targets like emissions caps. After all, the argument goes, emissions can still go up under relative targets, whereas under fixed targets they must come down to a certain level. This argument may not hold in developing countries.

As noted earlier, governments (particularly in developing countries) are averse to any policy mechanism that risks inhibiting economic growth and development. Given the uncertainty surrounding BAU projections, developing countries considering fixed targets such as caps are therefore most likely to either pick a target that is very lax (and potentially just hot air), pick a target that turns out to be too stringent and therefore goes unmet, or reject targets entirely. None of these outcomes provides any certainty about a particular environmental benefit. The greater certainty inherent in action targets, by contrast, enables developing countries to choose a target to which they are politically and economically able to commit. Furthermore, hot air is not a possible outcome under action targets; action targets require that emissions go below whatever they otherwise would have been.

IV. IMPLEMENTING ACTION TARGETS

How could action targets be put into practice? For starters, action targets could integrate easily with the Kyoto Protocol and probably could be adopted by decision, as opposed to amendment, a more difficult and time-consuming process. ATs, therefore, probably could be made operational in 2009, whereas an amendment probably would take several years longer.

The details of implementation, however – defining "reductions", setting targets, assessing compliance, etc. – must be agreed upon before ATs could truly become operational.

A. *Defining and Accounting for Reductions*

Devising definitions and accounting standards that enable us to quantify emission reductions with reasonable accuracy and simplicity is perhaps the most significant challenge to the viability of action targets. Much progress has already been made on defining emissions reductions for the

Clean Development Mechanism (CDM); while this is a useful starting point, action targets might require a broader definition.

The most promising approach might be to define a set of activities and policies that are unquestionably climate-friendly and therefore *a priori* eligible for crediting, regardless of other motivations or benefits that might be involved. For instance, in addition to CDM-like projects, an AT accounting system might account for new policies such as renewable energy portfolio standards, vehicle efficiency standards, appliance efficiency standards, and forest conservation programs, as well as private-sector-led initiatives that have a sectoral or national reach.[6] Of course, the reductions still must be measurable, reportable, and verifiable, and the accounting system must strive to avoid emission reductions accruing from normal, business-as-usual investments.

It is important for negotiators to agree on at least the main contours of an accounting system before adopting action targets, so as to avoid the approach taken under Kyoto, which turned negotiations on CDM project eligibility, additionality methodologies, and other issues into *de facto* re-negotiations of national targets. Furthermore, countries would need to know what constitutes a reduction, otherwise they would not know what kind of actions would be required to meet a target, undermining the greater certainty that action targets can provide.

No accounting system can deliver absolute quantitative accuracy. The AT accounting system described above would focus on promoting the kinds of *actions* that are needed to achieve GHG reductions, including climate-friendly sustainable development policies and actions.

B. *Developing Criteria and a Reviewable Commitment Formula*

Because developing countries differ in many ways – the amount and source of their wealth, energy needs and sources, population, geography, culture, and so on – it clearly would be inappropriate and counterproductive to treat them all the same with respect to any new commitments. Also, the factors that contribute to emissions may not all merit the same treatment. For example, a more stringent target might be an appropriate response to growth in average GDP but not to population growth, even though the effect of the two factors on emissions is the same. Thus, criteria are needed to objectively determine not only the type and level of each country's target, but also which factors should be taken into consideration.

Criteria should be kept to a minimum. The simplest approach would probably be to develop a formula based on one or two key variables (e.g., per capita GDP and energy consumption). Once a Party agrees to participate in ATs, its obligation would be determined on the basis of the formula and would strengthen over time,[7] although a commitment review committee could be established with the power to adjust commitments as needed and to serve as an arbitral body to review exceptional situations.[8] Such an approach would avoid complex negotiations and prolonged discussions regarding the fairness of approximately 150 targets. Equally important, a

[6] *See e.g.* Harald Winkler et al., "Reducing Uncertainty through Dual-Intensity Targets," *in* Kevin A. Baumert et al. (eds.), *Building on the Kyoto Protocol: Options for Protecting the Climate* (2002), *at* http://pdf.wri.org/opc_chapter3.pdf.

[7] Ideally, Annex I countries will also agree to commitments that automatically strengthen over time.

[8] The amendment process is simply too cumbersome and time consuming to rely on if improved scientific understanding shows that obligation adjustments are needed.

formula would provide more predictability concerning the effect of the treaty, both at present and in the future.

C. *Assessing Compliance*

Compliance assessments under action targets would entail two basic steps. First, a determination of required reductions would need to be made at the end of the commitment period (or, during a "true-up" period following the commitment period) by multiplying the country's AT by its actual emissions. This is not to suggest that countries should wait until the end of the commitment period to determine what actions are needed to meet their action targets. As noted earlier, ATs provide relative certainty about what level of effort will be required, so countries can have a plan in place to achieve the required reductions; they can also pursue the "pay as you go" approach and plan proportional reductions in conjunction with emissions. Determining the country's actual emissions during the commitment period requires a national GHG inventory, but the degree of accuracy and oversight required is much less than under other systems, given that variations in emissions levels generally have a small effect on required reductions under action targets (recall the example of China in Table 1 above). Thus, the same dynamics that reduce uncertainty in target-setting also help to offset the potential effects of inaccurate national inventories. Accordingly, developing countries can spend more of their financial and institutional capacities on substantive action and less on meeting stringent emissions accounting standards.

The second step in a compliance assessment is determining the amount of reductions a country has generated domestically and traded internationally. This would follow whatever accounting system was devised, focusing primarily on the efficacy of pledged actions and policies. Such a process should enhance the ability of regulators and stakeholders to distinguish between actions that were effective from those that failed to produce desired reductions. In contrast, emissions inventories may tell policy makers whether emissions have gone up or down, but they do not explain the reasons for those changes.

V. CONCLUSION

Action targets are a promising policy approach that could constructively and safely involve developing countries in the international GHG mitigation framework.

Among other potential benefits, action targets:

- Provide relative certainty to developing countries about what level of effort will be required to reduce emissions;
- Enable economic growth while ensuring emissions reductions;
- Reduce the need for highly stringent emissions inventories; and
- Can encourage climate-friendly sustainable development policies.

Action targets merit further consideration and exploration.