Action Targets: A New Form of GHG Commitment

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An action target is a commitment to reduce GHG emission levels by an agreed percentage which is applied to an observable baseline: actual emissions during the commitment period. An action target could be adopted at any institutional level: firm, industry, municipal, state or national. At the government level, an action target could, for instance, apply to the government's own emissions (from government buildings, transportation, etc.), or it could be used to frame a city-wide, state-wide, or national commitment.

An action target requires the entity adopting it to reduce its emissions by achieving or acquiring reductions equal to an agreed percentage of its emissions. For example, a firm with a 5% action target must achieve or acquire 5% of a ton of reductions for every ton of GHGs it emits; a country with a 10% action target would acquire or achieve 10% of a ton of reductions for each ton it emits, and so on.

Mathematically, an action target could be expressed as:

$$RR = AT \times E$$

where required reductions (*RR*) is the number of reductions an entity must achieve or acquire, the action target (*AT*) is the percentage by which the entity has agreed to reduce, and E is the entity's emissions during a given commitment period.

Because an action target is a tool to achieve reductions, it is compatible with and can be directly integrated into the Kyoto Protocol. Alternatively, action targets could play a role in designing future agreements. Action targets lend themselves to international trading, as reductions can be purchased from or sold to other countries, with the understanding that the definition of 'reduction' first must be internationally agreed upon. For instance, the rather limited potential for activities under the CDM to create reductions might not be ideal for implementing action targets. A broader definition may be desired to enable countries to achieve reductions via, *e.g.* government policies and programs.

The main advantages of utilizing action targets at the international level is that they provide a high degree of certainty, or predictability, with respect to 'level of effort', and they avoid so-called 'hot air' (*i.e.* some action is required, even for an action target set at 0.1%). A country can commit to an action target knowing that the level of effort it must make to achieve that target cannot vary much under different scenarios of future economic growth. The same cannot be said of fixed targets, which currently form the basis of the Kyoto Protocol. Intensity targets, which peg emissions to domestic GDP, can help to some degree, but significant uncertainties may remain (and complexity is increased).

This aspect of action targets may make them suitable for framing developing country commitments, which, initially at least, would need to be modest. Aiming for small commitments - *e.g.* less than 5% below 'business-as-usual' (BaU) - could be risky under fixed or intensity targets, because future economic growth, and therefore future emissions, tends to be difficult to predict. If a country's economy grows more rapidly than expected, the effort required to keep emissions from exceeding the target could be considerably stronger than the country expected when it made the commitment. Action targets allow countries to make modest commitments by eliminating the need to guess about a future emissions baseline, as they use an 'observable baseline', namely actual emissions.[1]

To illustrate the different levels of uncertainty as to effort required to meet commitments, we compared a modest 2% target in 2015, using three different forms: fixed, intensity, and action targets (see Table 1).

The fixed target is set at 2% below the Energy Information Administration (EIA) 'reference case' emission scenario for each country. Similarly, for each country, the intensity target is set at 2% below the 'reference case' intensity (emissions per unit GDP) scenario. Using EIA's 'High GDP' and 'Low GDP' scenarios, we then evaluated the uncertainty in the level of effort that inheres in targets set at 2% below the reference case. In other words, what would the level of effort be in 2015 if emission or intensity levels turned out to follow a high or low GDP growth pattern, rather than the reference case?

The results illustrate the well-understood problems with fixed and intensity targets when applied to developing countries, where emissions are expected to grow significantly relative to historical levels. A fixed target set at 2% below anticipated

1 Actual emissions can be determined *ex ante* (*e.g.* based on next year emission scenarios) and corrected *ex post*.

Table 1. Comparison of fixed, intensity, and action argets for 2015

Country (*2001 levels*)	GDP Scenario	Projected Emissions in 2015 (*MtC*)	Fixed Targets (2% below REF) 2015 Target (*MtC*)	Required Reductions (*MtC*)	Level of Effort (*% from actual*)	Intensity Targets (2% below REF) 2015 Target (*t/1000$*)	Required Reductions (*MtC*)	Level of Effort (*% from actual*)	Action Targets (2% below actual) 2015 Target (*MtC*)	Required Reductions (*MtC*)	Level of Effort (*% from actual*)
Brazil	Low	145	149	4	3%	0,10	-10	-7%	142	-3	-2%
(*95 MtC*)	REF	152	149	-3	-2%	0,10	-3	-2%	149	-3	-2%
	High	164	149	-15	-9%	0,10	0	0%	161	-3	-2%
China	Low	1063	1293	229	22%	0,44	-45	-4%	1042	-21	-2%
(*832 MtC*)	REF	1319	1293	-26	-2%	0,44	-26	-2%	1293	-26	-2%
	High	1435	1293	-142	-10%	0,44	-16	-1%	1406	-29	-2%
India	Low	354	368	14	4%	0,34	-19	-5%	347	-7	-2%
(*250 MtC*)	REF	375	368	-8	-2%	0,34	-7	-2%	368	-8	-2%
	High	423	368	-55	-13%	0,34	-19	-4%	414	-8	-2%
Mexico	Low	157	171	14	9%	0,18	-2	-1%	154	-3	-2%
(*96 MtC*)	REF	174	171	-3	-2%	0,18	-3	-2%	171	-3	-2%
	High	191	171	-21	-11%	0,18	-4	-2%	187	-4	-2%

Note: based on projections from IEA, International Energy Outlook, 2003.

BaU (*i.e.* reference case) levels could entail, in China for example, either large reductions in emissions (10%, if GDP growth is high) or significant amounts of surplus emission allowances (*i.e.* 22% 'hot air', if GDP growth is low). The results are similar for the other countries shown, although the uncertainties tend to be smaller than for China. In every case, higher than expected growth results in potentially burdensome reductions (9-13%), whereas lower than expected growth results in hot air (3-22%).

For intensity targets, there is less uncertainty in the level of effort required to reach a target. In the scenarios examined for a 2% reduction in intensity, almost all require some level of reductions, although several scenarios are close to requiring no level of effort. The overall range of level of effort is 0-7% reduction. One potentially troubling factor is that higher levels of effort are often needed in 'low GDP' scenarios (in 4 of 5 cases), while in those scenarios the capacity of countries to take compensatory actions is reduced. It may be possible to further reduce uncertainty with intensity targets, but this entails a significant degree of complexity that may be difficult for climate negotiations to bear.

In comparison, with action targets, the level of effort varies quite little between scenarios. This is due to the fact that the reduction requirement is based on actual rather than projected emissions. The nature of action targets ensures that the level of effort remains at the agreed target, 2% in this case. 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 are required. In China, for example, due to the large uncertainties in future emissions, a 2% reduction target would entail reductions ranging from 21 to 29 MtC.

While the improved ability to predict level of effort is a palpable benefit, much study and analysis is needed to understand the full suite of benefits or drawbacks provided by action targets.

Questions that need to be addressed by future research include:

- Do action targets provide higher, lower, or the same level of environmental protection as fixed or intensity targets?
- What difficulties might action targets present in terms of administration and verification?
- Would action targets create unduly high transaction costs or other barriers?
- What impact would action targets have on national economies compared to fixed and intensity targets?
- What effect would action targets have on industry migration and leakage?
- What equity concerns are raised or resolved by action targets?

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CDM in China: A Push through More Market?

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On 30 June 2004, China issued "Interim Measures for the Management of CDM Project Activities in China". This regulation is China's formalization of its intention to participate in the CDM and aims to reduce the uncertainties pertaining to the legal framework conditions of the CDM and its application in China (see also p. 5 of this JIQ Issue).

The Interim Measures include: admission requirements, information about project development and implementation procedures, details on the UNFCCC and Chinese CDM authorities, *etc.* The National Development and Reform Commission (NDRC) is the Designated National Authority for CDM in China.

While China is eager to attract investments from Annex I countries, it is the particular aim of the Interim Measures to push only those projects that are in line with China's technological priorities, such as the improvement of energy efficiency, the development and use of renewable energies and natural gas, and the utilization of methane and coal-bed methane. A remarkable element of the Interim Measures is that they require the project developer to *share* the benefits from the transfer of the certificates with the Chinese Government, with the distribution of the benefits to be determined by the Chinese government.

Furthermore, the Chinese Government currently considers only wholly Chinese enterprises and enterprises under Chinese control (meaning a Chinese ownership of more than 50 percent) eligible for this kind of projects.

After having been recognized as a market economy by several developed and newly industrialized economies, China is now taking further steps in the application of methods that are more oriented to the market economy by applying economic instruments rather than pure command and control measures. The Interim Measures are a good example of that process. There are, however, two problems.

Since the Chinese Government aims at limiting the range of projects according to their technological priorities, this new policy may imply competitive disadvantages both for the companies from Annex I countries that are ready to invest in China, and the Chinese suppliers of CDM projects.

For instance, foreign investors will hardly have access to cost-effective potentials for the reduction of HFC_{23} (a by-product of the coolant HFC_{22} that has a highly detrimental effect on the climate), since it is not among the priorities of the Chinese Government. Hence, it is likely that such potential projects will be burdened with a prohibitively high revenue share for the Chinese Government.

The second problem is that the requirement that solely Chinese or Chinese-controlled enterprises are eligible for project development imposes another significant barrier for foreign investments in Chinese CDM projects. However, if, due to these constraints, the interests of foreign investors in Chinese CDM projects will not increase, it may well be that Chinese regulations will be relaxed or abolished in the medium term.

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