

Analyses on Mid-term Targets of Major Countries

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Research Institute of Innovative Technology for the Earth (RITE)

Major emitting countries including United States, China and India declared their mid-term targets just before the UNFCCC COP15 starting on December 7th in Copenhagen.

This report summarizes assessments on the mid-term targets of major emitting countries including those of United States, China and India that are analyzed by using a global energy-environment model for emission reduction technological measures and their costs developed by RITE (see e.g., http://www.rite.or.jp/English/lab/syslab/about-global-warming/download-data/E-RITE_GHGMitigationAssessmentModel_20090529.pdf).

Table 1 summarizes the mid-term targets of major emitting countries including United States, China and India. The target of Japan, -25% relative to the 1990 level, is the most ambitious among all the current targets of major emitting countries according to any of the criteria such as emission reduction ratios relative to 1990/2005, marginal abatement cost, per-GDP cost.

Table 1 Analyses on Mid-term targets of Major Countries

	Target	Target relative to 1990	Target relative to 2005	Marginal abatement cost [\$/tCO ₂]	Per-GDP Cost [%]
Japan	-25% relative to 1990	-25%	-30%	476	1.13
EU	-20% – -30% relative to 1990	-20% – -30%	-14%– -25%	48–135	0.08–0.26
United States	-17% relative to 2005	-3%	-17%	60	0.29
Canada	-20% relative to 2006	-3%	-22%	111	0.43
Australia	-5% – -25% relative to 2000	+13% – -11%	-11% – -30%	45–92	0.19–0.58
Russia	-20% – -25% relative to 1990	-20% – -25%	+17% – +25%	<\$0/tCO ₂ (Hot air)	
Annex I total ^{*1}		-13% – -18%	-9% – -14%	41–61	0.07–0.15
<i>cf. Mitigation costs for -25% relative to 1990 in Annex I total</i>	-25% relative to 1990	-25%	-22%	88 ^{*2}	0.38 ^{*3}
Korea	-4% relative to 2005	+80%	-4%	21	0.16
China ^{*4}	-40% – -45% for per-GDP emission relative to 2005	+327% – +366%	+105% – +88%	<0 (Hot air) – 3	<0 (Hot air)– 0.07
India ^{*5}	-20% – -25% for per-GDP emission relative to 2005	+344% – +373%	+142% – +127%	<\$0/tCO ₂ (Hot air)	

[Notes for Table 1]

- *1 Any target for aggregated Annex I countries is not proposed, but it is estimated here by aggregating the targets of countries in Annex I. The marginal abatement cost and the per-GDP cost are estimated assuming that the least cost measures are taken over the aggregated Annex I countries.
- *2 The marginal abatement cost is estimated assuming the least cost measures over the aggregated Annex I countries, that is, the marginal costs are equal among all Annex I countries.
- *3 The per-GDP costs are conditioned to be equal among all Annex I countries.
- *4, *5 The targets of China and India are declared to be only for energy-related CO₂ emissions, and therefore, the estimation was considered accordingly.

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