

S-3 Low-Carbon Society Scenario toward 2050: Scenario Development and its Implication for Policy Measures

2. Multi criteria on evaluating long-term scenario and policy on climate change

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Summary

This research project addresses issues on medium to long term target-setting on climate change policy. In order to mitigate climate change, it is important to clarify a goal of mitigation activities. We have found that negotiators of the time expected the Article 2 of UNFCCC to be a kind of indication of collective will of countries that climate change is a serious global problem. Article 2 of UNFCCC is unique, in comparison to objective of other MEAs, in terms of its goal-oriented feature and its mentioning of a concrete target for the commitments underlined in the convention. In order for international society to reach the ultimate goal, it is necessary to agree on a short-term emission reduction agreement that is in line with the global trajectory. As for Japan's long-term target, it became clear that 60-90% reduction of GHG emissions in 2050 from 1990 level is necessary in order to avoid a dangerous level of climate change. The calculation is made taking into account of three scientific uncertainties, namely the level of temperature increase, climate sensitivity in the model, and global differentiation scheme. In order to achieve such level of GHG reduction, both civil society participation and technology development is needed, whereas policies supporting the former seem to be lacking now. Creation of diffused energy use structure is in need.

As for the existing targets in Japan, many targets are addressing the first commitment period of the Kyoto Protocol, and not many has addressed long-term target.

1. Introduction and Objective

The objective of the project team is to work on issues related to set the GHG stabilization level and the emissions reduction target in 2050 for Japan, as well as to identify the criteria for evaluating long-term scenarios. This includes 1) Japan's reduction targets for 2050 and their

rationale (working on the global differentiation scheme), 2) target-setting process (working on ways to set socially acceptable target-setting process), and 3) Impact-Target Relations (providing robustness for the target in terms of impact of climate change, political feasibility and so on). 4) Other issues related to targets and criteria on mid- to long-term GHG reduction. This year we have focused on various aspects of target-setting.

2. Methodology and the Results

The research is multi-disciplinary in nature, borrowing knowledge mainly from the study of impact of climate change, socio-economic modeling for GHG stabilization and international relations. We have conducted literature surveys and interviews with key policy-makers and experts.

In order to mitigate climate change, it is important to clarify a goal of mitigation activities. Article 2 of the UN Framework Convention on Climate Change (UNFCCC) sets the ultimate objective as; “stabilization of greenhouse gas concentrations in the atmosphere that at a level that would prevent dangerous anthropogenic interference with the climate system”. In the past two years of the project duration, we had investigated some of key impacts of climate change according to level of global warming temperature, and had calculated global emission trajectory that would keep the global temperature within the threshold under the “dangerous level”. In this fiscal year, three studies were conducted from perspective of political science and international law on this issue. First, negotiating process on Article 2 of UNFCCC was reviewed¹⁾. It was found that negotiators of the time expected the article to be a kind of indication of collective will of countries that climate change is a serious global problem. Second, a comparative study was made among various global environmental agreements specifically on articles on “objective”. It was found that Article 2 of UNFCCC is unique in terms of its goal-oriented feature, and its mentioning of a concrete target for the commitments underlined in the convention. Objectives in other conventions are more or less expressing philosophy, purpose, or means to tackle specific issues. Third, in order for international society to reach the ultimate goal, it is necessary to agree on a short-term emission reduction agreement that is in line with the global trajectory. An investigation was made to where and how such discussion on long-term goals should be discussed.

As for Japan’s long-term target, it became clear that 60-90% reduction of GHG emissions in 2050 from 1990 level is necessary in order to avoid a dangerous level of climate change. The calculation is made taking into account of three scientific uncertainties, namely the level of temperature increase, climate sensitivity in the model, and global differentiation scheme.

In order to achieve such level of GHG reduction, both civil society participation and technology development is needed, whereas policies supporting the former seem to be lacking now. Creation of diffused energy use structure is in need.

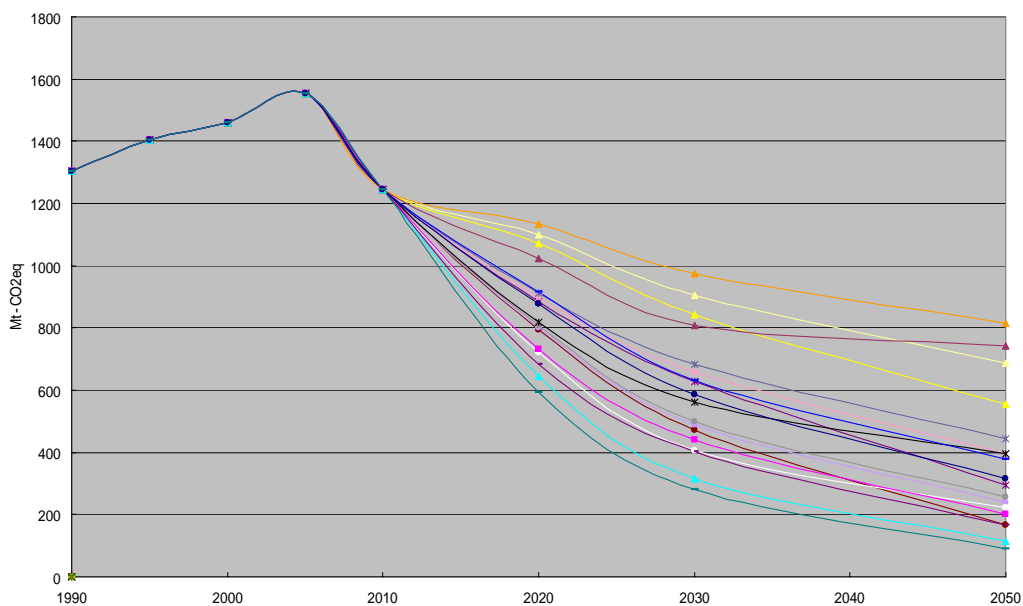


Fig. 1 Japan's required GHG reduction in 2050: A range of possible target for Japan to achieve 2C target

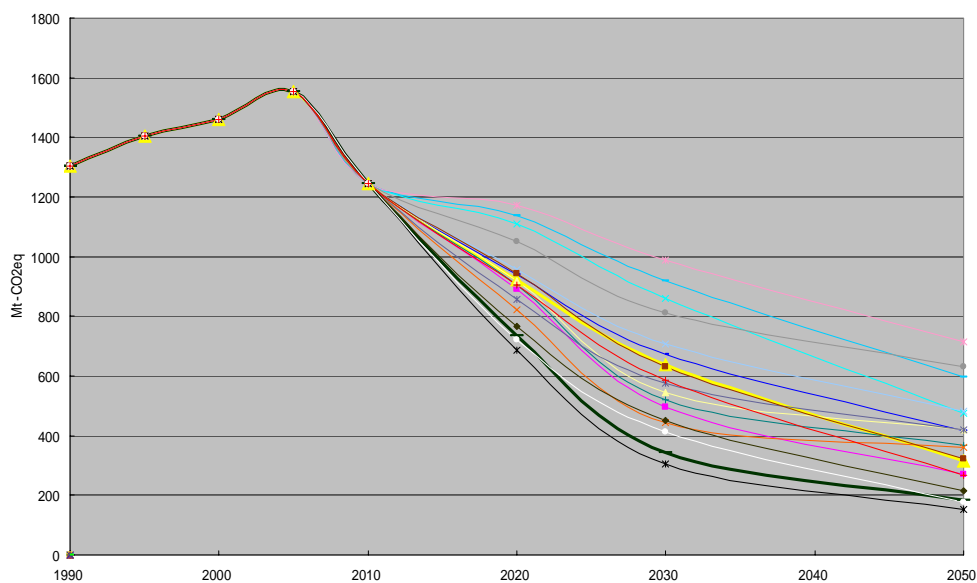


Fig. 2 Japan's required GHG reduction in 2050: A range of possible target for Japan to stabilize at 475, 500, 550ppm with climate sensitivity 2.6C

In FY 2006, as a prerequisite for considering long-term targets and North-South issues, various GHG emission reduction targets in the world, in particular, medium and long-term targets for the post Kyoto Protocol period were studied. In this connection, some of the pioneering examples of setting GHG emission reduction targets by private companies and local authorities were also reviewed. Similarly, the state of GHG emission reduction targets by

various actors in Japan was studied, including central government, local authorities and private companies. In particular, detailed studies were conducted on the GHG emission reduction targets by local authorities and private companies in their state of targets as well as their background. It became clear that many targets are addressing the first commitment period of the Kyoto Protocol, and not many have addressed long-term target in Japan.

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