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Emerging Japanese Emissions Trading Schemes and prospects for linking

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Abstract

This paper analyses the development of the Japanese Climate Policy since the Rio summit, including climate policy instruments implemented to date and the recent change of position regarding the introduction of a mandatory emissions trading scheme (ETS) in Japan. Several proposals to introduce a mandatory ETS have been published at both the national and regional levels in the last months. This paper first assesses the existing voluntary ETS (JVETS), then outlines the proposed voluntary test-phase ETS scheduled to start in October 2008, and finally analyses different approaches currently being discussed for a mandatory Japanese ETS regarding their ability for linkages to other trading schemes. The two analysed proposals for a national mandatory ETS, one by the Ministry of Environment (MoE) and the other by the Ministry of Economy, Trade and industry (METI) both use intensity target approaches to be consistent with the current Keidanren Voluntary Action Plan approach. As absolute targets can not be expected before 2013, direct bilateral linkages between a Japanese ETS and other ETSs will most likely occur after this. The METI proposal includes several additional design features that are potential barriers to linking. Both proposals foresee a substantial use of international credits to meet targets and both would therefore indirectly link a Japanese scheme to other trading schemes. Until 2013 a link to the CDM and hence indirect links with other schemes that accept CERs would be the major linkages for a Japanese ETS. The paper concludes that current discussions on the design of a mandatory Japanese scheme should seriously consider critical design issues now, if Japan wants a direct bilateral link of its scheme to other schemes in the future.

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1 Development of Japanese climate policy

Japanese climate law and policy have been gradually developing since the Rio Summit in 1992. To a large extent this development has proceeded in reaction to the development of international climate policy. Japanese climate diplomacy has focused on UN-based multilateral forums, seeking a careful balance between U.S. and EU positions (Oberthür and Ott 1999). Rather than taking leadership by implementing a mandatory ETS early on, Japan has carefully followed international developments. Japanese climate policy has been strengthened through a step-by-step approach, rather than via a sudden introduction of policies and measures. Japan started with the Keidanren Voluntary Action Plan, based on the voluntary adoption of intensity targets, and then introduced a voluntary emission trading scheme (JVETS). To counterbalance emission increases in the household and transport sectors due to the limited ability to control these emissions, emission reduction efforts in Japan focus primarily on the industrial sector.

Keidanren's Voluntary Action Plan was developed in 1997 with the aim of stabilizing energy-source and industrial-source CO_2 emissions at their 1990 level by 2010. It has been reviewed and strengthened by the government as one of the main pillars of the Kyoto Target Achievement Plan (KTAP), but it is not a legally binding agreement. Within Keidanren's Voluntary Action Plan companies can take targets based on total CO_2 emissions, CO_2 intensity, energy consumption, or energy intensity. Furthermore, companies can buy and use CERs, ERUs, and AAUs[1] without any limitation to comply with their targets. To date, of these instruments, companies have primarily used CERs, reflecting Japan's geographical interests in Asia as well as fear of creating a negative impression through a heavy reliance on future allowance-based AAUs. Green Investment schemes, which may serve to improve the acceptability of using surplus AAUs, are currently being implemented in several Eastern European countries, and there is increasing interest by Japanese companies in purchasing AAUs.

In 2005 Japan introduced a voluntary emission trading scheme the JVETS, based on absolute targets. This scheme however attracted only a very small number of participants. In 2008, however, a domestic consensus to reposition the Japanese climate policy towards a mandatory ETS has emerged. This recent domestic consensus may give the impression that the Japanese position is still vague. However, once such consensus is reached in Japan, there is a high probability of implementation. A review of the KTAP in March 2008

[1] CERs are Certified Emission Reductions which result from projects in developing countries. ERUs are Emission Reduction Units that are generated by through Joint Implementation projects in Annex I countries. AAUs are Assigned Allowance Units. Annex I nations with surplus AAUs can sell them to other nations.

showed that Japan will face a shortage 22-36 MtCO2 by 2012 with current policies and measures (Prime Minister of Japan and His Cabinet 2008a). To reach its Kyoto Protocol target of a six percent reduction, additional policies and measures will be needed. A move to a mandatory ETS is likely to be an important additional measure. However, a transition period to a mandatory ETS is foreseen as lasting until 2013 and is expected to allow for a smooth transition from the current approach under Keidanren's Voluntary Action Plan. To accomplish this, during the transition period both mandatory caps and intensity targets are likely to be utilized. As a first step of this transition Japan will introduce a voluntary test-phase ETS from October 2008. By including intensity based targets it aims to get a large number of companies under Keidanren's Voluntary Action Plan into the trading scheme.

2 The Japanese Voluntary Emissions Trading scheme 'JVETS'

The Ministry of Environment (MoE) introduced the Japanese Voluntary Emissions Trading Scheme (JVETS) when the Kyoto Target Achievement Plan (KTAP) was adopted in 2005. The JVETS was introduced as a voluntary ETS due to strong opposition to a mandatory ETS by the industrial sector and METI. The JVETS is characterized by voluntary targets but targets are absolute rather than intensity-based and they are binding with penalties once a firm has agreed to participate. Subsidies are available to firms to assist in achieving reductions, and CDM credits can also be used (Kimura 2006). Subsidies, however, will no longer be available after April 2009.

The JVETS includes

- Participants, such as factories and offices, which make voluntary agreements with the MoE to reduce CO_2 emissions. These participants receive an initial allocation based on emissions over the past few years of operation. They are eligible for subsidies and are referred to, under the JVETS, as target participants.
- Financial intermediaries and brokers without targets. These entities are referred to as trading participants. Trading participants do not receive allocations but rather hold accounts and transfer credits within the registry established by MoE.

The MoE provides financial support with 30 billion Yen (about USD 300 million) to target participants to subsidize up to one-third of the cost of installing new facilities and measures to reduce CO_2 emissions. Reductions of non-CO_2 emissions are credited toward JVETS targets. Target participants are allocated Japanese Emission Allowances (JPAs). To achieve its pledged target, a target participant can buy JPAs from other participants as well as CERs

from CDM projects (j-CERs)[2]. Neither AAUs nor ERUs are eligible for use in meeting JVETS targets. There is no limit on the use of j-CERs for compliance, but j-CERs should be used as supplementary measure, not the primary means of achieving the pledged targets. In case of non-compliance, companies have to refund any subsidies received, and the names of corporations that fail to meet their targets will be made public. Banking is allowed, but borrowing is not allowed (MoE 2006; MoE 2008a; Kimura 2006).

In 2007, the MoE developed guidelines for Monitoring, Reporting and Verification (MRV). Participants monitor emissions or other relevant data such as inputs or outputs and submit annual reports for review by the verification body and approval by the competent authority Reporting follows ISO14064/14065 guidelines (Ninomiya 2008). A preliminary assessment of the JVETS shows that the trading scheme has led to an accumulation of knowledge on both cost effective emission reductions and on the trading mechanism. The costs of emission reductions have been relatively low and have decreased since the introduction of the JVETS: 2,000-4,000 JPY/t-CO2 (USD 20-40/t-CO2, Phase I); 1,080 JPY/t-CO2 (USD 10/t-CO2, Phase II); 1,766 JPY/t-CO2 (USD 17/t-CO2, Phase III) (Table 1).

The effectiveness of the JVETS is, however, limited because many major emitters did not join the system, targets do not require deep reductions, and penalties are not severe. A voluntary ETS, in general, attracts participants that can easily achieve the pledged targets. Although the number of participants in the JVETS has been increasing, participation is not sufficient to support a truly effective and efficient market (31 target participants and 7 trading participants (Phase I); 61 target participants and 12 trading participants (Phase II); 61 target participants and 25 trading participants (Phase III)). The number of transaction is small with 24 in Phase I and 51 in Phase II. The JVETS, with its absolute targets, does not include the firms in the most energy intensive sectors such as steel and power, although such firms do participate in the Keidanren Voluntary Action Plan which has intensity-based targets.

[2] The Japanese government issues j-CERs to be used in the JVETS for CERs.

Phase	I (2005.4-)	II (2006.4-)	III (2007.4-)	IV (2008.4-)
Target participants + trading participants	31+7	61+12	61+25	73+TBD
Total target (Mt-CO2) (Percent of Japan's emission)	0.27Mt-CO2 (0.019%)	0.21Mt-CO2 (0.015%)	0.23Mt-CO2 (0.017%)*	0.32Mt-CO2 (Estimates) (0.023%)*
Emission reductions (Mt-CO2) (Percentage of Japan's emission)	0.37Mt-CO2 (0.027%)	0.28Mt-CO2 (0.02%)	-	-
Cost/t-CO2 (JPY/t-CO2) (USD/t-CO2)	2,000-4,000 JPY/tCO2 (USD20-40/tCO2)	1,080JPY/t-CO2 (USD10/t-CO2)	1,766JPY/t-CO2 (USD17/t-CO2)	758JPY/t-CO2(w/out subsidy) (USD7/t-CO2)

Table 1: Assessment of JVETS during Phase I-IV (Source: MoE 2008a)

*Note: Japan's 2006 emissions (1,340Mt-CO2) are used for Phase III/IV calculation.

Since CERs can be used for compliance, JVETS has a unilateral link to the Clean Development Mechanism. But JVETS has no bilateral link with any mandatory scheme, which is not surprising given that it is a temporary voluntary scheme. However, the CERs, create an indirect link between the JVETS and the EU ETS. The JVETS will not be continued in its current form, but will be expanded into a voluntary test-phase ETS starting in October 2008. The purpose of this test phase is to bring companies currently under the Keidanren's Voluntary Action Plan into an ETS.

3 The way to a mandatory ETS in Japan and prospects for linking

3.1 *Introduction*

The spring and summer of 2008 witnessed a change in Japan's position regarding the introduction of a mandatory ETS. Although it is still not easy to introduce a mandatory ETS in Japan, it should be possible to introduce one sometime in 2009 or later, taking into consideration the enabling legislation process. The test-phase ETS, however, will be implemented starting in October 2008. Two proposals for a national mandatory ETS have been published, one by the MoE and one by the Ministry of Economy, Trade and Industry (METI). In addition, the Tokyo Metropolitan Government has passed a law to establish a regional ETS.

As part of the introduction of the Kyoto Target Achievement Plan (KTAP), more than 13,000 companies with annual emissions of more than 3,000 tCO_2 are required to calculate and report their emissions, with penalties imposed in case of non-compliance with the requirements, including as misreporting. The Keidanren Plan includes sector-based, voluntary emission reduction targets, and these targets could serve as the basis for the initial allocations under a mandatory ETS. Therefore, once a political agreement on the design of a mandatory ETS is reached, the necessary database for the scheme already exists and a mandatory ETS could be implemented rather quickly (Kimura 2005).

3.2 *The Fukada Vision and discussions on a mandatory ETS*

Japan's desire to demonstrate political leadership at the G8 summit was the critical factor in bringing climate change to the top of political agendas in Japan and moving Japan towards the introduction of a mandatory ETS. At the World Economic Forum's annual meeting in January 2008 in Davos, Prime Minister Fukuda made a positive statement regarding the introduction of a mandatory ETS in Japan (MOFA 2008). Pressured by this speech, Keidanren, the largest Japanese industrial group, which had been strongly against the introduction of a mandatory ETS, changed its position in February 2008 indicating that it would accept a mandatory ETS in line with the international trend, although there was still strong opposition by the steel and power sectors (Nikkei Newspaper 2008). In June 2008, Prime Minister Fukuda announced the introduction of a mandatory test-phase domestic

ETS to start in the autumn of 2008. An objective was to bring participants from as many sectors and companies as possible into the test system[3].

In regard to the appropriate stringency for a Japanese mid-term target, the Environmental Minister Saito expressed his view that a reduction of more than 25% was feasible (Mainichi Newspaper 2008), while METI estimated that a 14% reduction in the 2005-2020 period, as reflected in the Fukuda Vision, was more in line with the industrial potential. The Liberal Democratic Party (LDP), the majority in the lower house, was initially cautious, reflecting the interest of industrial sectors, but has now released an interim report mentioning an emissions reduction target of 25% by 2020, 60-80% by 2050 (below 1990), and the introduction of a mandatory ETS to start in 2010 (LDP 2008). The Democratic Party of Japan (DPJ), the majority in the upper house, submitted a bill, which includes the introduction of an ETS in 2010, a 25% reduction target by 2020, and a 60% reduction target by 2050 (below 1990). This bill also includes the introduction of a carbon tax and an increase of renewable energy to 10% of total energy by 2020 (DPJ 2008).

Figure 1 shows the envisioned gradual transformation from a voluntary to a mandatory ETS in Japan. In a first step the existing JVETS will be transformed to a voluntary test-phase ETS. During this test phase, both intensity-based and absolute targets will be allowed. It is thus expected that the test ETS will include a much larger percent of Japan's emissions than the current JVETS. Following this voluntary test phase, the ETS would become mandatory, but initially both intensity-based and absolute targets may be allowed. At some time, the use of intensity-based targets would no longer be permitted under the ETS.

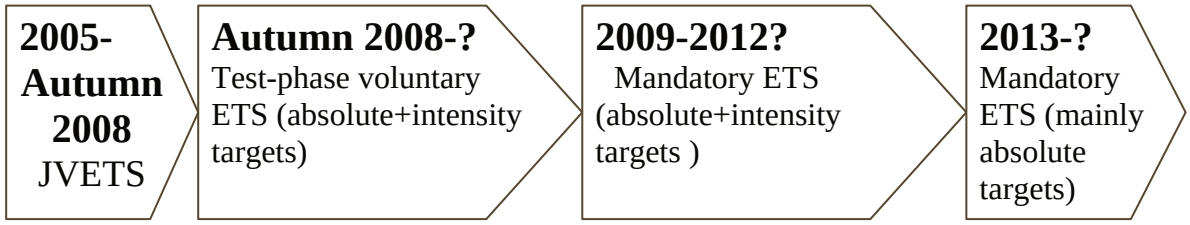

Figure 1: Timeline for a future Japanese ETS (Source: Hitomi Kimura, IGES)

The detailed designs for a national mandatory ETS are being developed by three committees established by the Cabinet Office under the Prime Minister, METI and the MOE. The resignation of the Prime Minister in September 2008, however, may impede the

[3] The "Fukuda Vision" also includes a long term target for Japan of a 60-80% reduction by 2050 (below 2005), a peak of Japanese emissions within the next 10-20 years, a clean technology fund, a strategic fund for forestry ($1.2 billion), and a tenfold increase in solar power capacity by 2020. Based on a bottom-up sectoral assessment a 14% reduction by 2020 (compared to 2005) was proposed, but the official 2020/2030 target will be announced in 2009 (Prime Minister of Japan and His Cabinet 2008b).

early introduction of a mandatory ETS. Neither proposal for a mandatory ETS currently explicitly considers a linkage to other trading schemes. Linkage is planned to be considered at the time the ETS is implemented, where issues such as minimizing the cost of meeting targets will be discussed.

Another development in 2008 was the announcement by the Tokyo Metropolitan Government (TMG) of its intention to establish a mandatory ETS in the Tokyo area in 2008, with a starting date of April 2010 (Tokyo Metropolitan Government 2008). In 2008 the TMG also joined the International Carbon Action Partnership (ICAP), a group of representatives of trading schemes who try to ensure sufficient harmonization and compatibility to support direct bilateral links between schemes. This action emphasized the TMG's positive position on linkage. The initiatives by the TMG are expected both to drive the introduction of a mandatory ETS at the national level and to push linkage considerations forward.

All proposals for a Japanese ETS envision an increase in Japan's dependence on CERs, especially from Asia, to achieve the proposed mid and long-term targets. This orientation will also assist in establishing a low carbon society in the Asia-Pacific region. This strategy is in contrast to that within the EU where the focus is on achieving reductions domestically.

3.3 *Introducing a test-phase ETS*

Since July 2008, a team of officials from government ministries and agencies, including the Cabinet Secretariat; METI; the MoE; the Financial Services Agency (FSA); the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fisheries; and the Ministry of Land, Infrastructure, Transport and Tourism, has been working on details of the planned test-phase ETS. The basic structure of the test-phase ETS was released in September: during the test-phase ETS, entities can decide whether to participate in this voluntary test-phase ETS as well as the level of their absolute or intensity targets.

Tradable units will include:

- Excess units accumulated under Keidanren's Voluntary Action Plan,
- Units tradable under the JVETS (JPA and j-CERs),
- Credits from a domestic offset system similar to the CDM. Under this approach small and medium enterprises (SMEs) not covered in the ETS would be granted credits for emission reductions achieved through projects undertaken voluntarily, under rules similar to those in operation for the CDM. Large companies under the ETS will be able to purchase emission credits generated from these projects and use them for their own compliance.

As of the time of writing this paper, opinion was still divided as to whether industrial umbrella organizations would be included as a single participant (e.g., allowances would be allocated to the umbrella organization and the industry as a whole would be responsible for meeting the target), and whether actual or presumed emissions should be used in the case of companies with an intensity target. The Japanese government will decide the final details and start looking for the participants, including financial intermediaries such as trading companies and banks, in October 2008. Representatives from the steel and electricity sectors expressed their intention to participate under the condition that this test-phase ETS will not lead to the introduction of a mandatory ETS. Although the design remains to be determined, the test-phase ETS can be described as an expanded JVETS to cover the energy-intensive companies currently participating in the Keidanren's Voluntary Action Plan, but a face saving devise that allows sectors such as steel and electricity to join.

3.4 *Proposal by the MoE for a mandatory ETS*

In June 2008 Japan's MoE published a proposal for a mandatory ETS to start in 2010 that it forwarded to the Advisory Committee on the Emissions Trading Scheme, which operates under the Cabinet (MoE 2008b). The MoE proposes the following basic design. The scheme would have a pre-2012 trading period, a second trading period from 2013-2020 and a third from 2021-2050. For the pre-2012 phase, the existing Kyoto Target Achievement Plan would be the basis for the amount of total emission allowances granted. For the second phase, Japan's 2020 target will be the basis. The covered gases would include energy-related CO_2 initially[4], but the trading scheme would be expanded to all six Kyoto gases at some future date[5]. Each entity covered by the ETS would have to retire annually emission allowances equal to the amount of its verified emissions in the last fiscal year. In the event of non-compliance, a fine will be charged corresponding to the amount of the excess emissions. This charge would be set substantially higher than the expected allowance price. In addition, the excess emissions would have to be offset in the subsequent reporting period. The MRV guidelines would conform to ISOs and other international standards. Existing systems such as the GHG Reporting scheme under the revised Kyoto Target Achievement Plan (KTAP) and the "Monitoring and Reporting Guidelines" of Japan's Voluntary Emissions Trading Scheme ("JVETS") could serve as a good base. The JVETS registry system, already in use, will be the basis for reporting, with any necessary improvements. Banking and limited borrowing would be allowed. The establishment of an "Administrative Carbon Market Board" for market control will be considered, similar to the Carbon Market

[4] Energy-source CO2 emissions account for more than 95% of total emissions in Japan.

[5] The level of accuracy required under monitoring, reporting and verification (MRV) regulations, the feasibility of achieving these levels for a given GHG, and the share of each GHG in Japan's total emissions would be considered in determining when and to which gases the scheme would be expanded.

Efficiency Board proposed in the U.S. A price cap will not be considered since it allows for the expansion of total emission allowances. International credits such as Kyoto credits may be used for compliance with some limitation. Details will depend on the post-2012 international regime. Qualified domestic credits that satisfy criteria regarding additionality and verification will be allowed for compliance within limits.

There is no precise description of types of eligible offsets in the proposal, but a MoE committee on offsets listed as possible types of offsets Kyoto credits, credits under JVETS (j-CER/JPA), and Verified Emission Reductions (VERs) satisfying criteria set forth in a guidelines document for domestic use (MoE 2008c) . For specific industrial sectors where there is a major risk of carbon leakage, exceptional treatments such as free allocation and border adjustment measures will be explored. There is also no clear position about linkages with other ETSs at this moment. The MoE proposal does, however, state that options for linking with other systems should be explored and hence the compatibility with other ETS should be considered.

The MoE proposal outlines four options for including entities in the target sectors in the ETS:

Allocation methods and entities)	Merits	Demerits
1. Upstream (producer/importer/distributor of fossil fuels), full auctioning	High coverage of entities (nearly 100%)	Auctioning causes direct costs for companies Limited to energy-source CO_2
2. Downstream (end-users of fossil fuels and electricity) free allocation at the beginning, gradual phase in of auctioning	Demand-side incentive for emission reductions across the economy	Since small-size energy users will not be included, the coverage is lower than that of upstream allocations
3. Downstream (Large direct emitters in the power sector, industry, and business sectors). Power companies: full auctioning Large-size energy users: gradual phase in of auctioning Small-size energy users and transport are covered optionally	Direct incentive for emission reductions by large emitters.	Small energy end users are not covered from the beginning (coverage: 60%)
4. Downstream (Large direct emitters in the power sector (intensity targets); other industry and business sectors (free allocation) May be replaced with option 2 or 3 after 2013. Even beyond 2013, this option might apply to industries that may be identified as vulnerable to the impact of international competition or to the significant risk of carbon leakage.	Wider support from industries that are in favour of intensity targets. burden sharing of activity, and Consistency with the current Keidanren's Voluntary Plan Despite absolute caps, large direct emitters are only responsible for emissions due to changes in their GHG intensity, but not for excess emissions resulting from increased activity levels	

Table 2: Four options for including target emission sources in an ETS

Among the four options examined, option four is currently supported most. Under this option, large direct emitters in the power sectors are only responsible for meeting intensity targets; they are not responsible for emission changes resulting from increases in activity levels. The other three options are based on absolute caps.

3.5 *Proposal by METI for a mandatory ETS*

Keidanren's Voluntary Action Plan, which was first issued in 1997, even before the Japanese ratification of the Kyoto Protocol in 2002, has been continually strengthened through its annual review process. Although it operates through voluntary emission reductions by industrial groups, some say that it can be considered, in practice, as imposing caps on major sectors and individual companies. Each stakeholder evaluates the effectiveness of its voluntary emission reduction target, but some companies recognize the necessity of further emission reductions to achieve Japan's Kyoto Protocol target of a six per cent reduction compared to 1990. Companies increasingly see that it is unlikely they will be able to escape from emission caps in the long run[6]. Therefore, there is a possibility that even METI will support the introduction of a mandatory cap-and-trade scheme, once an understanding of the situation on the part of industry increases and more support is built in the industrial sector.

A report by METI for the design of a mandatory ETS released in June 2008 mentions the necessity of limiting total emissions, the possibility of a transition from Keidanren's Voluntary Action Plan to legally binding agreements, and use of a domestic offset system similar to JI. The domestic offset system envisioned would enable large companies to purchase credits from SMEs and to use the acquired credits to achieve their Keidanren's Voluntary Plan targets in return for transferring and financing new technology to SMEs. If a cap-and-trade type ETS is to be adopted, benchmarking on the basis of intensity is preferred to grandfathered absolute allocations and free allocation is preferred over auctioning of allowances. METI takes a positive view in regard to borrowing, a price cap, and a liberal use of international credits (e.g., CDM). Furthermore, METI prefers a down-stream approach to an up-stream approach.

3.6 *Plans of the Tokyo Metropolitan Government for a local ETS*

The Parliament of the Tokyo Metropolitan Government (TMG) passed a municipal law in June 2008 to mandate a reduction of CO_2 emissions. Some 1,300 large facilities which consume more than 1,500 kl (oil equivalent) of fuel/heat/electricity would be affected by the law. The law includes the use of an ETS to assist entities in meeting targets, including the use of domestic, Japanese offsets from outside of the TMG region. The initial commitment period would run from April 2010. This ETS, with its target, forms the main pillar of the TMG's comprehensive effort to achieve emissions reductions of 25% between 2000-2020.

[6] According to interviews with industries

In addition to Tokyo, the Hyogo prefecture (FY2009-), Hiroshima City (FY2009-) and the Fukuoka prefecture are also planning to introduce an ETS, although precise rules and designs are not clear yet.

Many of the TGM schemes' details will be developed at the end of FY 2008 including the ending date of the compliance period and the stringency of targets; penalties, however, have already been set. In case of failure to meet targets, entities will be ordered to reduce emissions by up to 130% of the difference between the target and their emission level. Failure to comply with this order will result in penalties of up to 0.5 million Yen plus the cost of purchasing sufficient allowances or reduction credits to cover the deficiency in emission reductions. The Tokyo Metropolitan Government (TMG) takes a positive position in regard to linkage with other ETSs and joined ICAP as an official member in 2008. If a national ETS fails to be introduced by April 2010, the TMG system will begin to operate and it will then be necessary to consider the relationship between the TMG system and the national system adopted. For example, it may be necessary for the national ETS to give credits for early reductions achieved under the TMG ETS and other local ETSs if they should evolve. Since Environmental Minister Saito expressed his view that a national-level mandatory ETS may not be initiated until 2010 or 2011, this situation could easily arise.

3.7 *Prospects for linking a national Japanese trading scheme to other ETSs*

No direct links to mandatory ETSs are foreseen and considered during Japan's test phase voluntary ETS except indirect links through the CDM. However, since the scheme allows the use of international credits, it will be indirectly linked to other trading schemes accepting such credits. Direct links will be implemented only after the introduction of a mandatory ETS. Since the Japanese ETS will result in a medium-sized market, under direct bilateral linking a national Japanese system would be affected by the volatility of larger markets such as EU-ETS. Japan would be a price taker with entities buying or selling allowances at the price established by the larger system. Therefore, Japan will need to give careful consideration to linkage and carefully watch the performance of other trading schemes before linking to them.

The following sub-sections provide an overview of design features that could form potential barriers to linking the MoE and METI proposals to other ETSs. As some design elements of these proposals have not yet been decided, this assessment is confined to general considerations. The assessment shows that the two proposals differ significantly regarding their ability for direct bilateral linking. Some of the design features in the MoE proposal may introduce barriers to bilateral linking such as the use of intensity targets. The METI proposal includes additional design features that are barriers to linking including a

price cap, no strict penalties for non-compliance and a relatively modest 2020 reduction target.

Stringency of the target

The relative stringencies of targets is one of the most critical issues when two systems consider linkage, it may be a political precondition for linking that all systems implement comparable caps (Sterk et al. 2006). The MoE and METI have significantly different views on appropriate Japanese 2020 reduction targets. While the MoE recommends a 25% reduction target compared to 2005, METI's position is that only a 14% reduction target is feasible. How these targets will compare to targets taken in other schemes for the year 2020 remains to be seen. It should be pointed out that even with comparable overall targets; it is very unlikely that there will be equity of effort at the sectoral or entity level (Blyth and Bosi, 2004).

Sectoral and gas coverage

The MoE proposal outlines 4 options for sectoral coverage, one upstream and three downstream options (See Table 2). One downstream option provides for an optional inclusion of small-size energy users and transport. The more diverse and the more numerous the participants, the larger the potential cost savings. Thus, linking trading programs that cover different categories of sources should increase the potential cost savings. Such differences should not affect the environmental integrity nor raise issues of institutional compatibility (Haites/Mullins 2001). However it will be important to avoid any double counting that might arise as a result of linking schemes with different coverage. This can be avoided, however, if the boundaries of the two schemes to be linked are clearly defined and there is a proper accounting of emissions (Blyth/Bosi 2004). When designing an upstream system, the potential for such double counting can be avoided simply by excluding exported fuel from the allowance requirement. If schemes have a different coverage of gases this poses no barrier to linking; on the contrary it may lead to cost savings, as the reduction of non-CO2 gases is more cost efficient than the reduction of CO2 emissions (Blyth/Bosi 2004). One scheme, however, may not want to link up to another scheme if it has no confidence the scheme's MRV provisions as this could undermine the integrity of its own trading scheme. However, this may not likely to happen in the case of Japan, since 95% of the emissions come from energy-related CO2 even if the covered gases in the trading scheme would be expanded to all six Kyoto gases at some future date.

Linking schemes with absolute targets to schemes with intensity targets

Another very important consideration in linking will be the type of targets set in various schemes. The METI proposal foresees the use of intensity targets, and option 4 of the MoE

proposal, which also uses an intensity target approach, is currently the most favoured option. Intensity targets (also referred to as relative targets) are expressed as emissions per unit of output or activity, such as GDP or per unit of input. Under an intensity-based target system, total GHG emissions may increase with an increase of GDP. The likelihood of this occurring depends on the prospects for economic growth as well as on the stringency of the targets. It is possible to link trading schemes with absolute targets to ones with intensity targets. Linking a scheme with intensity-based targets to a system with absolute targets does, however, raise economic equity concerns. Under an intensity-based system companies in effect have an incentive-or at least no disincentive -for increasing their output and therefore emissions. Intensity-based systems may also compromise the environmental effectiveness of a combined regime because output increases will inflate the number of trading units available (Haites and Mullins 2001, Marschinsky 2008). Another potential problem is that in intensity-based approaches allocations are given out post-hoc whereas in absolute systems, such as the EU-ETS, the allocations are given out in advance. The final allocation of allowances to a company can only take place once the output data of the companies is known. This could lead to liquidity shocks for the absolute scheme at the moment of adjustment (Sterk et al. 2006). The EU has currently ruled out linking its ETS with schemes based on intensity targets[7]. The coming Canadian ETS, however, will be based on intensity targets, and may be a potential linking partner for a national Japanese scheme, although Canada has expressed interest in linking only with the US and Mexico.

Banking and Borrowing

Both the MoE and METI proposals include borrowing, the MoE proposal however would limit borrowing, without giving further details. Borrowing means that a company is allowed to use allowances for a future vintage to cover current emissions. If companies heavily rely on borrowing instead of carrying out emission reductions they may lobby for relaxing targets later. In addition, companies or facilities may cease to exist after having received their future allocations (Haites and Mullin 2001). Therefore, borrowing provisions in a partner scheme can be unacceptable for an ETS if it is perceived to carry the potential for weakening the environmental effectiveness of the scheme (Flachsland 2008). If a programme that did not allow borrowing were linked to a Japanese scheme that allows borrowing, the environmental integrity could be protected by limiting purchases from participants in the Japanese scheme to ex post purchases from participants that did not borrow allowances (Haites and Mullins, 2001).

[7] COMMISSION STAFF WORKING DOCUMENT Accompanying document to the Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system

Offsets

There is only limited information on offset rules in both proposals and neither proposal has as yet defined eligible offset sectors. However, since 95 % of total emissions are energy-related CO2, the possible sources are mainly small sources excluded from the ETS, and non-CO2 emissions. The MoE proposal lists credits under JVETS and Verified Emission Reductions (VERs) satisfying certain requirements as potential eligible offset types. The rules governing the offsets may not have the same stringency for additionality or Monitoring, Verification and Reporting as those under Track 2 JI[8] . If Japan implements a domestic offset scheme, however, it is in effect a Track 1 JI scheme as long as any Kyoto units can be exported. If a Japanese ETS is linked with any other Annex B ETS the units exchanged will have to be (or be accompanied by) Kyoto units. In that case, the Japanese ETS units will need to be AAUs or equivalent and the domestic offsets will need to be ERUs or equivalent. If the rules for offsets are less stringent than those for Track 2 JI, it poses no problem for linking, but it means Japan is providing a subsidy to the offset generators.

Non-compliance provisions and price caps

A scheme with rigorous non-compliance provisions may be reluctant to link to a scheme with less stringent provisions. Setting financial penalties for non-compliance significantly higher than the cost of allowances, as provided in the MoE proposal, is an important determinant of a trading scheme's environmental effectiveness, with environmental effectiveness one of the key criteria that will be used to determine acceptability of linking. Furthermore, the MoE proposal requires that the excess emissions would have to be offset in the subsequent reporting period. If the penalty for non-compliance releases the operator of an installation from the obligation to cover its full emissions with eligible units, it acts as a price cap and therefore linking poses a problem for linking (see Sterk et al, 2006). If the price of allowances in one program is higher than the non-compliance penalties of another program, linking the schemes could encourage non-compliance in the program with the low penalties and so compromise the environmental integrity (Blyth and Bosi 2004). The METI proposal, in contrast to the MoE proposal, foresees no strict penalties for non-compliance what in effect would act as a price cap. In addition the METI proposal explicitly mentions a

[8] If a host Party meets all of the eligibility requirements <http://ji.unfccc.int/Eligibility/index.html> to transfer and/or acquire ERUs, it may verify emission reductions or enhancements of removals from a JI project as being additional to any that would otherwise occur. Upon such verification, the host Party may issue the appropriate quantity of ERUs. This procedure is commonly referred to as the "Track 1" procedure." If a host Party does not meet all, but only a limited set of eligibility requirements, verification of emission reductions or enhancements of removals as being additional has to be done through the verification procedure under the Joint Implementation Supervisory Committee (JISC) <http://ji.unfccc.int/Sup_Committee/index.html>. Under this so-called "Track 2" procedure, an independent entity accredited by the JISC has to determine whether the relevant requirements have been met before the host Party can issue and transfer ERUs. http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php

price cap. If a system without a price cap is linked to a scheme with a price cap, the price cap will set the compliance cost for the combined schemes. As long as the allowance price is above the threshold price, companies from the scheme without a price cap will buy allowances from the partner region undermining the environmental integrity of the combined scheme (Sterk et al. 2006, Blyth and Bosi 2004). The MoE proposal mentions cost-containment measures, which in general may be a barrier to linking, there are however no details available at the moment.

There are other important design elements of a trading scheme which have to be carefully considered when linking, such as the **compatibility of registries**, **the monitoring, reporting and verification (MRV)** procedures and the **allocation provisions**. As details on these provisions are not available to date, they haven't been considered in this paper.

3.8 *Legal issues for linking Japanese schemes*

This chapter discusses legal issues that arise when linking to a national or a sub national scheme in Japan.

National mandatory scheme

In case a mandatory ETS is implemented in Japan, the possibility of linkage depends on the legal nature of the linking agreement. There are several legal options for linking emissions trading schemes such as a non-binding political arrangement or a binding international treaty (see Mehling 2007). A binding international treaty with foreign countries can be made only by the Cabinet under the Japanese Constitution (Article 73[9]). In Japan, a treaty agreed by the government is superior to domestic law, but inferior to the Constitution (Constitution 98-2). In most cases, Japan concludes a treaty through ratification, acceptance or entry. The enactment of a new law is possible, but it is more realistic to amend the existing law such as the Framework for Promoting Action to Cope with Global Warming to implement linkages. In both cases, government officials have strong power in legislation under the current Parliamentary System[10]. If linkage involves any budget such as for establishing a common registry system for linkage, only the Cabinet can submit a budget request to the Parliament (Article 73-5 of Japanese Constitution). Treaty making and its domestic implementation in Japan takes at least one year.

[9] However, it shall obtain prior or, depending on circumstances, subsequent approval of the Diet.

[10] Most laws submitted and approved finally come from the Cabinet, which are substantially drafted by the government officials and supported by the traditional ruling Liberal Democratic Party (LDP), although there are increasing number of bills by the legislators due to the breakthrough of the second biggest Democratic Party of Japan (DPJ)

The Tokyo scheme

If Japan could not introduce a national mandatory ETS until April 2010, when the Tokyo scheme is being implemented, the legal issue arises whether the Tokyo Metropolitan Government (TMG) can make an agreement with other countries or states without the consent of the national government, since the Japanese Constitution limits the power to make a diplomatic treaty to the national government. A preliminary legal analysis of California's case in relation to the Federal Government shows that if it is an "arrangement" rather than "agreement", or there is no clear intention to increase the State power, this would be less problematic (Echikson and Wedeking 2006). The Japanese local government has less power compared to U.S states.

4 Conclusions

While Japan has to date relied on voluntary instruments such as the JVETS and Keidanren's Voluntary Action Plan, the discussion is now moving towards the implementation of a mandatory ETS. It is most likely that the JVETS, which currently is an absolute-target system, will shift to a test-phase voluntary ETS in autumn 2008 in which a combination of absolute and intensity targets will be used initially. Following this initial phase, foreseen as ending in 2010 or 2011, a mandatory ETS will be implemented in which again both mandatory and intensity targets will be used. As a scheme with absolute targets will not be implemented before 2013 direct bilateral linkages between a Japanese ETS and other ETSs will therefore most likely not occur before then. The present paper shows that the two proposals for a national mandatory ETS currently discussed in Japan differ significantly, however, in regard to their ability for direct bilateral linkages to other trading schemes. The METI proposal's mid-term reduction targets may be too lenient to support a direct linkage to comparable stringent schemes, such as the EU-ETS. It also includes other major barriers to direct bilateral linking such as borrowing and no strict penalties for failure to meet targets. The MoE in contrast includes only few potential barriers to direct bilateral linkages. Any Japanese ETS is likely to increase its dependence on CERs, especially CERs from Asia. It will thus have strong links to the CDM market and indirect linkages to other schemes allowing Kyoto credits. Until 2013 a link to the CDM and hence indirect links with other schemes that accept CERs will therefore be the major linkages for a Japanese ETS. Whether Japan will be able to link its national ETS after 2013 bilaterally to other schemes depends on an early adjustment of critical design elements.

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