

## Bilingual version in English & Japanese

*The EU emissions trading scheme (EU ETS) introduced in 2005 is the only mandatory cap-and-trade system operating in the world. Lessons could be learned from the EU's stance, which allows for flexibility in rules and achieves emissions reductions with firm commitments by stakeholders.*

### A decision for a compliance option based on the price signal

The EU emissions trading scheme (EU ETS) is designed to help EU member states achieve their commitments to limit or reduce greenhouse gas (GHG) emissions in a cost-effective way. It was not meant to work as a stand-alone tool but as part of the package of abatement measures across the board. It is a cap-and-trade system. Member states first impose caps on GHG emissions – initially only CO<sub>2</sub> until 2012 – from installations in specified sectors, mainly the power sector and industry sub-sectors (e.g. steel, cement, glass, paper and pulp). Emissions from these sectors amount to 40% of total EU emissions. Next, they allocate allowances to installations. Each installation surrenders a number of allowances equal to the total emissions from that installation during the preceding year.

To meet its obligations, an installation has essentially two options: to reduce emissions or to purchase EU allowances or credits from the Clean Development Mechanism (CDM) or Joint Implementation (JI) – two of the flexible mechanisms available under the Kyoto Protocol. The decision of the participating company depends on the CO<sub>2</sub> price signals sent by the market. This system ensures that emissions reductions are achieved at the lowest cost. A sweetener for industry was free allocation of allowances until 2012.

## What lessons can be learned from the EU emissions trading scheme?

Noriko Fujiwara & Christian Egenhofer

There was a general understanding about the urgency in and scale of action needed despite uncertainty about the future of a global agreement, which prompted the EU to search for an innovative approach. The EU ETS gained a relatively broad support base among stakeholders as a favourite against regulations or energy/CO<sub>2</sub> taxes. Nonetheless it was politically difficult to introduce stringent caps prior to the start of the Kyoto Protocol commitment period (2008-12).

### New member states prioritised participation in the ETS

The ETS was introduced in 2005 in two steps, i.e. the first period (2005-07) and the second period (2008-12), in line with the Kyoto Protocol compliance period. The first allocation period of the EU ETS (2005-07) was largely viewed as a pilot phase to test the scheme as well as build knowledge, experience and confidence among all participants, including the European Commission, member state governments, traders, corporate management, installation operators and accountants.

The EU opted for 'learning by doing', with a comprehensive review foreseen. This proved necessary for there were many 'teething problems'. The necessary decisions for infrastructure and implementation were made too late. Worse still member states could not agree on interpreting key

Noriko Fujiwara is a Research Fellow at CEPS. Christian Egenhofer is Senior Research Fellow and head of the Energy and Climate Change research unit at CEPS. This paper was originally published in Japanese in Nihon Keizai Shimbun, 14 February 2008, and is reproduced here with permission. This English translation roughly corresponds to the Japanese version and includes a few more details.

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concepts such as the definition of installations and provisions for new investment (i.e. new entrance) in a uniform way. This created unnecessary complexity and incurred extra costs. Moreover in all member states there was no certified data about CO<sub>2</sub> emissions from the covered sectors before 2005. Some member states overestimated economic growth rates. These problems, which are mainly technical except for the overestimation of economic growth rates, would be largely solved during the second period.

The real political trouble came from a different corner after companies in energy-intensive industry suddenly discovered that they would end up paying twice: once for their process emissions, and once through higher power prices. While they thought they could live with the first bill, the extra invoice had not been budgeted for. In addition, they discovered that power generators could book handsome windfall profits. What really caused a stir was that this would be not only true for low-carbon producers such as nuclear and hydro but also for coal plants. Why? Power prices are set on the basis of marginal costs. Since the marginal producer is coal most of the time, power price increases are substantial as coal needs many allowances. As power generators will find it easy to pass on additional costs, while getting their allowances for free, they make extra profits.

To date, neither the windfall profits made by the power sector nor damage to the industry sectors covered have been a real problem. CO<sub>2</sub> prices have generally been too low to inflict any such negative impact on competitiveness. Similarly the extent to which industry has lost competitiveness has not been sufficiently established. Examination of these impacts is only in the initial stage.

Lastly, relations between the EU ETS and the Kyoto Protocol have become delicate. For the purpose of the treaty, the scheme is viewed as a domestic measure that is not part of the flexible mechanisms (CDM, JI, 'emissions trading'). Yet the ETS accepts use of CDM/JI credits for compliance, which implies an indirect linkage between the EU ETS and CDM/JI through trading units. Their flow is currently unilateral in that the main demand for CDM/JI credits has been driven by the EU ETS, as the only mandatory cap-and-trade scheme in existence. On the other hand, there might have been some trade-off between the ETS and JI. New member states were obliged to participate in the EU ETS from 2005 onwards, while keeping their country-based Kyoto Protocol targets. They could also host JI projects or even sell surplus allowances to other countries in need. However, partly due to uncertainty about these flexible mechanisms, but more likely due to commitments to the EU ETS and

subsequent shortage of resources, most new member states gave priority to participation in the ETS.

The full EU ETS review started in earnest when the European Commission published its proposal on 23 January 2008. According to the European Commission, there will be some major changes in design options: a single EU-wide cap; an even longer allocation period (i.e. eight years, 2013-20) and steady predictable reductions of 1.74% annually even beyond 2020. The Commission's answer to windfall profits would be full auctioning for the power sector from 2013. The industry might see a gradual phase-out of free allocation, although only if it cannot prove that auctioning would hamper its competitiveness. An initial grace period of free allocation was favoured over border tax adjustments demanded from certain industry associations and legislators. There will be an assessment of the situation of the industry by 2011.

There will be two possibilities for using CDM/JI credits in the period 2013-20. Before a satisfactory global agreement is reached, the EU will keep an independent commitment to achieve at least 20% GHG emissions reductions from the 1990 level by the year 2020. The use of these credits will be restricted until the conclusion of the global agreement. Under the global agreement, which will also mean that the EU takes on a target of 30% reduction from the 1990 level by 2020, the limit on the use of CDM/JI credits will be automatically raised up to half of the additional abatement effort. With more flexibility in the use of these credits, the 30% cut may not be as demanding or costly as it looks.

The proposal for the energy and climate change package now enters the next stage as the European Commission seeks to get approval from the European Parliament and the Council of the EU. The key challenge would be to obtain approval at the European Council meeting scheduled for 13-14 March 2008.

### A long-term and dynamic view

There are some lessons to be drawn from the EU's experience with the EU ETS. First, there would be some compromise between the pursuit of the goal, i.e. achieving abatement at the least cost, and pragmatic considerations, namely smoothing the transfer of wealth across sectors and the transition or soft-landing to the low-carbon society. Second, the scheme was built on the assumption of 'learning by doing' with the possibility for improvements during the first two periods and, following a review, beyond. Many problems have emerged that were not anticipated by stakeholders. Third, it is not only the launching of the ETS that requires significant

commitment and resources from all stakeholders and member states, but also its operation. The most underestimated but expensive part of the process would be the monitoring, verification and reporting. This burden has fallen most heavily on small installations and new member states. Fourth, the EU ETS has contributed to the development of the CDM but it might have diverted some capital which could have been invested in JI projects. Fifth, the EU ETS has brought climate change instantaneously into board rooms.

What is the implication for Japanese stakeholders? The key would be the importance of taking a dynamic view over next two to three decades; of introducing clarity, transparency and some flexibility in the rules and processes; and of securing firm commitments to emissions reductions. The EU ETS has been fully integrated into the EU commitment to emissions reductions and firmly placed as a central pillar of its policies and measures, and yet it has exhibited the ability to accommodate changing circumstances. The EU-ETS could give some food for thought along these lines to Japanese stakeholders. It is up to them how to taste it.

## Japanese version

「排出権取引導入の視点：参考になる欧州の制度」<sup>1</sup>

藤原 範子

C・イーゲンホーファー

欧州連合（EU）が2005年に導入した域内排出量制度（EU ETS）は、強制的なキャップ&トレード方式を採用している唯一の制度である。ルールに柔軟性を持たせ、関係者の強い決意で排出削減を実現するという姿勢は、日本も参考にすべきであろう。

### 価格動向見つつ選択肢から判断

欧州連合（EU）の域内排出量取引制度（EU ETS）は、EU加盟国が約束した温暖化ガス排出量の抑制・削減を効率的に達成できるよう設計された制度である。この制度は単独で運用されるのではなく、EUの包括的な排出削減政策の一環と位置づけられる。

キャップ・アンド・トレード方式を採用しているEU ETSの仕組みを簡単に説明しよう。まず加盟各国は、対象となる事業所に温暖化ガス排出量の上限（キャップ）を課す。具体的には、発電所のほか、製鉄、セメント、ガラス、製紙・パルプ業の大型施設である。これらの産業からの排出量は、EU全体の40%を占める。なお2012年までは温暖化ガスのうち二酸化炭素（CO<sub>2</sub>）のみを対象とする。

次に、事業所ごとに排出枠を割り当て、各事業所は、その枠内に排出量を抑える必要がある。この義務を果たすには、自力での削減のほか、他の事業所の余った枠の買い取り、京都議定書で認められたクリーン開発メカニズム（CDM）や共同実施（JI）の利用などの選択肢がある。各社は、市場で取引される炭素価格をにらみながら判断することになる。こうして最小限の費用での排出削減が可能になる。対象産業への配慮として、排出枠は12年まで無償で割り当てられる。

EUがこの制度を導入したのは、ポスト京都の枠組みが不透明な中でも大規模な行動をとる必要があるとの認識があったからだ。EU ETSは各種の規制やエネルギー税・炭素税に比べて利害関係者の広い支持を得ていた。それでも、厳しい上限の導入は、政治的に簡単ではなかった。

### 新規の加盟国もETS参加優先

EU ETSは、05年に二段階方式で導入された。05 - 07年が第一フェーズで、おおむね試行期間として

<sup>1</sup>本稿は、2008年2月14日付日本経済新聞朝刊「経済教室」に掲載された。同社の許可を得て転載する。

参加者間で知識や経験を積み上げ、制度に対する信頼感を高める。広義の参加者には、欧州委員会、加盟国政府、市場関係者から、企業経営者、施設運用者、経理担当者まで含まれる。京都議定書の第一約束期間である08 - 12年が第二フェーズである。

EUは、実際に取引を行う中で手直しをし、また包括的な見直しも想定した。実際、制度の基盤作りや実行面では、決定が遅れに遅れた。対象施設の定義、新規設備投資（新規参入）の規定など、基本的な点で加盟国が全面合意に至らなかったものも多く、仕組みが複雑化し、余計なコストがかかった。さらに対象産業のCO<sub>2</sub>排出量について、05年以前に検証されたデータがどの加盟国にも存在しないことも大問題だった。また一部の国では、国別割当計画策定の際、経済成長を大幅に上乘せして見積もる問題も出た。とはいえこれらは、第二フェーズでほぼ解決される見通しである。

また、エネルギー集約型産業が、自分たちは二重取りされていると猛反発した。生産過程での排出に関し払ったうえに、（電力業界が料金に転嫁するため）高い電力料金を払わされていると主張する。前者は致し方ないが、後者は承服できないという。さらに電力業界は「棚からぼた餅」で利益を得られるとの指摘も出た。産業界が特に憤慨したのは、石炭火力発電所まで恩恵を受けると見られるからだ。電力料金は限界費用に基づき設定され、限界生産者（収入と費用がほぼ等しく、利潤を生む余地がない生産者）となりがちな石炭火力発電事業者は大きな排出枠を必要のため、電力料金が大幅に引き上がるためだ。電力業界は価格の転嫁が簡単で、しかも排出枠は無償で割り当てられるから、利益はさらに膨らむというわけだ。

ただ今のところ、電力業界が得られるとされた不当な利益の程度も、他の産業部門に与える損害の程度も、大きな問題になっていない。炭素価格が低く、競争力にあまり影響がなかったためだ。EU ETS導入に伴う競争力低下の程度も、まだ十分検証されていない。

もう一つの問題は、EU ETSと京都議定書との関係だ。EU ETSは、あくまで域内の措置という位置づけで、京都メカニズムには該当しない。いわばEU ETSとCDM / JIとは、市場取引を介した間接的な結びつきにとどまる。しかも現在唯一の強制的キャップ・アンド・トレードを採用しているEU ETSの側から、CDM / JIクレジットに対する需要が発生するという点で、現時点では両者の関係は一方通行である。

ただし、EU ETSとJIとはある程度トレードオフの関係にある。EU新規加盟国は、京都議定書に基づく国別削減目標を課されているが、05年からEU ETS参加を義務づけられた。これらの国はJI事業の運営でも、余剰排出枠の売却でもよいが、JIをめぐる不確実性や、それにも増してEU ETSに対する義務とそれに必要な人的・物的資源の不足が引き金になり、大半の新規加盟国はEU ETSへの参加を優先した。

EU ETSの全面見直しは、欧州委員会が温暖化対策包括案を発表した1月23日から本格的に始まった。制度設計は何点か大幅に修正される見通しだ。EU全体の上限設定、現行より長い排出枠割当期間の設定（13 - 20年の8年間）、20年以降の一定の排出削減（年間1.74%）の予測可能性などだ。

また同委員会は、13年から発電所の排出枠を無償割り当てから入札方式に切り替えるよう提案している。電力以外の産業についても、入札方式が競争力を損なうと証明できない場合のみという条件付きで、無償割り当てを段階的に打ち切ることになる。当初の無償割り当て打ち切りに対する猶予は、一部業界団体や議員から要望があった国境税による調整より支持された。これらの業界の実態調査は11年までに実施する予定だ。

13 - 20年のCDM / JI利用は、二段構えで臨む。ポスト京都の国際的合意が成立するまでは、EUは独自に、20年までに温暖化ガス排出量の1990年水準からの20%以上の削減をめざす。この間のクレジット利用は制限する。合意が成立すれば、EUは90年水準からの30%削減を目指すことになるが、このときは追加削減分の50%までクレジット利用を認める。柔軟性を持たせることで、30%の大幅削減も思うほど困難ではなくなり、コスト負担も軽減されよう。

この包括案は、今後、欧州理事会と欧州議会の承認を得なければならない。最初の重要な節目は、3月13・14日の欧州理事会になろう。

### 長期を見通し変化を視野に

E U E T Sから学ぶべき教訓を挙げよう。

第一に、最小限のコストで排出削減を達成するという目標の追求と、業種間の所得移転と低炭素社会への移行を円滑に行うという現実的な立場との間で、それなりの妥協が必要となろう。第二に、この制度は試行錯誤を前提に設計された。第三に、排出量取引を開始し運用するには、全関係者・加盟国のなみなみならぬ決意と人的・物的資源が必要である。最も過小評価されながら費用のかかる作業が、モニタリング・検証・報告である。この負担感は、小規模事業所や新加盟国に最も強かった。第四に、E U E T SはCDMの発展には寄与するが、J I案件に投入し得た資本の一部はE U E T Sに流れてしまった。第五に、E U E T S導入で気候変動問題が直ちに経営会議の議題になる効果があった。

以上の点は、日本にとってどんな意味を持つのか。重要なのは、今後20-30年間を見通しさまざまな変化を視野に入れること、明快で透明性が高くある程度の柔軟性を備えたルール・プロセスをつくること、何としても排出削減を実現するという不退転の決意で臨むことだろう。E U E T SはEUの排出削減の取り組みに完全に組み込まれているだけでなく、関連政策や施策の支柱として確立する一方、変化する状況に柔軟に対応もしている。E U E T Sは日本に貴重な検討材料を提供することができるといえよう。この材料をどう料理するかは日本の関係者に任されている。

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- To carry out state-of-the-art policy research leading to solutions to the challenges facing Europe today.
- To achieve high standards of academic excellence and maintain unqualified independence.
- To provide a forum for discussion among all stakeholders in the European policy process.
- To build collaborative networks of researchers, policy-makers and business representatives across the whole of Europe.
- To disseminate our findings and views through a regular flow of publications and public events.

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Regulatory Affairs  
Trade, Development & Agricultural Policy

### Research Networks/Joint Initiatives

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European Capital Markets Institute (ECMI)  
European Climate Platform (ECP)  
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E-mail: [info@ceps.be](mailto:info@ceps.be)

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