Current Status and Issues of the Korean Emission Trading Scheme

Seonghee Kim*

This paper focuses on the current situation of the Korean emission trading scheme (ETS) which was introduced in January 2015. The background and issues related to free emission allocation are analyzed along with details of the scheme.

Keywords: Korea, Emission trading scheme, 2020BAU, Global Warming

1. Introduction

In January 2015, Korea introduced a greenhouse gas emission trading scheme. The scheme covers about 60% of Korea's GHG emissions and is positioned as a major policy for cutting GHG emissions by 30% from a BAU (business as usual) level by 2020 under a medium-term GHG emission reduction target set in 2009. The government had originally planned to introduce the scheme in 2013 but postponed the introduction until 2015 in response to strong opposition from industry. As the government announced a draft national emission allocation plan for sectors subject to the scheme in September 2015, the industry side complained that allocations were based on a wrong BAU outlook and too little. According to a report by the Korean Ministry of Environment, 243 companies accounting for about 46% of the 525 companies subject to the scheme filed complaints against the allocations, causing a dispute over the reasonability of the initial allocations. This paper clarified the cause of the dispute over initial emission allocations for Korea's ETS introduction and analyzed measures for improving the scheme.

2. Overview of the Korean ETS

The following is an overview of the Korean emission trading scheme.

* Senior Researcher, Institute of Energy Economics, Japan
Inui Bldg. Kachidoki, 10th,11th Floor 13-1,Kachidoki 1-chome,Chuo-ku,Tokyo 104-0054 Japan
e-mail songhee@tky.ieej.or.jp

2.1 Sectors subject to regulation

Subject to regulation under the Korean ETS are five industrial sectors -- electric utilities, manufacturers, buildings, transportation and waste disposal. Business operators or facilities in these sectors that meet the following standards for annual GHG emissions (the average for the past three years) are subjected to regulation.

・Business operators that emit more than 125,000 tCO_2e

・Facilities that emit more than 25,000 tCO_2e

Gases subject to regulation are six gases cited in the Kyoto Protocol, including direct emissions through fuel combustion and those provided from electricity and heat.

2.2 Implementation period

Basically, the scheme calls for a five-year target period for cutting emissions. However, a period through 2020 is designed for a transition to the scheme. The first target period is from January 1, 2015, to December 31, 2017. The second is from January 1, 2018, to December 31, 2020.

2.3 How to allocate emissions

(1) Free allocations

Allocations to the target sectors are linked to the National medium-term emission reduction target. In order to ease the scheme's burden on industry, free allocations are planned to account for 100% of the target emissions in the first target period, 97% in the second and 95% or less in the third and later periods[1)].

(2) Allocation methods

The scheme uses two emission allocation methods -- the grandfathering method based on historical emissions and the benchmark method in which equipment efficiency and production are taken into

account. For the first target period, the grandfathering method is dominantly applied, while the benchmark method is adopted for some equipment in the cement, oil refining and aviation sectors.

(3) Flexibility measures

The following measures are planned to ease industry's burden in complying with the scheme in response to emission changes attributable to external factors such as economic trend changes.

(i) Carryover (Banking)

Emission permits can be carried over within one target period and to the first year of the next target period, with no limit being set on the carryover. However, emission permits issued in a year may be carried over only to the next year. For example, emission permits issued in 2015 can be carried over only to 2016. Unused permits will automatically be nullified.

(ii) Borrowing

If emission credits are short, business operators can borrow some initial emission allocations within a target period. However, it is banned from borrowing any emission allocations in the next target period. The borrowing limit is 10% of emissions.

(iii) Early reduction

The early reduction program provides business operators with additional emission allocations in appreciation of their emission reduction measures implemented before the introduction of the ETS. This program is designed to prevent business operators' earlier emission reduction initiatives from working to their disadvantage when initial emission allocations are made based on past emissions. The Korean ETS appreciates the early emission reduction initiatives. Emission cuts through the early reduction initiatives in the first target period are limited to 2.5% of allowable emissions. If an applied amount for additional allocations exceeds the early reduction reserves, a certain percentage of the applied amount may be admitted.

(iv) Offset credit

Business operators are allowed to use credits gained through domestic or foreign emission reduction projects meeting the Clean Development Mechanism or any other international standards for up to 10% of their respective emissions. Overseas offset credits, which are limited to 50% of the above limit, will be admitted from 2020.

(4) Market stabilization measures

The Korean ETS provides a reference price for stabilizing an emission trading market in response to rapid hikes or drops in emission permit prices. Market stabilization measures will be implemented when the three-month average price for emission permits tops 10,000 won. These measures are broadly divided into two types -- adjustment of emission permit supply to the market and intervention in prices. Market supply adjustment measures include additional allocations from reserves (government-held emission permits set aside for future new equipment), the expansion or reduction of the borrowing and offset credit limits, and the establishment of a limit on emission permit holdings. In intervention in prices on the emission trading market, the government may set an upper or lower temporary limit on prices.

(5) Penalty

The Korean ETS requires business operators to submit emission permits corresponding to annual emissions by a certain deadline. Those failing to secure a permit requirement will be subjected to a fine of up to 100,000 won per ton of excess emissions.

3. Background for the dispute over initial emission allocations

Allowable emissions for each sector under the Korean ETS are linked closely to a national emission reduction target. The Act on Allocation and Trading of Greenhouse Gas Emissions Allowances (hereinafter referred to as the Emission Trading Act), enacted in 2012 to provide for a basic framework for trading in GHG emissions, calls for preparing a basic plan every five years and an emission allocation plan at least six months before each five-year target period starts. In this respect, the government announced the National Greenhouse Gas Emissions Reduction Roadmap (hereinafter referred to as Emissions Reduction Roadmap) in January 2014. In September 2014, it published the National Emission Allocation Plan (hereinafter referred to as Allocation Plan) that reflected sector-by-sector emission reduction targets in the Emissions Reduction Roadmap and specified sector-by-sector allocations. According to the

Allocation Plan, emission allowances for the first target period (2015-2017) total 1,687 million KAU (Korean allowance units), of which 94.7% (about 1,598 million KAU) are allocated in advance, with the remaining 5.3% (about 89 million KAU) held by the government as reserves for allocations during the target period. The reserves may be used for additional allocations for unexpected new equipment, the early reduction and the market stabilization measures[1)].

However, industry raised great opposition to the Allocation Plan. Industry complained that allocations under the plan were limited to 1,598 million tons, about 20.9% (about 423 million tons) less than an estimated 2,021 million tons in emission permits required for the first target period. It also asserted that allocations for each sector fell short of a requirement, making it difficult for business operators to buy permits from those in other sectors. The plan would force business operators to pay fines that could total more than 12.7 trillion won (about 1.397 trillion yen, with 944 won exchanged into 100 yen), industry noted (Note 1). Industry then asked the government to (1) review BAU national GHG emissions, (2) raise the reference price (10,000 won) for market stabilization measures, (3) specify how to provide additional emission permits in view of an emission permit shortage under the original reserves for market stabilization and (4) reconsider the emission reduction target[2)].

Of the 525 companies subject to the Korean ETS, 243 firms or about 46% filed complaints against the initial allocations. The Korean Ministry of Environment accepted complaints from about 40 of the 243 complaining firms and provided them with about 6.7 million tons in additional allocations from the government-held reserves[3)].

4. Factors behind deviation between BAU forecasts and results

In the dispute from 2014 to 2015 over the Allocation Plan, the government and industry differed over BAU forecasts for GHG emissions in 2020. BAU emission forecasts for 2020 were first made when a medium-term national emission reduction target for 2020 was drafted in 2009. The forecasts were reconsidered in 2011 and 2013. Since the 2011 reconsideration was conducted to set emission reduction targets by sector or industrial category, however, the government decided not to change the 2009 BAU forecasts for 2020 in principle. In the 2011 reconsideration, therefore, sector-by-sector 2009 BAU forecasts were changed with the total forecasts remaining unchanged. As the Emission Trading Act was enacted in 2012, a working group covering relevant government agencies reconsidered the BAU emission forecasts in 2013. Eventually, however, the government decided to maintain the 2009 BAU forecasts. A major reason for the decision was that reconsideration results indicated no major deviation from the 2009 BAU forecasts. Another reason was that any change in the forecasts that had been published to the rest of the world could affect international confidence in Korea.

Figure 1 indicates actual GHG emissions and 2011 BAU forecasts between 2005 and 2013 and the Allocation Plan through 2020. It shows that actual emissions rapidly increased from 2009 and far exceeded BAU forecasts.

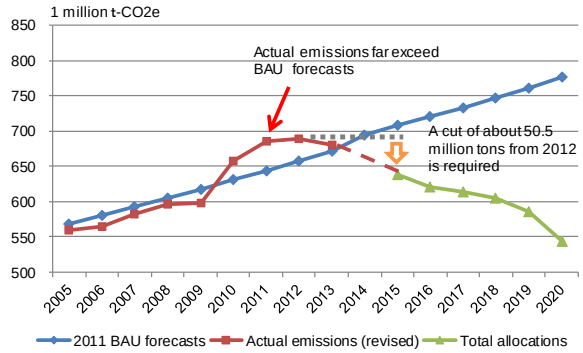

Figure 1 BAU emission forecasts through 2020 and their deviations from actual results

Note: Emissions have been revised to comply with new emission standards.

Sources: National Emission Allocation Plan, documents for a joint meeting of relevant government agencies and industry on the GHG emission plan, etc.

The rapid emission increase from 2009 is attributable mainly to a fast rise in energy consumption. Figure 2 indicates the trend of total energy consumption. Energy consumption growth in 2010 and 2011 topped economic growth. In 2012 and 2013, energy consumption growth fell to less than 1% due to an economic slump and a slowdown in industrial energy consumption growth. In these years, GHG

emissions leveled off. In Korea, the industry sector accounts for more than 60% of final energy consumption. Since 2008, energy-intensive petrochemical, steel and oil refining industries have greatly expanded capacity and output. According to KIM (2014) that analyzed factors behind total energy consumption growth between 2008 and 2011, coal for power generation accounted for 30.4% of total energy consumption growth, liquefied natural gas for power generation for 17.2%, coking coal for 16% and naphtha for 15.6%. Major factors behind the total energy consumption growth thus included increases in energy use for industrial materials and electricity consumption[4].

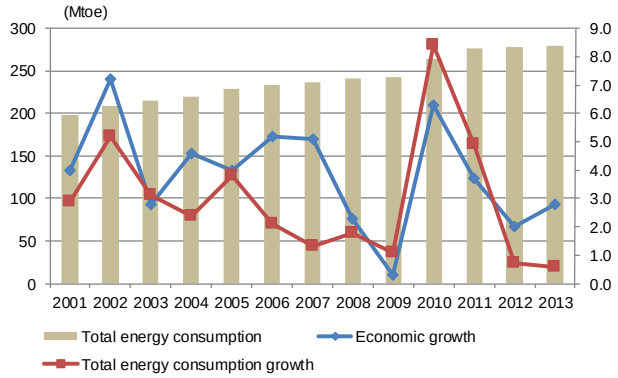

Figure 2 Total energy consumption trend

Source: Medium-term Energy Demand Outlook, KEEI

As emissions rapidly increased due to equipment investment expansion by these energy-intensive industries, initial emission allocations became far less than indicated by actual emissions. Given 637.8 million tons in total allocations for 2015 under the Korean ETS against 688.3 million tons in actual emissions in 2012, about 50.5 million tons in emission cuts are required for the first year of the Korean ETS.

5. Future issues

The government-industry dispute and confusion over the initial emission allocations represent one of the important problems. The question for Korea is whether relevant institutions could flexibly cope with emission growth attributable to production growth.

The Emission Trading Act, which provides for the basic framework of the Korean ETS, has a clause allowing the Allocation Plan including BAU forecasts to be revised as necessary (Article 4). In fact, the government reconsidered the 2020BAU forecasts in 2011 and 2013. As the first reconsideration was conducted on the precondition of no change in the BAU forecasts made in 2009, no revision was made to the forecasts. While the 2013 reconsideration came in response to rapid emission growth from 2010, the government refrained from revising the BAU forecasts for the reason of maintaining international confidence. The government then proposed the reference emission permit price of 10,000 won to prevent emission permit prices from rising sharply and ease the burden on business operators.

Since this is a structural problem of total volume control, ETS schemes generally include flexibility measures to respond to emission permit demand increases or decreases attributable to short-term or temporary external changes. The Korean ETS covers various flexibility measures such as borrowing, carryover and offset emission credits. In Korea, however, these flexibility measures are operated in a very strict manner. For example, emission permits issued in a year can be carried over only to the next year. Permit borrowings from the next target period are banned. Overseas offset credits will be made available from 2020. Given that existing domestic offset credits are not admitted, business operators may have to explore new projects, taking much time to create offset credits [Note 2)].

In the initial phase for designing the Korean ETS, according to policy makers, they had feared that excessive emission permit supply could lead to weak emission permit prices that could discourage business operators from investing in low carbon technologies. Contributing to the fear might have been lessons from the European Union Emission Trading Scheme. In the EUETS case, initial emission allocations became excessive due to a recession and other factors, resulting in a decline in incentives for low carbon investment through weak emission permit prices. In response, the EU came up with various measures including restrictions on the use of overseas offset credits and the postponement of some emission permit auctions between 2014 and 2016 until 2019 or after 2019. In consideration of the EUETS experience, Korean ETS planners might have given priority to preventing any excessive emission permit supply in designing the

scheme.

This paper analyzed the background and factors behind the dispute over initial emission allocations around the launch of the Korean ETS. Experts are divided over whether many business operators would fail to purchase emission permits and pay massive fines as asserted by industry. This is because business operators have room to use borrowings and other measures to avoid fines within the target period. However, the emission allocation based on the BAU forecast might have to be improved. In one possible direction, discussions on a shift from the BAU-based allocation to the absolute standard-based one may accelerate. The government may also be urged to switch from the historic emissions-based allocation to a benchmark-based one. It may be asked to adapt the operation of the ETS to realities instead of giving priority to preventing excessive emission permit supply at present.

Meanwhile, the problem of how or whether to set a BAU-based target may become a challenge for Japanese industry's voluntary low carbon society action plans. As some business organizations have set BAU-based targets in their low carbon society action plans, they may be urged to clarify whether to reconsider BAU forecasts or emission reduction targets in response to changes in various preconditions.

Notes

Note 1: A fine is three times as high as a market price or up to 100,000 won. The projected fines are based on an presumption that business operators would pay a fine of 30,000 won per ton, three times as high as the market price assumed at 10,000 won.

Note 2: The Korean ETS scheme requires domestic offset projects to use a methodology approved by the Emission Certification Committee. This means that projects registered for the past system for voluntary GHG emission reduction projects will have to newly be certified as offset projects under the ETS scheme.

Reference

1) Korean Ministry of Environment, 국가 온실가스 감축목표 달성을 위한 로드맵 (National Greenhouse Gas Emissions Reduction Roadmap), given at a joint meeting of relevant government agencies (January 2014)

2) Federation of Korean Industries, Joint Comment on Allocations (2014) http://m.fki.or.kr/bbs/bbs_view.asp. (Accessed on Nov. 1, 2015)

3) Korean Ministry of Environment, 온실가스 배출권 670 만 KAU 예비분에서 추가적 할당 (Additional allocations totaling 6.7 million KAU from reserves) (February 2015) http://www.me.go.kr/home/web/board/read.do?menuId=286&boardMasterId=1&boardCategoryId=39&boardId=484700 (Accessed on Nov. 1, 2015)

4) Korea Energy Economics Institute; 김태헌；에너지 다소비 산업구조 심화요인 분석 및 경제 파급 효과 분석 (Analysis on factors behind deepening structure of energy-intensive industries and on economic spillover effects) (2014)