

Republic of Korea

National Green Growth Strategy of South Korea

Activity	Implementation of a Green Growth Strategy and Emission Trading Scheme
Country	Republic of Korea
Sector(s) involved	All
Time frame	2009–2050

Case summary

In 2008 Korea announced ‘Low Carbon, Green Growth’ as its vision for mid-to long-term development (2009–2050) together with a voluntary target of 30% reduction of GHG emissions from the business as usual scenario by 2020. To implement this vision, it launched a National Green Growth Strategy in 2009 along with the countries’ Five Year Plan (FYP) for 2009–2013. One of the key instruments identified to achieve the countries’ new vision was the establishment of a national Emission Trading Scheme (ETS), scheduled to start from January 2015.

The development of the ETS along with the implementation of the Strategy has so far had notable impacts not just on industry but the wider public too. It has led to substantial investments on green technologies and changes in public attitudes to the issue of climate change.

There are a variety of stakeholders involved in the ETS, including several ministries and private sector actors. Although it is too early to fully evaluate the success of the strategy and emerging ETS, consistent political commitment from the Presidency (even through a change of leadership) together with ongoing coordinated efforts among all stakeholders, provide strong indications of its success.



Petrochemical Industrial Park, Ulsan Metropolitan City

© <http://blog.naver.com/jsj630126?Redirect=Log&logNo=80164721616>

Republic of Korea

National Green Growth Strategy of South Korea

Background

Rapid economic progress and urbanization between 1990 and 2005 has made Korea the OECD country with the fastest growing greenhouse-gas (GHG) emissions (Bloomberg New Energy Finance, 2013) and the world's seventh largest GHG emitter in 2010 (IEA, 2012). In that year, approximately 85% of total emissions came from fossil-based energy sources and 97% of total energy needed came from imports, making the country's economy extremely sensitive to energy price fluctuations (MOSF, 2014). Such intense use of fossil energy also exerted negative impact on the environment as well as people's quality of life. Given this situation, the government of Korea resolved to take the necessary actions to guide the country onto a path of "low-carbon and energy-efficient" development.

On 15th of August 2008, during a national address on the 60th anniversary of the founding of the Republic of Korea, the country's new President Lee Myung-Bak declared the "Low Carbon, Green Growth" strategy as a new national vision for the nation's development over the next 60 years. The vision has three specific objectives: (1) developing a fossil-fuel independent and low carbon society; (2) utilizing green industries as a new engine of growth; and (3) establishing Korea as an international model for green growth. To achieve these objectives, the strategy encompasses policy guidelines as well as specific action plans for various entities. It is an integrated plan carved out through a collaborative process involving numerous governmental organizations, industry, academia and civil society. The strategy is a combination of mid to long term planning over a period between 2009 to 2050, punctuated by five year plans for green growth, the first of which was developed for the periods between 2009 and 2013. This FYP manifests the political commitment and presents a blueprint for government actions, containing specific budget earmarks and detailed tasks assigned to line ministries and local governing entities. The Five Year Plan specified the implementation of the Emission Trading Scheme (ETS) as one of the action plans to achieve the new growth engine objective. Announcing the national emission reduction target of 30% below BAU in December 2009, the Framework Act on Low Carbon Green Growth was passed and became enforceable in April 2010.

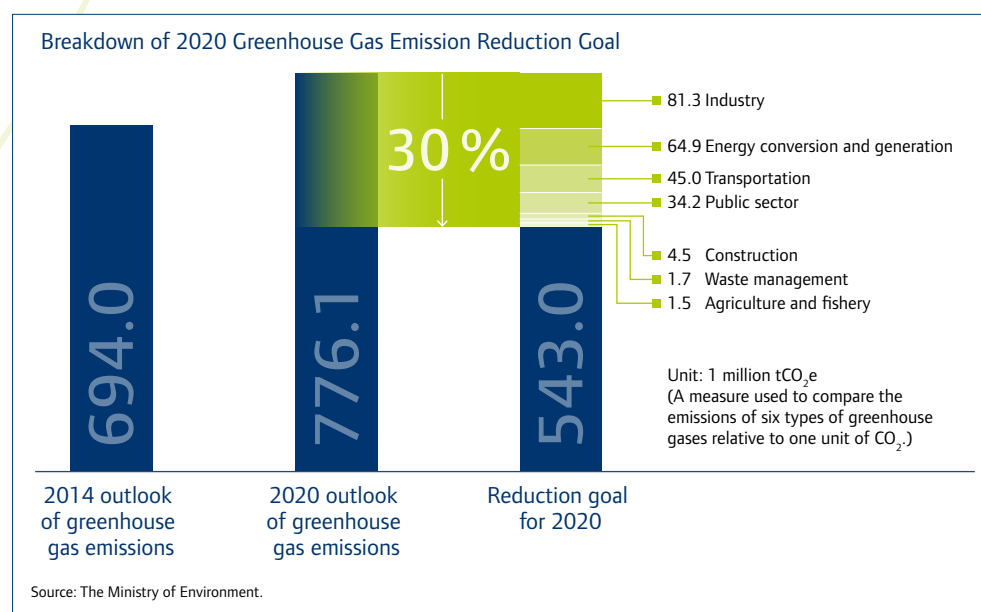
Activities

- » **Presidential Committee established:** In order to facilitate the realisation of the "Green-Growth" vision, the Presidential Committee on Green Growth was established in February 2009.
- » **Implementation of the Target Management System (TMS):** As a precursor to the ETS, the TMS was introduced in 2011. The benchmark for determining large emitters was 20,000 tCO₂-eq per year in 2012 and was reduced to 15,000 tCO₂-eq per year from Jan. 2014. Companies with multiple installations must also participate if their total emission exceeds 87.5 tCO₂-eq per year in 2012, which was also brought down to 50 tCO₂-eq per year from Jan. 2014. As of June 2013, the TMS emission caps were set for 642 large emitters and individual targets were set on the basis of an average of the previous three years' emissions.
- » **Establishing the ETS legal framework:** The formal process of setting up the ETS Act began with the Presidential Commission on Green Growth (PCGG) proposing the draft law in 2010. A revised draft was then submitted to the National Assembly in April 2011. The Special Committee on Climate gave its approval in February 2012 followed by an approval from the Legislation and Judiciary Committee of National Assembly in May 2012.
- » **Developing a Master Plan:** To implement the ETS from January 2015 as scheduled, the ETS Master Plan was published in January 2014 by the Ministry of Strategy and Finance (MOSF). The Master Plan, a legal basis for the operation of ETS market, is a 10-year plan (2015–2024), which will be updated every five years.

Republic of Korea

National Green Growth Strategy of South Korea

- » **Developing a National Allocation Plan:** Currently under development by the Task Force in the Ministry of Environment (MOE) the plan is scheduled to be announced in June 2014. According to the Master Plan, the ETS will be implemented in a phased manner. The first two phases will be 3 years each followed by phases of 5 year duration. For the first phase (2015–2017), 100% of the emission permits will be freely allocated. For the second phase (2018–2020) up to 97% allocations will be free. The first two phases are considered as “rehearsal phases” and will focus on the allocation adjustments, refinement of MRV framework and infrastructure as well as legal and institutional rearrangements. For the third phase (2021–2025) up to 90% may be free i.e. at least 3% and 10% allowances will be auctioned during second and third phases. Based on the experiences from the preceding two phases, the percentage of free allocation for the third phase will be determined. Companies in energy-intensive and trade-exposed (EITE) sectors will get 100% free. An EITE sector is one that experiences (1) production cost increases over 5% and trade intensity increases over 10%; (2) production cost increases over 30%, or (3) trade intensity increases over 30%. Though several governmental departments are involved in the ETS implementation and design, MOE is responsible for the operation of the ETS, including the allocation plan and MRV.
- » **Developing an MRV framework:** For the initial stage, the MRV framework for ETS will be based on the TMS experience. Once the entities are allocated emission permits, the performance will be MRVed through 3rd Party verification by the GHG Inventory & Research Center of Korea, Allowance Steering Committee and Emission Certification Committee. Further, to facilitate MRV entities are required to set up annual emissions inventories. To facilitate trading in a transparent manner a registry for accounting of tradable permits is being set-up along with a trading platform by MOE.



Republic of Korea

National Green Growth Strategy of South Korea

- » **Deciding who participates:** Participation in the ETS is determined on a benchmark basis (mandatory) and on an opt-in basis (voluntary). Individual installations emitting more than 25,000 tCO₂-eq per year and entities emitting more than 125,000 tCO₂-eq per are required by the law to participate in the ETS. Like TMS, individual targets will be set on the basis of average of last 3 years emissions. Entities participating in the ETS will be excluded from the TMS. Early emission reductions prior to ETS implementation are encouraged in the form of additional allowance up to 3% of total emissions during phase I only. A part of reductions from non-compliance installation can be used by each installation to enhance the efficacy of the ETS, linkages with international carbon market(s) through international agreements will be introduced step-by-step from the 3rd phase.
- » **Designing penalties:** In case of failure to stay within the target, a penalty is imposed which can go up to 3 times the average price per tCO₂-eq with a ceiling of KRW 100 thousand per tCO₂-eq.
- » **Developing incentives and safeguards:** In line with the National Green Growth Strategies's focus on development and promotion of green technologies financial incentives, including tax credits are being designed for deploying green technologies in order to meet the emission caps. Further, to protect businesses vulnerable to competitive advantage support schemes are being planned. The government may also increase the supply of allowances if prices rise too high through early auction(s) for up to 25% of reserve permits in order to contain prices. An allowance reserve has been provided for to contain prices as well as to distribute to new entrants. Further, the Ministry of Environment also considers giving financial support for the vulnerable sectors.

Institutions involved The Presidential Committee on Green Growth (PCGG); The Ministry of Environment (MOE); The Ministry of Trade, Industry and Energy (MOTIE); The Ministry of Strategy and Finance (MOSF); Legislation & Judiciary Committee of National Assembly; GHG Inventory & Research Center of Korea (GIR); Korea Environment Institute (KEI); Local level authorities; Global Green Growth Institute (GGGI); Korea Energy Management Corporation (KEMPCO); Korea Environment Corporation (KECO); Korea Forest Promotion Institute (KOFPI); Korea Transportation Safety Authority (TS); Korea Chamber of Commerce & Industry (KCCI); Korea Exchange Inc. (Designated for emission permits trading exchange);

Cooperation with EU-ETS; Australian ETS; International Emission Trading Association (IETA)

Finance Financial resources to develop the Green Growth Strategy and the Emission Trading Scheme have come mostly from the government sources. The government has relied on using public expenditure to mobilise private finance. For example, initial feed in tariff for renewable energy was used to build private sector capacity and later on it gave way to production obligations. Currently, to promote industrial energy efficiency measures government has provided for USD 2 billion as public support. The 2009–2013 Plan has also provided a public credit guarantee to green technology and green industry sectors with a target of raising total support from USD 2 billion in 2009 to USD 5.6 billion in 2013. Overall South Korea spends about 2% of GDP annually on green growth measures.

Korea is also establishing a Low Carbon Green Fund. This fund's purpose is to support R&D of renewable energy, establishment and operation of emission exchange, and emissions reduction facilities. Profits from allowance auctions, emissions exchanges, trading commission, and fund management will be combined to raise this fund.

Republic of Korea

National Green Growth Strategy of South Korea

Impact of activities

- » **Changes in perceptions and attitudes:** The general public's views on the climate change issue have shifted from indifferent to sensitive. This is mostly attributed to the government and NGOs ongoing efforts.
- » **Government and private sector increasingly recognize the importance of GHG reduction technologies:** Government R&D investment in green technologies increased by 40% between 2009 and 2012. Year 2012 alone recorded investment of more than USD 2.6 billion, 75% of which was invested on twenty-seven core green technologies. Total private sector investment in such technologies increased by 75% during 2008–2010. Overall, since the announcement of the green growth strategy more than USD 33 billion of private sector investment has been made in new technology sectors from 2008–2013.
- » **Local authority action:** The green image of cities and urban communities becomes a crucial determining factor of their competitiveness and attractiveness. A number of local level authorities initiated GHG reduction actions in various sectors, such as green buildings, green transport, eco-city planning, etc. These have been undertaken through coordinated efforts with national government and the private sector.
- » **Creating jobs:** According to the Five Year Plan, it was estimated between 1.56 to 1.81 million jobs would be created from the implementation of green growth strategy. The Master Plan estimates that the TMS and ETS will create up to 9,600 jobs.

Why is it good practice

- » Korea is the first Asian country to pass national laws to transform overall legal and policy architecture towards low-emission development as well as instituting an economy-wide ETS with legal force. By declaring 'Low Carbon, Green Growth' as a national vision, Korea has shown strong **commitment and leadership at the highest political level**.
- » The centralized conception of the strategy by the Presidential Committee on Green Growth and later on its dissolution with work distributed to different ministries and departments is an innovative approach to ensure **coordination across different key ministries**. This is further reflected in the distribution of responsibilities among key ministries and stakeholders for implementation of the ETS.
- » After passing the ETS Act, MOSF developed the Master Plan, and MOE is currently developing the allocation plan. **This can be a good benchmarking model** for countries that intend to initiate a similar strategy or scheme.
- » Korea's effort has not been limited to its domestic concerns, campaigning to **promoting green growth as a global agenda through the international support and cooperation**. The Global Green Growth Institute (GGGI) was established to support the GG policies for developing countries. It also has strengthened cooperation with OECD via joint research and constant communications. Korea has also worked closely with experienced EU and OECD countries over the ETS development process.
- » The revival of the spirit of the economic five year plans to the green growth strategy exemplifies **long-term vision combined with clear definition of short and medium-term policy goals and measures**. The same is also exhibited in the phased approach of emission permit allowances for the ETS. The fact that the 2009–2013 Plan is an outcome of a stakeholder consultation process and the ETS Task Force too has engaged with national industry, international administrators and experts on ETS offers a good example of how to bring together **peer to peer learning and concerns of various stakeholders**. The second Five Year Plan is being developed.

Republic of Korea

National Green Growth Strategy of South Korea

- » The main guide-post of the Korean strategy is its target of 30% GHG reduction from BAU by 2020, to which the government has shown strong political commitment. Accordingly, the phased approach of implementation and flexibility to government interventions in steering the ETS, along with an MRV system evolving from the preparatory scheme of TMS exhibits the **dynamic character** of the strategy, which allows for continuous improvement and adjustments in **analysis and transparency**.

Success factors

- » **Strong political commitment and leadership:** From the President and strengthened through legislative and institutional changes.
- » **Emphasis on infrastructure and capacities:** With strong signals through public expenditure.
- » **Legal backing and suitable policy and regulatory environment:** Through for example, the establishment of the ETS Act.
- » **Integrated with national development priorities:** Particularly energy security and early leadership in green technologies and green industry sectors.
- » **Implementing an ambitious pilot phase (the TMS):** Enabled important learning and awareness raising among key stakeholders.
- » **Ongoing public-private collaboration:** Continuous national coordination and consultation with industry, administrators and experts.

Overcoming barriers/ challenges

What were the main barriers/challenges to delivery?
How were these barriers/challenges overcome?

Capacity

It has been pointed out that due to already high energy efficiency levels; the scope of emission reduction is low. Further, the supply of domestic offsets is also low.

This has been addressed primarily through industry bodies. Nevertheless, government kept the original reduction target and implementing the ETS as scheduled. Currently, a domestic Forestry offset scheme is being created. From the 3rd phase, international offsets can be used for up to 50%.

There has been concern about a lack of expertise and manpower who can control and operate the ETS even with the TMS experience.

The Master Plan includes a detailed plan for skilled experts and manpower training: finance, trading, insurance, certification, administration, regulation, consulting, and so on. The estimated manpower to be created by 2030 is 9,600 skilled professionals.

Financial

The ETS still has many uncertainties with financial implications. For example, estimate of exact cost of abatement is not clear. It is not clear how much the support for negatively affected sectors would cost, and how it would be met.

The 1st and 2nd phases of the ETS are considered as "rehearsal phases". More specific plan will be devised for the 3rd phase. Also in addition to present supporting instruments to the compliance entities, other supporting instruments will be devised, such as for vulnerable sectors (household, small and medium enterprises, energy-price sensitive entities), high-efficiency energy facilities, etc.

Information

The BAU projections are subject to revision, which have direct implications on the emission caps under the ETS. Finding a suitable definition of BAU along with clear methodology is a critical barrier.

While the design of scheme offers avenues to revise the plan and hence targets, as of now Korea has shown a political commitment to stick to its original target and attempting to meet them with concrete public financial support and encouraging increased private sector investment.

Republic of Korea

National Green Growth Strategy of South Korea

Institutional

Coordination among different plans and policies devised by different ministries is a major concern at this stage for the Nation Green Growth Strategy and the ETS. For example, the 6th Basic Plan for the Power Sector also has parallel targets.

The Framework Low Carbon Green Growth (LCGG) Act provides, and gives guidance, for adjusting other policies and measures to be aligned with the Act. PCGG and MOSF will play a major role in resolving this issue.

Korea's industrial sector has voiced reservations about implementation of the ETS. In June 2013, the Korea Chamber of Commerce & Industry (KCCI) asked the government to delay introducing the ETS.

The process is driven by stakeholder interests along with national commitments. After consultations, the initial plan of 95% free allocations of emission permits during first phase was revised to 100% free allocations. Continued consultation and dialogue are expected to deliver implementable decisions. Since first two phases are being treated as rehearsal phases, this helped ensuring private sector acceptance for the scheme, where free allocations will be gradually removed.¹

Lessons learned

- » **Articulate long-term objectives:** by providing a clear upfront statement of long-term objectives with a strong political commitment. The government provided a framework and context which helped when making difficult and coherent decisions across policy areas. In that process, government have to play an important role not only through introducing comprehensive policy and regulatory framework, but also through a simultaneous creation of enabling institutional infrastructure and public finance provisions.
- » **Active stakeholder engagement helps balance priorities:** it is important to find the linkages between international pressures and domestic strategic requirements to turn the transformational needs into economic overhaul opportunities, in that continuous and active stakeholder engagement is extremely important. In this process, understanding of and balancing between the measures to promote transformation and measures to protect from the negative impacts during transformation holds the key.

How to replicate this practice

- » **Strong political leadership and public support:** developed through effective stakeholder consultations during short to mid-term phases of the economy wide initiatives. The more overlap with existing strategic priorities of the country, the more it becomes easier to mobilise political commitment.
- » **Legal mandate:** A strong legal backing helps in streamlining new innovations into the national development process.
- » **Learning through piloting:** The most important and useful aspect of designing the ETS system has been the experiment with the TMS without allowing trading to take place, before implementing a full-fledged ETS scheme. This organic learning has been critical in building confidence, capacity and dialogue between the regulator and the implementer.

Contact for enquiries

Lee, Hyungsup, Deputy Director, ETS Task Force, Ministry of Environment, Republic of Korea, lee.hyungsup@gmail.com

Further key resources

- » Korea Environment Policy Bulletin (2013), Greenhouse Gas Energy Target Management Scheme, available at: http://eng.me.go.kr/eng/web/document_archive/boardProxy.do?pagerOffset=0&maxPageItems=10&maxIndexPages=10&searchKey=&searchValue=&menuId=58&orgCd=&condition.hideCate=Y&boardId=74&boardMasterId=535&boardCategoryId=1&decorator=
- » IETA (undated), Industry to Industry Dialogue on Emissions Trading and Market Readiness, B-PMR Mission Korea, IETA, available at:
- » www.ieta.org/assets/BPMR/SouthKorea/korea%20bpmr_summary_en.pdf

¹ Note: there remains some debate as to the effectiveness of free allocations, critics argue that it effectively rewards polluters, while advocates argue that it engages polluters in new market mechanisms for reducing emissions and consequently strengthens their longer term impact

Republic of Korea

National Green Growth Strategy of South Korea

Website(s)	<ul style="list-style-type: none"> » PCGG: www.greengrowth.go.kr » GIR: www.gir.go.kr » GGGI: www.gggi.org/ » Ministry of Strategy and Finance (MOSF): www.mosf.go.kr » Ministry of Environment (MOE): www.moe.go.kr
Case study author(s)	<p>Manish Kumar Shrivastava (TERI), Yong Eun Shin (Dong-Eui University) and Jules Chuang (South Pole Carbon)</p> <p>Edited by: Nicholas Harrison (Ecofys)</p> <p>Editorial support: Frauke Röser, Thomas Day, Daniel Lafond, Niklas Höhne and Katja Eisbrenner (Ecofys).</p> <p>Coordination by: Ecofys www.ecofys.com and The Energy and Resources Institute (TERI)</p>
Case study contributor(s)	<ul style="list-style-type: none"> » Dr. Noh, Dong-Woon, Director, Climate Change Research Division, Korea Energy Economics Institute, Uiwang-si, Gyeonggi-do, Korea » Kim, Joo-Jin, Attorney, Environment, Energy, Mergers & Acquisitions, Kim & Chang, Seoul, Korea » Choi, Soomi, Deputy Director, Environmental Policy Division, Environment and Parks Bureau, Ulsan Metropolitan City, Korea
References	<ul style="list-style-type: none"> » PCGG (Presidential Commission on Green Growth) (2009), Road to Our Future: Green Growth-National Strategy and Five Year Plan (2009–2013), PCGG, Republic of Korea, available at: www.greengrowth.go.kr/wp-content/themes/newspro2891/images/files/down02.zip » Jones, R. S. and B. Yoo (2011), “Korea’s Green Growth Strategy: Mitigating Climate Change and Developing New Growth Engines”, OECD Economics Department Working Papers, No. 798, OECD Publishing, available at: http://dx.doi.org/10.1787/5kmbhk4gh1ns-en. » Bloomberg New Energy Finance (May 2013), South Korea’s Emissions Trading Scheme: White Paper, available at: www.bnef.com/InsightDownload/7608/pdf/ » IETA/EDF (2013), South Korea-The World’s Carbon Markets: A Case Study Guide to Emissions Trading, available at: www.ieta.org/assets/Reports/EmissionsTradingAroundTheWorld/edf_ieta_korea_case_study_september_2013.pdf » MOSF (Ministry of Strategy and Finance) (Jan. 2014), Master Plan for Emission Trading Scheme, MOSF, Republic of Korea, available at: www.kpia.or.kr/kpia_board/include/attach/uploads/download.php?code=68&list_no=15824&no=1



Empowered lives.
Resilient nations.



Australian Government

giz

On behalf of:



Federal Ministry
for the Environment, Nature Conservation,
Building and Nuclear Safety

of the Federal Republic of Germany