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ROK Green Growth: Looking Back on Three Years

In a major speech in August 2011, President Lee Myung-bak said, "Our vision of green growth is the first time in our history where a global issue is recognized as our own. It is also pivotal to our mission of becoming a greater Republic of Korea." The growing recognition of Korea as a global leader in green growth policies may in fact be one of the greatest achievements of President Lee's green growth strategy since he first announced it three years ago. Since then, Korea has acted quickly to establish new domestic and international institutions that lay the foundation for future work, but concrete success resulting from these efforts remains modest so far.

Two recent reports by the Presidential Committee on Green Growth (PCGG) that reflect on Korea's progress over the past three years tend to emphasize efforts more than results. For example, one report identified progress in promoting green lifestyles as a significant achievement, pointing to the ramp-up of two incentive programs designed to make it easier for consumers to make choices that result in fewer greenhouse gas emissions. The first is Korea's carbon-point system, through which participants earn points redeemable for awards by reducing energy use. Two million households were registered in the program as of July, about 11.4 percent of all Korean households. The second is the Green Card program, which rewards consumers with up to 200,000 won ($168) annually when they choose eco-friendly products or use public transportation. The report touted the existence of these programs as a success, but they have not yet produced the desired results. A second report acknowledges this fact. In that report, titled *The Past Three Years of Achievements in Green Growth*, the PCGG expressed disappointment with the public's track record in incorporating the tenets of green growth into their daily lifestyles, noting that household energy consumption increased 7.2 percent during the three-year period. (Energy consumption by industry was up 7.9 percent and overall consumption increased 6.7 percent, outpacing GDP growth, which registered at 6.1 percent in 2010.) The report also hinted at a need for more comprehensive polices, stating that "the Korean government evaluates that initiatives such as electricity price and taxation have not reached the point of encouraging people and businesses to voluntarily reduce greenhouse gas emissions and conserve energy."

The second report had praise for the private sector, noting that private investment in green growth businesses over the past three years translated into a higher level of sales and exports. From 2008 to 2010, green investment by Korea's thirty largest business groups soared 74.5 percent annually, amounting to 15.1 trillion won ($12.7 billion) during this period, according to the report. (The criteria by which investment was considered "green" is not spelled out in the report.) The Ministry of Knowledge Economy (MKE) released some figures that indicate these investments paid off: according to MKE, sales of "green industrial goods" amounted to 8.08 trillion won ($6.7 billion) in 2010, up 6.5-fold from 1.25 trillion won ($1 billion) in 2007. During the same period, exports in the green and renewable energy sector grew sevenfold from $625 million to $4.54 billion.

Green Diplomacy: Bearing Fruit

South Korea has proven its ability to keep itself at the forefront of the global green growth conversation, and this quarter was no exception. The Korean government's robust efforts to promote green growth around the globe resulted in new partnerships, new opportunities for Korea to host international conferences, and increased activity at the Global Green Growth Institute (GGGI).

South Korea's vaunted new alliance with Denmark has given rise to yet another multilateral forum, complete with its own shorthand: the Global Green Growth Forum, or 3GF, convened two hundred business and government leaders in October in Copenhagen to discuss how the public and private sectors can cooperate on green growth. The forum focused on energy and transportation, with plans to present recommendations at the World Climate Summit in December, held in conjunction with UN climate talks in South Africa.

In September, South Korean finance minister Bahk Jae-wan signed a memorandum of understanding (MOU) with World Bank president Robert B. Zoellick, launching a new partnership to support developing countries' research and investment in green growth. Under the MOU, South Korea will commit $40 million over four years to a new Korea Green Growth Partnership Trust Fund. Efforts to attract high-level environmental talks to South Korea paid off; the country beat out Mexico in a bid to host the fifth World Conservation Congress next year on Jeju Island. President Lee also continues to lobby his foreign counterparts for their support of his bid to hold next year's UN climate talks (COP-18) in Seoul. This topic was on his agenda on a state visit to Uzbekistan in August.

The GGGI made several forward strides this quarter. Under the terms of an MOU signed earlier between GGGI and the UAE Ministry of Foreign Affairs, the GGGI launched its office in Abu Dhabi's Masdar City. Intended as a "regional hub" to address climate change and promote green growth, the GGGI will also develop a system to monitor greenhouse gas emissions on a national level in the UAE. GGGI deputy executive director Jung Tae-yong will serve as the interim director of the Abu Dhabi office. In August, the GGGI released a detailed account of Korea's green growth ambitions in English, "Green Growth in Motion: Sharing Korea's Experience." In addition, the GGGI signed an MOU with Mexico's Ministry of Environment and Natural Resources to build a cooperative partnership on global green growth. Specific activities are yet to be determined.

Moving Forward on President Lee's "Me First" Policy

The Lee administration has already demonstrated that it will not wait for a successful outcome to UN-sponsored climate talks before taking action to reduce the country's greenhouse gas emissions, an approach that President Lee has coined as a "me first" policy. GGGI chairman Dr. Han Seung-soo said he sees little possibility that a successor treaty to the Kyoto Protocol will be reached at the next round of climate negotiations in December in South Africa. Dr. Han, the former UN envoy on climate change, said in a report by the *National*, a United Arab Emirates newspaper, that "developed countries want to have internationally legally binding pledges, whereas developing countries want domestically legally binding pledges. These are totally different approaches to the problem. At this juncture there is no agreement."

Dr. Han and others are embracing an alternative approach called Nationally Appropriate Mitigation Actions (NAMA). NAMA, an idea long championed by Korea, calls for developing countries to fashion their own emissions reduction targets and strategies. Korea has already set its voluntary target to reduce greenhouse gas emissions at 30 percent below the expected level in 2020. Legislation to create an emissions trading scheme (ETS)—an important strategy for cutting emissions—is pending in the National Assembly. The legislation's path to becoming law has been slowed by opposition from business groups, but Dr. Han expressed optimism that Korean industry will eventually get on board.

"When we announced that [the emissions reduction target], the industry reaction was not very positive," Dr. Han told the *National*. "The government began to persuade them that this is in the long run to the benefit of the industry, not to the government. In the long run the business community realizes that this is the way forward—not backward, forward."

While there is still industry opposition to an ETS in Korea, some firms are seeing opportunities. Samsung SDI is one of them, calculating that an ETS will fuel demand for solar power as companies seek to reduce carbon emissions by using renewable energy. The company is upping its investment in solar, planning to make 2.2 trillion won ($1.8 billion) worth of investment in its solar business by 2015, the same year the ETS is expected to take effect in Korea. Samsung SDI is looking outside Korea as well; one executive in the company's solar energy division told Reuters that his company expects the global solar cell market to be worth $70 billion by 2020, more than double the size of the market last year.

Other Developments in ROK Green Growth

Other developments in ROK green growth during the third quarter involved tidal power, incentives for electric vehicles, the designation of green university campuses, and the smart grid. There were also announcements from the private sector about plans for new investments in green growth. In addition, the ROK government continued its pursuit of overseas oil resources and access to mineral elements important in renewable energy technologies, illustrating a short-term focus on increasing energy self-sufficiency in a world that relies heavily on oil and a long-term focus on green growth.

In August, President Lee presided over the opening of the Shihwa Station, a tidal power plant that is set to become the world's largest when fully completed in December. It will supplant the Rance Tidal Power Station in France for the number one spot. The Shihwa Station, on the west coast near Seoul, can reportedly provide enough electricity to power a city of 500,000 residents. While the plant has been under construction for seven years, predating Lee's term in office and his green growth strategy, he claimed it as a victory for green growth. According to Yonhap, he said, "This is not only a symbol of 'low-carbon, green growth,' but also represents a landmark on the path the world should take." Lee said that the plant will save South Korea more than 860,000 barrels of oil and reduce CO_2 emissions by 320,000 tons. The plant is something of a test case. According to UPI Energy, Keyyong Hong, director of marine structure and plant research at the Korea Ocean Research and Development Institute, said, "depending on the results of Shihwa, we can justify further development of tidal power."

In a bid to boost the electric vehicle industry, the government announced that South Koreans who purchase electric cars will receive up to 6 million won ($5,000) in tax incentives starting early next year. In addition, the Korea Environment Corporation (KECO) announced plans to confirm agreements with thirty-eight local governments and state institutions to install 204 chargers for electric vehicles by the end of the year.

The Ministry of Environment and KECO selected ten Korean universities as "low carbon green campuses." The universities will incorporate green growth into their curricula and look for ways to reduce the emissions generated by their campuses.

Progress on the Jeju smart grid test bed offers a glimpse at how all Koreans might be able to save energy in the future. As of July, more than two thousand homes on Jeju Island were connected to the test grid. In a profile of the one of the first residents on Jeju to have his home fully wired to the test grid, the *International Herald Tribune* explained how Korea's test grid is intended to improve energy efficiency and save money. In addition, Doosan Heavy Industries and Construction, Korea Electric Power Company, and POSCO ICT have agreed to build a 60-megawatt wind farm off the coast of Jeju Island.

LG announced in September that it will invest 8 trillion won ($6.7 billion) in "green new business" sectors such as electric vehicle batteries and solar cell wafers. Korea's Hanwha Group announced plans to build a solar energy facility to power a tree nursery in northwestern China as part of a reforestation effort cosponsored by the UN Convention to Combat Desertification. Under the terms

of the MOU between Hanwha's two renewable energy arms and China's Ningxia Province, Hanwha will construct the facility free of charge, although the company is clear about its plans to strengthen its foothold in China. Hanwha Group China CEO Keum Choon-soo told Yonhap that his company "will become one of the top environment-friendly companies in China by strengthening our low-carbon green-growth business."

In other developments, the South Korea-EU Free Trade Agreement went into effect on July 1. Green growth businesses, such as energy efficient home appliances and LED lights, are expected to attract interest from European firms; according to *SERI Quarterly*, Korea's "markets for solar energy, wind power, and bio-energy are expected to grow three-fold in ten years."

On the U.S.-ROK cooperation front, the U.S.-based Institute of Electrical and Electronics Engineers Standards Association (IEEE-SA) closed a deal with the Korean Agency for Technology and Standards (KATS) to collaborate on global standards for smart grid, light-emitting diodes, and other technologies. Bill Ash, IEEE-SA's strategic program manager, said in an interview with the *Korea Herald*, "In order to be globally relevant, we need Korea's participation and the interaction between IEEE-SA and the Korean market."

During this quarter, President Lee sought mineral elements and new oil resources from Africa. While traveling in Africa, Lee agreed in principle to joint development of mineral resources like copper in the Democratic Republic of Congo. In Ethiopia, one of the first countries to receive assistance from the GGGI, he said he hopes that South Korean companies will be able to participate in energy infrastructure projects and mineral resources development. During the first meeting of the Korea-Gabon Joint Committee on Energy and Mineral Resources Cooperation in July, the focus was on Korea's plans to advise Gabon as it forms a state-owned oil company. The Ministry of Knowledge Economy announced that it is seeking a formal agreement to participate in developing rare earth elements at a mine in South Africa. According to Yonhap, under the agreement, Seoul would be entitled to about six thousand tons of rare earth elements, almost twice the amount South Korea needed last year.

United States: A Bad Day for Solar Power and New Priorities from the Department of Energy

A handful of high-profile bankruptcy filings cast a cloud over the U.S. solar industry this quarter as companies buckled under the pressure of rising costs and overseas competition that has driven down the price of solar panels. Solar panel maker Solyndra Inc., the first company to receive funds under a Department of Energy (DOE) loan-guarantee program, halted manufacturing operations, laid off 1,100 employees, and filed for Chapter 11 bankruptcy protection in September. According to an analysis by the *Pittsburgh Tribune Review*, Solyndra's bankruptcy filing listed several foreign firms as creditors; Korea's Advanced Nano Products is listed as being owed $1.35 million. The DOE loan guarantee program drew heavy criticism for what was seen as a hasty and potentially politically motivated approval of a $535 million loan guarantee to Solyndra, sparking new debate over whether the government should be in the business of picking renewable energy winners. Solyndra's implosion came on the heels of other solar industry bankruptcy filings. Evergreen Solar filed for bankruptcy in August after closing a plant in Massachusetts, and Intel spinoff SpectraWatt sought bankruptcy protection after closing a New York factory.

After several months of seeking input across the country, the Department of Energy released its first Quadrennial Technology Review (QTR) in late September. The QTR is intended to develop a framework for making choices about investing in energy technologies. The report states that "mere technical promise—that something could work—is an unjustifiably low bar for the commitment of DOE R&D funds. As every dollar matters, DOE's research portfolio will give priority to those technologies most likely to have significant impact on timescales commensurate with the urgency of national energy challenges." In recommending priority areas for DOE research, the report offers a basis for discussion of new ideas about potential U.S.-ROK cooperation on green growth. For example, among the report's findings was a lack of DOE investment in the transportation sector relative to the stationary sector (such as energy efficiency or the power grid). This, combined with the view that reliance on oil is the greatest threat to U.S. economic and national security and that vehicle efficiency has the largest near-term impact on oil consumption, led the report authors to conclude that "DOE should gradually increase its effort on vehicle efficiency and electrification relative to alternative fuels."

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