



## KOREA, PIONEERING THE FUTURE OF ENERGY

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### Korea's Industrial Structure and Energy Environment

Korea is the world's 9th-largest energy consumer, and its energy consumption continues to rise. With an economy dominated by energy intensive industries, such as steel and petrochemicals, and a manufacturing sector accounting for 29.5% of its gross domestic product, Korea inputs a tremendous amount of energy to produce each unit of added value. Meanwhile, Korea's lack of natural resources forces it to import 94.8% of its energy from overseas. Under such circumstances, previous energy policies tended to put top priority on stable and efficient supply.

### Call of the Era for New Energy Policy

Today we are witnessing growing calls for a new energy policy. With the Paris Agreement that took effect in 2016, a new climate regime was launched in which both advanced and developing countries participate. In a short time, this Agreement has shifted the global energy paradigm from stable supply and demand toward eco-friendly generation and efficient consumption. To support this paradigm shift, the Korean government has been developing an array of disruptive technologies while formulating new energy policies to accommodate the public's growing consciousness of environment and safety, heightened by the Fukushima nuclear accident, potential risks of earthquakes and recurring issues with fine dust.

### Korea's Efforts to Prepare for the Future of Energy

In line with these trends, Korea permanently shut down its first nuclear power plant in June and proclaimed the opening of an "era of safe and clean energy," aimed at making Korea a safer place to live. To usher in the new era, the government is taking all necessary steps, including technology innovation.

To begin with, Korea is developing technologies with a focus on clean energy to effectively respond to the new climate regime while laying a solid foundation, including energy storage systems (ESS), to accelerate the transition to future-oriented energy. In addition, the Korean government is undertaking demonstration research to verify the safety and performance of developed technologies in order to promote their commercialization. Offshore wind power generation is a case in point. In 2004, Korea began to localize an offshore wind power generation system and succeeded in constructing a 30MW offshore wind farm in Jeju Island in 2016. In the same year, the domestic installed capacity of wind power exceeded 1GW as wind farms gained momentum, including another offshore wind farm located off of Korea's southwest coast.

The Korean government is also sparing no efforts to take advantage of the energy transition to identify new growth engines for job creation and export expansion. By widely deploying smart grids based on distributed resources, energy management systems (EMS) and advanced metering infrastructure (AMI), Korea aims to create new businesses for efficient energy management and energy-related services. Its work on deploying ESS and AMI, which are the core technologies of smart grids, resulted in ESS capacity reaching 490MWh and AMI installed in 3.3 million households as of 2016. The government's goal is to have AMI installed in every household and store by the end of 2020. In addition to its efforts at home, the Korean government has been cooperating with developing countries on their capacity building and encouraging Korean companies to venture into overseas markets. For instance, Korea and the Asian Development Bank conducted a joint project in Cobrador Island in the Philippines to generate power from distributed resources using solar PV and ESS, and with its successful completion last year, the residents can now enjoy a stable supply of electricity.

Adding to these efforts, Korea is moving to gradually reduce nuclear and coal-fired power and increase renewables and LNG. The government is currently establishing measures to (a) minimize nuclear-related issues by scaling down nuclear power over a period of 60 years, (b) shut down aged coal-fired power plants, and (c) increase the ratio of renewables in total generation to 20% by 2030.

Even amid the paradigm shift to clean energy, oil ranks first in Korea's final energy consumption at 49.1%, indicating its importance to Korea's economy. As Northeast Asia has risen to become the world's biggest oil market, conditions for creating a new international oil trading hub are more than mature. Considering its geopolitical location, port conditions and outstanding refinery capacity, Korea is the optimal candidate for a new oil trading hub for the Northeast Asian market. This project is anticipated to construct large-scale commercial storage facilities, equivalent to a total of 32.3 million barrels, in the port cities of Yeosu and Ulsan and will deliver a variety of benefits, including the development of oil trade related businesses and enhancement of oil security.

### Path towards the Future

The path to the future of sound, safe and clean energy will undoubtedly be full of challenges, but it is indeed the call of our era and the road that must be taken. Korea sincerely hopes that this meeting will provide a venue for concrete discussions on policies to support the development of disruptive energy technologies that will ultimately usher in the next era of energy.