

ABSTRACT

Policy Initiative and Development Potential of the New and Renewable Energy in Chungnam Province

Ever since on Aug. 15, 2008, President Lee Myung-bak proclaimed "low carbon **green growth**" strategy as a new development initiative nationwide in Korea. Green growth has become a high priority and even further to a vision of a low carbon society, and it is committed as a part of "Green New Deal" policy.

Green growth has two substantial benefits. It could minimize CO₂ emissions and environmental damage and spur economic growth and create jobs. Low-carbon **green growth** can create opportunities for national development - increasing the quality of life, protecting the environment and contributing to international efforts to address climate change.

In this regard, **green growth** strategy in Chungnam Province has three pillars: creating new growth power, minimizing energy resources consumption and reducing CO₂ and other pollutant emissions.

In pursuing the development of new growth power, the essential policies will include R&D investment in green technologies, promotion of green industries to export green products such as renewable energies, and support of international green markets.

To minimize energy resource consumption without impeding steady growth, the industrial structure must be transformed into a more energy-efficient one. It must be led by the knowledge-based service industry, energy efficiency enhancement and a move towards more eco-friendly policies.

Finally, in order to minimize CO₂ and other pollutant emissions, the necessary policy measures include diffusion of renewable energies, development of clean energy, control of CO₂ emissions, development of eco-friendly infrastructure and promotion of green products purchase.

Chungnam Provincial GGSP(Green Growth Strategic Plan) seeks to reduce reliance on fossil fuel and enhance energy self-sufficiency. This includes measures targeted in particular at high-emission industries. Improvements in energy use is expected to enhance energy efficiency from 0.51 (CO₂ ton/million won) in 2008 to 0.39 in 2013 and to 0.19 in 2020 respectively. To make this possible, the GGSP sets measures for the development and dissemination of stringent standards on fuel efficiency, energy conservation, and the promotion of investment in new and renewable energy facilities within the provincial resources and potential capacities.

The development of renewable energy forms an important part of the GGSP. The plan is to increase the share of new and renewable energy in total energy supply from 0.18% (2008) to 1.0%(2015), and 2.0%(2020). A renewable energy portfolio standard(RPS) will be introduced in 2012, which will make it mandatory for utility companies to produce 3% of their electricity from renewable sources in the next three years, and increasing to 10% in 2020. Along with the RPS, there is a plan to establish a renewable energy certification (REC) system to enable the issuance and trade of certificates between the RPS obligators.

The promotion of waste-to-energy is also part of the GGSP. Energy generated from waste accounts for 85% of the renewable energy in Chungnam Province. The Chungnam Provincial government plans to expand this potential through a "waste and biomass energy development project", which relies on waste-to-energy, agricultural biomass, low-carbon green village construction, and forest biomass. A total of 45 environmental projects will be installed to generate energy out of waste by 2016.

In this context, basic policy on new and renewable energy has setup two-track strategy under the framework of the GGSP. There are two main reasons for this; Firstly, capacity building for an infrastructure in organization, budget, extension of human resources and institution as an aspect of upper strategy. Secondly, gearing up commitment to invent the schemes considering regional inherent characteristics and potential as of lower program.

Accordingly, we select 3 categories as a custom made measure as follows; RDF(Refuse Derived Fuel) from combustible solid waste, biogas from organic resources, and small hydropower generation in connection with the Geum River Restoration Project. Moreover it is addressed to reduce GHG potential and linking the longstanding problems.

The economic performance of a renewable energy recovery system, particularly in RDF and heat recovery from combustibles, must also be evaluated to choose between competing systems. RDF refers to solid waste that is processed to serve as a fuel for boilers used to produce steam or electricity. The applied way to compare alternatives is by the use of life cycle costing, which accounts for O&M costs over the life time of the system including environmental benefits as well. Subsequently, GHG mitigation potential which will be promoted until 2015 including RDF from combustibles, biogas from livestock manure and food waste leachate is estimated 268,770 ton per year and it is equivalent to 3.9 billion won of carbon emission rights as well.