

## Background

Seoul is the densely populated (five times the density of New York) and technologically advanced capital of South Korea. As Seoul has developed, the city's energy consumption has also increased sharply. By 2015, energy consumption in Seoul accounted more than 10% of South Korea's total consumption with future demands likely to reach the level of energy one nuclear power plant generates in a year (SMG, 2015b). This comparison is important because much of Seoul's energy came from outside of the city--i.e. its power self-sufficiency rate was less than 3% (SMG, 2015b). However, following the Fukushima disaster in Japan, there were growing public demands for safe and sustainable energy. To respond to these demands and avoid

an energy crisis, Seoul worked closely with civil society to formulate a comprehensive energy plan that would serve as the basis of the city's attempt to reduce energy use and generate more energy from renewable sources in Seoul. In 2012, the Seoul Metropolitan Governments announced its One Less Nuclear Power Plant project. The project had the ambitious goal of reducing two million tonne of oil equivalent (TOE) of energy by 2014, a target equal to the production capacity of one nuclear power plant. This case study introduces how this innovative project was developed and implemented, emphasising the role of public participation in helping to achieve environmental and social co-benefits.

## Energy Savings through Participatory Governance

In 2011, the newly elected Seoul Mayor introduced a series of administrative reforms that opened a two-way dialogue between city residents and the local government. These reforms injected new life into the city's approach to environmental policy (Lee et al., 2017). Prominent example of these innovative activities included the previously mentioned One Less Nuclear Power Plant. The goal of One Less Nuclear Power Plant was to be achieved through a number of smaller projects such as the development of energy self-sufficient villages, solar-photovoltaic (PV) power plants, cooperative-sharing power plants, car-sharing systems and other small-scale innovations that involved citizen's participation.

To support these projects, the Seoul Metropolitan Government created a project implementing team and amended relevant ordinances. The Seoul Metropolitan Government further encouraged investment from the private sector to establish the technology and production bases for solar photovoltaic (PV) generation as well as to promote voluntary participation in the installation of small-scale generators from individual households. The cooperation with the private sector and civil society led to the deployment of sustainable generators (i.e. small-scale PV) across apartment blocks that increased energy self-sufficiency in the city. As of 2015, PV facilities with a total capacity of 101MW were installed in 10,069 public

facilities, schools, homes and the rooftops of commercial buildings. Many local governments followed the work in Seoul with interest and similar practices became popular in other cities in South Korea over time (2015a).

There were many factors that contributed to the success of these projects, but one of the main reasons was the diverse groups of citizens who actively participated in the implementation of energy conservation programmes. This was evident in the numbers of people and the types of organizations that engaged in different elements of the larger project. Some examples of this engagement are listed below.

- An 1.7 million eco-mileage membership program saved 190,000 TOE
- A car-sharing service with 1,070 cars brought in 150,000 members
- An energy clinic programme offered green driving instruction to 10,000 citizens
- Energy Guardian Angel clubs were created in schools
- Good Stores served as leading energy-saving commercial spaces

Further, each of the above activities involved building networks and partnerships that grew in size and

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scale due to governance arrangements that promoted public participation. The environmental impacts of all of these activities were also noteworthy: the energy savings goal for One Less Nuclear Power Plant reached six months ahead of schedule; and the average power consumption of Seoul decreased by 1.4% in 2013 (in contrast to average increases of 1.76% across South Korea).

**Table 1: Achievement of 2 Million TOE Goal in the first half of 2014** (Unit: 10k TOE, as of June 2014)

	Total	Energy Production	Efficient Energy Use	Energy Conservation
Goal	200	41	111	48
Achievement	204	26	87	91

Source: SMG 2015a

Throughout this process, there were many other visible attempts to reach out and empower citizens. For example, the Seoul Metropolitan Government made a concerted effort to foster social enterprises and cooperatives based on the concept of the Comprehensive Support Plan for Social Economy. These efforts focused on, *inter alia*, strengthening the city's social enterprise policy (especially for less-privileged groups), encouraging public procurement, and expanding stakeholder networks. Further, public participation was not simply a one-off exercise but welcomed at many stages of the decision-making process

(Lee et al., 2017). Perhaps most importantly, the actual process to develop the Comprehensive Plan for One Less Nuclear Power Plant encouraged multiple rounds of active participation. To illustrate, the Comprehensive Plan for One Less Nuclear Power Plant was finalised by citizens in April 2012 after 16 three-way talks between the Seoul Metropolitan Government, an expert Advisory Group and civil society. Further, this process included a draft review process that was open to the public through several town hall meetings and an initiative known as the Policy Listening Forum.



**Figure 1: Mini PV System for Apartment block** Source: SMG 2015a



**Figure 2: Town Hall Meetings**



Source: SMG 2014 and 2015a



## The Way Forward

Thanks to the success of the One Less Nuclear Power Plant project, the project has begun a series of Phase 2 activities. These Phase 2 activities consist of a set of new tasks (such as supporting energy poor household through the Energy-Sharing Community) and the more ambitious goal to reduce 4 million TOE of energy (equivalent to production capacity of two nuclear power plants that can mitigate 10 million tons of greenhouse gas (GHG) emissions). These Phase 2 activities again will include several experts meetings and citizen discussions as well as the creation of a committee to ensure programme elements will be

environmentally sustainable and socially inclusive. One example of the efforts to make the project more sustainable and inclusive involves the greater emphasis on energy access as a basic citizen right. This recognition is important since energy poor homes did not receive sufficient support during Phase 1 activities and 10% of the households are energy poor due to their dependence on expensive energy (i.e. LPG and low efficient home appliances). This addition to One Less Nuclear Power Plant plans demonstrates that the mutually reinforcing relationship between environmental and social co-benefits.



Source: Seoul 2014

## Reference

- Lee SY, Zusman E, Lee S. 2017. Tracing Sustainability Transitions in Seoul Governance: Enabling and Scaling Grassroots Innovations. *Procedia Engineering* 198: 293-304.
- Seoul Metropolitan Government (SMG). 2013. One Less Nuclear Power Plant 2012. SMG.
- Seoul Metropolitan Government (SMG). 2014. We are Energy: The People are our energy. Boucher. SMG.
- Seoul Metropolitan Government (SMG). 2015a. One Less Nuclear Power Plant, Phase 2: Seoul Sustainable Energy Action Plan. SMG.
- Seoul Metropolitan Government (SMG). 2015b. Seoul's Exemplary Environment policies: Pleasant, Healthy and Sustainable City, Seoul. SMG.