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One Less Nuclear Power Plant (OLNPP)

Reframing Urban Energy Policy

Challenges and Opportunities in the City Seoul



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Conclusion

Seoul's Sustainable Energy Action Planning: Lesson for Cities

| John Byrne, Yun Sun-jin |



Seoul's Sustainable Energy Action Planning: Lesson for Cities

John Byrne and Yun Sun-Jin¹

Despite 21 years of negotiations, parties to the UN Framework Convention on Climate Change (UNFCCC) have not found a path to sustained carbon reduction. This fact (depicted in Figure 1.) led to rethinking in Paris of the policy architecture guiding global efforts. The lifeworld is in critical danger due to our inaction.

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[Figure 1] Per capita CO₂ emissions under UNFCCC negotiations



source: Boden & Marland (2016). Global CO2emissionsfromfossil-fuelburning, cementmanufacture, andgasflaring: 1751-2013. Carbon Ditoxide Information Analysis Center (CDIAC)

In the wake of the 21-year policy failure at the global level, a key decision was made in Paris to open policy thinking to include 'subnational' parties as possible drivers for change (Byrne and Lund, 2016; and Taminiau and Byrne, 2015). In their ambition and performance, cities are proving that sub-national actors can surpass their national counterparts in actions to lower greenhouse gas emissions (see Figures 2a. and 2b.). This includes Seoul, which has a more aggressive plan to cut its greenhouse emissions faster and deeper than the national government; and its performance to date outpaces that of the national government.

The Seoul Sustainable Energy Action Plan initiative² exemplifies

² Also known by its operational name, One Less Nuclear Power Plant (OLNPP).

the sort of sub-national leadership expected in the Paris Accords. The election of Mayor Park Won-soon to lead ICLEI — the world's largest consortium of local governments dedicated to environmental stewardship — confirms Seoul's rising international importance in climate-sensitive innovation. Its bold decarbonization policies deserve the international attention Seoul is now enjoying and (as we discuss below) the support of the city's citizens and businesses it has attracted.



[Figures 2a and 2b] Comparison of city and national plans and realizations to reduce CO₂ emissions.

Source: Byrne, J. (2017). "Climate Policy without the US Government, presentation at the Global Leaders Forum, Johns Hopkins University, April 25, 2017.

Preliminary analysis by the authors suggests that the City of Seoul in just a few short years (2013-15) has reduced citywide consumption of electricity and natural gas by 5.7% (see Figure 3). By any measure, this is a significant achievement.



Source: Byrne (2016) Conference proceedings of the Seoul International Energy Conference 2016, Seoul City Hall, Seoul, November 1, 2016. Based on research carried out by Dr. Yun Sun-Jin (Seoul National University), Dr. Job Taminiau (Foundation for Renewable Energy and Environment) and PhD candidates Jeongseok Seo and Jochee l ee

Seoul Metropolitan Government has established departmental responsibilities for the new thrust, set up an inter-departmental team to pursue integrated planning, and has launched the Seoul Energy Corporation — a government-owned entity to pursue clean energy opportunities in all end-use sectors with short- and long-term plans to build out the city's intended sustainable future. A three-year budget (2014-16) of nearly 2.2 trillion KRW³ (1.9 billion USD) has been dedicated to a suite of programs (SMG, 2014) that, by international standards, attract exceptionally high participation — over 1 million residents of the city have joined one or more programs (Byrne, 2016; and Lee et al, 2014). A recent survey found that 71% of citizens were familiar with OLNPP and 59% evaluated the city's efforts positively (SMG, 2014a).

To date, GHG emission reductions are roughly 8.2 million tons, or 0.2 tons lower per capita on average — in only 5 years of program implementation (OLNPP, 2017b). While much more is needed for Korea to climb down from its annual release of 11.8 tons of CO₂ per person (6th highest among OECD countries) to realize the equitable and sustainable per capita rate of 3.3 tons per person per year (OECD Data; Byrne et al, 1998).⁴

In addition to OLNPP's environmental impact, numerous economic benefits have been experienced by the city's citizens. Over 20,000 jobs have been created by OLNPP's programs, leading to a regional economic dividend of approximately 1.3 trillion KRW (1.1 billion USD – SMG, 2014b). It is little wonder that, to date, 11 cities in the c0ountry have sought SMG's assistance in setting up their own sustainable energy planning system (OLNPP, 2017c).

Notice should also be taken of the creative actions by Seoul Metropolitan Government (SMG) and its citizens and businesses.

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³ This includes private investment attracted by the OLNPP programs of approximately 1.0 trillion KRW (nearly 900 million USD) (see Byrne, 2016).

⁴ Seoul's per capita emission is approximately 4.58 tons in 2013 (SMG, 2016), the result of the fact that most industry is located beyond the city's jurisdiction. If the OLNPP emission effect is allocated to Seoul alone, this represents a decline to about 3.78 tons.

These include the creation of a Citizens' Energy Welfare Fund to ensure that the new energy-society relationship being built in the city is inclusive — sustainable energy for all (SE4ALL). The city's outreach to the business community through its unique ENURI program offers an interesting vehicle for cities to consider as they seek participation from this sector which can be critical to success in certain areas (SMG, Climate and Environment Division, 2017). And a very inventive effort has been made to learn directly from citizens and communities about the workings — good and not so good — of the OLNPP process. Vehicles like the Citizens' Congress, OLNPP Listening Workshops, and the establishment of the OLNPP Citizens Council — all are a testament to the vigorous engagement of Seoul's civil society underlying OLNPP.

There is a record of accomplishment and innovation to be found in the Seoul Sustainable Energy Action Plan process. The high level of transparency and community based governance has earned the initiative an enviable level of trust and attracted significant and ongoing participation among citizens and businesses.

Of course, challenges lie ahead. The City needs to find a way to more systematically invest in energy productivity of its built environment. Similarly, it needs to take advantage of Seoul's immense rooftop real estate (over 180 million m²— see Byrne et al, 2016) as the host for a transformative distributed solar power plant conservatively estimated to be able to satisfy 60% of the city's daylight electricity needs (Byrne, 2016). A vertical city surrounded by mountains on three sides must look within its boundary to find renewable energy opportunity. Finally we offer thoughts on how the City might operationalize the three principles driving its idea of urban energy democracy: independence, fairness, and participation.

[Figure 4] Lessons from and for Seoul



Source: Byrne, 2016. Conceptualization was a team effort of Dr. Yun Sun-Jin, Dr. Job Taminiau, and PhD candidates Jeongseok Seo and Joohee Lee.

The ambition of OLNPP is striking and the results to date are impressive. For exactly this reason, we think SMG just might be able to realize its distinctive philosophy of urban energy democracy. We hope our brief comments in Figure 4. prove modestly helpful as SMG tackles this very large task.

The target year of the second phase of the OLNPP is 2020. In order to achieve its goals, many challenges including supply-oriented national energy policy, institutional barriers against energy alternatives and a decentralized energy system, resistance from stakeholders supporting the existing conventional energy system, inactiveness of the central government, lack of financial support, and so on, need to be contested. However, there are opportunities which boost a more active approach to OLNPP. Those are energy transition experiments in many local governments in South Korea as well as international cities, increasing climate disasters and earthquake risk, increasing civic awareness and civil energy transition movements, global, national and local efforts to implement the Paris Agreement, the global shift to sustainable energy, and so on. If there are more concerned citizens and enterprises driven by continued successes of the OLNPP, the sustainable energy transition will gain momentum.



[Figure 5] Challenges to and Opportunities for Seoul's OLNPP

The success of the OLNPP cannot be confined to the boundary of Seoul, domestically and internationally. If Seoul succeeds, large cities will have a means to live in the greenhouse and humanity may have a chance to end climate risk. We wish the City all the best.

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