South Korea's Nuclear Energy Debate

South Korea’s experiment in deliberative democracy will impact President Moon Jae-in’s nuclear phase-out policy.

By Se Young Jang
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South Korean President Moon Jae-in announced on October 22 that he would resume the construction of two nuclear reactors which had been temporarily halted since mid-July, accepting a deliberative poll in favor of the resumption. On the surface, this decision might be seen as a direct blow to Moon’s nuclear phase-out policy; however, this deliberative democratic process will have a more complicated effect on South Korea’s long-term energy policy. The majority of the respondents ironically supported restarting construction on the two plants and scaling down nuclear power generation at the same time. Such an ironic but eclectic decision made by citizens will contribute to managing a sharp conflict between pro- and anti-nuclear groups while giving some degree of domestic legitimacy to Moon’s long-term energy roadmap for a gradual nuclear phase-out.

South Korea is the fifth-largest producer of nuclear energy in the world, with its 24 reactors generating about a third of its electricity. During his presidential campaign early this year, Moon pledged to phase out coal and nuclear energy, mainly due to the public’s growing concerns about air pollution and nuclear safety. Instead, Moon vowed to increase the share of renewable energy up to 20 percent of total electricity generation by 2030. After taking office, Moon reconfirmed his campaign promise; in a speech to mark the permanent shutdown of Kori-1, South Korea’s oldest commercial nuclear reactor which went into operation in 1978, he declared, “We will abolish our...
nuclear-centered energy policy and move towards a nuclear-free era. We will completely scrap construction plans for new nuclear reactors that are currently under way.”

As of late May 2017, state-run nuclear operator Korea Hydro & Nuclear Power (KHNP) had five new nuclear reactors under construction; among them, three reactors were nearly complete while other two (Shin Kori no. 5 and no. 6) had been 28.8 percent done (10.4 percent in terms of actual construction) with roughly $1.4 billion already spent and estimated total losses (sunk costs) of $2.3 billion. Moon’s pursuit of “a nuclear-free era” made the fate of the two ongoing construction projects controversial, sparking heated debates between pro- and anti-nuclear campaigners in South Korea. Advocates for resuming the construction assured that the Shin Kori 5 and 6 would be “the most up-to-date version of the third-generation type, equipped with intensive safety features,” while opponents expressed their concerns about the location of these nuclear reactors in a highly-populated area, no matter how advanced safety measures would be.

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The construction site is located in the southeastern city of Ulsan, already home to six nuclear reactors with two more set to go into operation next year. Shin Kori 5 and 6 would thus bring the total number of nuclear reactors in this region to 10. One of the key concerns raised by civic groups against the construction is the high-density population near the Shin Kori nuclear power plant. Almost 4 million residents live within a 30 km-radius of the Shin Kori, meaning any nuclear accident or terrorist attack would incur an unimaginable number of casualties. Japan’s Fukushima nuclear power plant, for comparison, had 160,000 residents within a radius of 30 km. Ulsan is also home to South Korea’s heavy and chemical industries, including shipbuilding and automobile manufacturing. If an accident happened in one of the nuclear power plants in Ulsan, its effect on South Korea’s economy would be significant as well.

These concerns were further heightened after a 5.8 magnitude earthquake struck another southeastern city, Gyeongju, last year. It was the most powerful quake ever recorded in South Korea. As the Shin Kori nuclear power plants in Ulsan’s Sinam village are located less than 50 km away from the earthquake’s epicenter, local residents became more concerned about their safety. The KHNP claimed that all the nuclear power plants were designed to be earthquake-resistant, with thorough surveys on the geological structure and quality of rocks. According to an environmental NGO, however, the Shin Kori reactors are only designed to withstand earthquakes of up to 6.9 on the Richter scale, which is less than South Korea’s maximum potential earthquake magnitude of 7.5. Moreover, it was revealed after the earthquake that there had been no proper geological investigation undertaken on the very site of Shin Kori 5 and 6 when the government issued a construction license. The fact that four active fault lines are located within a radius of 40 km from Shin Kori 5 and 6 – as discovered by South Korea’s Ministry of Science and Technology in 2006 – does not appear to have been considered by decision-makers either.

Amid the public’s growing concerns on nuclear safety, the Moon administration temporarily suspended the construction and proposed establishing an independent, ad hoc committee on managing public debate and a deliberative opinion poll on whether to permanently abandon the Shin Kori 5 and 6 projects. Public opinion via a simplified poll has its limit in reflecting the complexity of social issues. It can be sometimes misguided by insufficient information or generic questions. Raw public opinion based on the casual impression of news headlines combined with the general public’s apathy and inattention to the issues under discussion could be vulnerable to manipulation as well. Recent polls on the redeployment of U.S. tactical nuclear weapons to South Korea, for example, raise questions as to how accurately and adequately this type of public poll can
reflect the voices of ordinary people. Thus, instead of merely relying on a large-scale telephone poll, the Moon administration sought thoughtful and informed public opinion on this highly divisive issue through deliberative polling.

The process of South Korea’s deliberative polling on nuclear energy policy proceeded in a similar way to what Stanford professor James Fishkin defined and explained in his work on deliberative democracy. The committee conducted four rounds of surveys in total, including initial phone interviews of about 20,000 people, which allowed the committee to follow up on changes of opinion. Based on a German format used in selecting nuclear waste disposal sites, the committee randomly selected 500 people, considering demographics in South Korea, and invited them for deliberation. The participants were provided with briefing materials prepared by both pro- and anti-nuclear energy organizations. Lectures were also offered by competing experts followed by Q&A sessions, and then the participants were given opportunities to discuss the issue face-to-face in small groups.

After one month of actual deliberation – three months for the committee’s activity in total – 59.2 percent of the 471 participants in the final survey responded that they were in favor of resuming the construction work on Shin Kori 5 and 6, while 40.5 percent supported abandoning the project. As complementary measures to the construction, the participants also suggested the government further strengthen nuclear safety measures (33.1 percent), expand its investment in increasing the share of renewable energy in energy mix (27.6 percent), and promptly prepare a plan to resolve the spent fuel issue (25.3 percent). At the same time, the survey found that 53.2 percent supported Moon’s nuclear phase-out policy, with 35.5 percent in favor of the status quo and 9.7 percent calling for expansion.

Although resuming construction on the two nuclear reactors was not what Moon had originally intended, he promptly accepted the committee’s recommendation as he had promised, while still sticking to his gradual nuclear phase-out policy. Some anti-nuclear energy groups expressed their dissatisfaction with the resumption of construction, but many others announced that they would respect the government’s final decision based on this deliberative polling. Meanwhile, pro-nuclear energy advocates immediately welcomed the resumption, but expressed concerns about the gloomy future of nuclear energy in South Korea.

The current controversy over the Shin Kori is only the beginning of South Korea’s long journey toward achieving a social consensus on its energy policy. The country is still divided on how to plan and prepare for its energy future. Some experts warn that Moon’s nuclear phase-out policy could lead to the sharp rise of electricity bills, a potential energy shortage, and the downturn of South Korea’s nuclear export capacity. They also point out that increasing the share of LNG in South Korea’s energy mix would create another problem, while renewable energy technology is still in a rudimentary stage. In contrast, supporters for Moon’s phase-out policy assert that safety and environmental concerns should be given first priority, rather than economic gains, and argue that less dangerous LNG could be used as a bridge energy source until renewables become more competitive. Even though nuclear safety measures would be sufficiently advanced, critics argue that the impact of any nuclear accident caused by human mistakes or misjudgment would be far more critical than accidents involving other sources of electricity generation.

On the one hand, the key schism here has been created by the lack of transparency in planning and implementing nuclear energy policy, which has been heavily dominated by key stakeholders including the central government, KHNP, nuclear academia, and business for several decades. The cover-up of a station blackout incident at the Kori nuclear power plant and the falsification of safety documents for nuclear power plant components are only a few examples among many. Although the
knowledge and opinion of experts on nuclear technology should be respected in any case, it is notable that today's conflicts on South Korea’s nuclear energy future are deeply rooted in the public's growing distrust of the expert community, which failed to assure the public of their expertise in successfully preventing and controlling a potential nuclear accident.

On the other hand, South Korea is in the middle of moving from its traditional representative democracy, with an imperial presidency, toward a more open and participatory democratic system. The candlelight revolution that ousted ex-President Park Geun-hye last year appeared to encourage more ordinary citizens to engage in social issues, instead of merely relying on a limited number of politicians, bureaucrats, and experts. South Korea’s nuclear energy future is thus located in the heart of this transformation of Korean society. The tyranny of the majority should be avoided, but deliberative democracy, when carefully designed and systematically managed, can be complementary to South Korea’s representative democratic system, which failed to be transparent, effective, or truly democratic in previous administrations.

The deliberative polling with regard to the resumption of construction on the Shin Kori 5 and 6 reactors had its own limits, such as insufficient time assigned for deliberation and a lack of consideration for the voices of local residents around the plant. Despite these limits, this experiment in deliberative democracy is expected to serve as an important precedent for the new administration’s work on peacefully resolving or managing conflicts over other highly divisive issues, like the storage of spent nuclear fuel. Both pro- and anti-nuclear energy advocates, in addition to the Moon administration, now face a new task: how to effectively inform and persuade the public in this era of deliberative democracy. Politics is an art of persuasion, after all.

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