



## FADING AWAY OF SOUTH KOREA'S NUCLEAR ENERGY?

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### **New President New Policy!**

On 19 June 2017, South Korea's newly elected President; Moon Jae-in announced shutting down its oldest nuclear power plant Kori-1<sup>1</sup>. It is speculated that South Korea may be phasing out its nuclear energy in the near foreseeable future as there seems to be a shift in the country's nuclear energy policy. While, the present government recognises the importance of cheap, clean and efficient energy yet the threat of radioactive leakage, apprehensions concerning the repeat of another Fukushima nuclear disaster gains more priority in the present set of energy policy options. Thus, the new President has made it clear that, the life-span of the existing reactors would not be extended; additionally no new construction of nuclear reactors would take place as the country heads towards a "*nuclear free era*"<sup>2</sup>. It is noteworthy, that the new government wants to conduct more research and development in renewable energy sector with more priority given to less polluting LNG power

plant<sup>3</sup> to balance the nuclear energy contribution in the total electricity consumption of the nation.

At present, one-third of South Korea's total electricity comes from 24 nuclear reactors having the generation capacity of 22.5 Giga-Watt electrical (GWe). With the phasing out of nuclear power in the country, the present policy also puts forth the uncertainty over the future of nuclear energy industry, most specifically for Korea Electric Power Corporation (KEPCO) which was until recently exporting reactors to Middle East countries like United Arab Emirates (UAE), Jordan, countries of North Africa and also in Latin America.<sup>4</sup> It is not clear what the country plans to do with its nuclear export strategy.

The paradigm shift in the energy policy of the country comes at a time when the country was planning to make nuclear energy its baseload by the year 2030, when once it was planned that nuclear energy was to supply 59% of the country's electricity (333 Terawatt-hour), from 41% of the installed capacity<sup>5</sup>.

## Why Change?

If we delve into South Korea's nuclear scenario, several factors behind the country's declining nuclear industry can be traced.

### *Complacency in Nuclear Safety*

It was revealed during routine inspection post the Fukushima accident that several critical parts of some nuclear reactors were falsely certified,<sup>6</sup> with forged quality control certificates of 7682<sup>7</sup> components. This incident brought into light major safety lapses. Also in May 2013, some problem regarding the documentation of four reactors came about dealing with the safety control cable which acts as a signal to activate emergency measures before an accident. It is noteworthy that these safety certificates were issued despite failing the safety regulation tests<sup>8</sup>. This over time became a major issue leading to the state owned nuclear company i.e. Korea Hydro and Nuclear Power (KHNP)'s officials engaging in the acts of bribing the testing officials to issue them safety certificates. It was also reported that the domestic suppliers had accepted below standard equipment which was used in the reactors<sup>9</sup>.

These incidents have exposed major fault lines of the nuclear power industry. Questions were being raised by public, whether reliance on nuclear energy is feasible. Another factor that may have motivated the Moon Jae-in government's decision on nuclear power could

be that in the recent times, the Korean peninsula was becoming increasingly earthquake prone after last year earthquake and several aftershocks in the city of Gyeongju, which is located 230 miles south-east of Seoul<sup>10</sup>.

### *Impacting Public Perceptions*

It is quite clear from the aforementioned facts that several problems such as KEPCO's false safety certification, mismanagement and use of below standard machineries and the fear of nuclear meltdown and its consequences has generated fear in the minds of people and the present Administration. The recent activities clearly do not help in building trust around nuclear energy as people of the country are well aware of the level of catastrophe which can emerge from a nuclear accident post-Fukushima. That being said the country's nuclear power plants remain vulnerable to small earthquakes which can be understood by the closing down of four nuclear reactors at Wolsong in Gyeongju last year.<sup>11</sup>The dent in public support for nuclear energy is further accentuated because many of its reactors are close to densely populated area<sup>12</sup> which could lead to harmful consequences in case of an accident. Furthermore- post the Fukushima accident, there has been growing support for anti-nuclear movement in South Korea, in form of East Coast Solidarity for Anti-Nuke group and more recently the stand taken by South Korean Catholics<sup>13</sup> urging the

administration to think beyond nuclear energy for its citizen's safety.

### *Implications for the Future of Nuclear Energy Industry*

If South Korea is moving towards a nuclear free era then it spells out major implication for its nuclear energy. Firstly, it can be argued that the phasing out of nuclear energy would impact the electricity demand and most likely result in power shortage and a possible hike in electricity bill.<sup>14</sup> Secondly, the phasing out of nuclear energy has future implications for KEPCO's future. Major doubt remains on the expanding nuclear industry of the country which until now was focusing on export of its reactors and was to become a market worth of \$740 billion<sup>15</sup> in the next ten years. The present government's stance on nuclear industry comes in a time when the reactor (APR-1400)<sup>16</sup>'s demand was increasing because of its advanced safety standards and on-time delivery which came into world's view post its successful installation of four units in UAE. The factor of worry for South Korea's nuclear industry is less financial support from its government<sup>17</sup> when it comes to construction of nuclear reactors under the new President which could stop their rise as a major player in the global nuclear export industry. It remains still unclear as to what kind of strategy would South Korea adopt in future.

***(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily***

***reflect the position of the Centre for Air Power Studies [CAPS]***

### Notes

<sup>1</sup> Justin McCurry (2017), "New South Korean President Vows to End Use of Nuclear Power", *The Guardian*, June 19, 2017, Available at <https://www.theguardian.com/world/2017/jun/19/new-south-korean-president-vows-to-end-use-of-nuclear-power>- Accessed on 22/06/2017

<sup>2</sup> Note 1

<sup>3</sup> Sotaro Suzuki (2017), "South Korea eyes LNG, Renewables In Shift Away From Nuclear", *Nikkei Asian Review*, June 20, 2017, Available at <http://asia.nikkei.com/Politics-Economy/Policy-Politics/South-Korea-eyes-LNG-renewables-in-shift-away-from-nuclear>- Accessed on 22/06/2017

<sup>4</sup> Note 1

<sup>5</sup> World Nuclear Association- updated 20 June 2017 "Nuclear Power in South Korea", Available at <http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/south-korea.aspx>- Accessed on 22/06/2017

<sup>6</sup> Note 4

<sup>7</sup> Note 4

<sup>8</sup> Choe Sang-Hun (2013), "Scandal in South Korea Over Nuclear Revelations", *The New York Times*, August 3, 2013, Available at <http://www.nytimes.com/2013/08/04/world/asia/scandal-in-south-korea-over-nuclear-revelations.html>- Accessed on 22/06/2017

<sup>9</sup> Note 7

<sup>10</sup> Julian Ryall (2016), "Warning that Korean Peninsula Could Become New Quake Zone After Series Of Tremors In The South", *The Telegraph*, September 3, 2016, Available at <http://www.telegraph.co.uk/news/2016/09/13/warning-that-korean-peninsula-could-become-new-quake-zone-after/>- Accessed on 22/06/2017

<sup>11</sup> Jane Chung (2016), "South Korea's Biggest Earthquake Triggers Nuclear Safety Concerns", *Reuters*, September 13, 2016, Available at <http://www.reuters.com/article/us-southkorea-nuclear-quake-idUSKCN11J0R2>- Accessed on 22/06/2017

<sup>12</sup> "South Korea To Scrap All Plans To Build New Nuclear Reactors" (2017), *Livemint*, June 19, 2017, Available at <http://www.livemint.com/Politics/n3XnG050Bq9UX5xCj8>

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6U6N/South-Korea-to-scrap-all-plans-to-build-new-nuclear-reactors.html- Accessed on 22/06/2017

<sup>13</sup> Matthew Bell (2017) "South Korean Catholics Take The Lead In Protesting Against Nuclear Power", *PRI The World*, May 11, 2017, Available at <https://www.pri.org/stories/2017-05-11/south-korean-catholics-take-lead-protesting-against-nuclear-power>- Accessed on 22/06/2017

<sup>14</sup> Song Jung-a(2017) "South Korea Steps Back From Nuclear Power", *Financial Times*, June 19, 2017, Available at <https://www.ft.com/content/40871236-45da-11e7-8519-9f94ee97d996?mhq5j=e3>- Accessed on 22/06/2017

<sup>15</sup> Stephen Stapczynski (2017), "New South Korean President Seen Hindering Nuclear Ambitions", Bloomberg, June 16, 2017, Available at <https://www.bloomberg.com/news/articles/2017-05-15/new-south-korean-president-seen-hindering-atomic-export-ambition>- Accessed on 30/06/2017

<sup>16</sup> "APR-1400" Kepco, Available at <https://www.kepco-enc.com/eng/contents.do?key=1533>- Accessed on 30/06/2017

<sup>17</sup> Stephen Stapczynski (2017), Note 15