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**RECYCLING: REDUCE, REUSE & RECYCLE** November 06-08, 2017 | Las Vegas, USA**Energy technology assessment and prioritization integrated AHP and TOPSIS approach: In case of low oil prices and present nuclear power plant**Seongokn Lee<sup>1</sup> and Gento Mogi<sup>2</sup><sup>1</sup>Korea Institute of Energy Research, Korea<sup>2</sup>The University of Tokyo, Japan

Change in energy environment has been rapid in global energy markets. Advanced economies have been trying to build strategic energy technology development copying with environmental changes, their sustainable development and climate change. The strategic energy technology development is crucial factor for leading global green energy markets and disseminating them in time. In this research, first stage applied scenario planning for making a framework of various scenarios with the upcoming uncertain future of energy environments. We implemented a systematic procedure composed of scenario planning and integrated two multi-criteria decision making approaches, which were the analytic hierarchy process and TOPSIS methods, to assess 15 energy technologies and prioritize them when decision makers implemented a strategic energy technology development plan as a national level for enhancing national energy security, coping with rapid environmental changes and sustainable development. We made a short-list of 15 energy technologies including energy efficiency technologies, new and renewables and nuclear technology. In this research, we focus on case of low oil price changes and present nuclear power plant status. This research suggests how to find and generate a strategic energy technology development plan considering the selected two key uncertainty variables, including oil price changes and nuclear power plant construction, with STEEP and TOPSIS approaches in the first phase. And then, we build scenario framework considering two key criteria. We assess the case of low oil prices and present nuclear power plant by integrated two multi-criteria decision making approaches for prioritizing short-listed energy technologies. We focus on the strategic energy technology development plan. The results of this research provide decision makers for implementing the uncertain future efficiently with the strategic energy technology development with a scientific systemic procedure.

**Biography**

Seongkon Lee, Principal Researcher has his expertise in the implementation of national energy policy since 2005. He was the former Chief of R&D strategy center, Korea Institute of Energy Research from 2013 to 2015. He is the Board Member of Directors related to The Korea Contents Association (KOCON.a), Korean Society of New and Renewable Energy (KSNRE), Korea Technology Innovation Society and Korea Entrepreneurship Society. He is the Scientific Panel Member of International Society for Professional Innovation Management (ISPIM), England. He was the Visiting Research Fellow of Technology Management for Innovation, The University of Tokyo from 2010 to 2013. He was the Visiting Scholar of Harvard Kennedy School, Harvard University from Aug 2015 to Aug 2016. He obtained PhD in Technology Management for Innovation, The University of Tokyo, Japan.

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