

Examination of nuclear and renewables potentials in Malaysia

Pei Jia Pok

Department of Nuclear and Quantum
Engineering
KAIST

Daejeon, South Korea
peijiapok@kaist.ac.kr

Man-Sung Yim

Department of Nuclear and Quantum
Engineering
KAIST

Daejeon, South Korea
msyim@kaist.ac.kr

Abstract

Malaysia relies heavily on fossil fuels such as coal and natural gas as its main source for electricity generation. Decades of exploitation and usage of these materials had not only caused contamination and depletion but also contributed to the large amount of carbon dioxide emission in the country. In 2015, Malaysia has signed the Paris Agreement and vowed to achieve the reduction of carbon dioxide emission by 45% per GDP to the level of 2005 by 2030. Prior to the Fukushima accident that happened in 2011, Malaysia has had plan to own a 2GW nuclear power plant by 2030. However, this plan was then delayed and now cancelled after the Fukushima accident. The importance of this research is to examine the changes in the environment and economy of Malaysia by adding nuclear power and renewables into its energy mix. Carbon dioxide emission trend will be determined and an economic analysis will be conducted. This research intends to draw a best-fit scenario for Malaysia to have a new energy mix that can achieve in the 45% carbon dioxide reduction. This research will be helpful for the Malaysia government as a reference to plan for its future energy production system.

Keywords: *Malaysia; Optimization; Nuclear energy; Renewable energy*