ASSESSMENT OF TURKEY'S NUCLEAR ENERGY POLICY

Mustafa Yavuzdemir, Energy Market Regulatory Authority, Phone: +90 312 201 4642, E-mail: myavuzdemir@epdk.org.tr

Overview

By the second half of the 20th century, obtaining energy from reliable resources has become the most significant concern of almost every country in the world. Countries that can obtain cheap, high-quality, sustainable energy have been among the most successful ones in global trade and development contest. Increasing energy demand, climate change, security of supply and fossil fuel price volatility and grid stability can be considered today's drivers for nuclear build. On the other hand, the radioactive waste, threat of proliferation and accidents make Nuclear Energy a questionable alternative. After the Fukushima accident, some countries especially in Europe, like Germany, opted to phase out nuclear power by 2022. Since the electricity demand in Germany has reached saturation, it was not difficult to make such a decision even in spite of quarrels over its costs, sustainability, and effects on German economy. However, in developing countries, it is not easy to implement such a policy due to increasing power demand. The utilization of renewable energy sources must clearly be maximized in the world. However, due to technical and economic reasons, it is not likely to meet the increasing global demand with only renewables unless there is a technical revolution, like making electricity storage possible in megawatts with low cost. Therefore, with a rapidly increasing electricity demand, many developing countries like China, South Korea and Turkey choose to pursue energy policies including nuclear power.

Methods

Methods used in this study includes the collection of data and information from official documents, related reports and articles about current nuclear energy strategies and practices within the country. The evaluation is based on a qualitative assessment and recommends short term and long term solutions.

Results

First, Turkey must develop a comprehensive and official nuclear policy. The government should prepare a detailed official document explaining how and why nuclear energy is necessary for the country. Strong national nuclear policy requires strong public support. Thus, Turkey should ensure public participation in developing its national nuclear policy and try to create positive public perception by not only explaining the benefits of NPPs but also by focusing on the adopted high level safety and security measures considering country's recent situation.

Second, Turkey should ratify the New Nuclear Law as the framework national law as soon as possible, together with related regulations addressing the major specific lacking areas such as decommissioning, radioactive waste management and, third party liability.

Third, Turkey should establish an independent, well-equipped, and well-organized regulatory authority to ensure the safety of current and prospective nuclear power plants. As the construction of the first NPP, Akkuyu NPP is expected to start in 2017, enacting the national framework law and establishing an adequate oversight capacity promptly is crucial. On the other hand, using IGAs as a model to build the nuclear power plants shortens the duration and secures the finance, but this method depends highly on sound international relationship, which can also be quite risky since loose international diplomacy can deteriorate at any time. For instance, the conflict between Turkey and Russia following the Russian jet shutting down after it violated the airspace, slowed down the progress of the Akkuyu NPP in 2015. Moreover, the unending war in Syria has a great potential to cause further conflicts in between two countries. Ranking in the top 25 most unstable countries in the world, exposed to an increased number of recent mortal terrorist attacks by PKK and ISIS, and escaping from a failed military coup attempt organized by FETO in July 2016, the country's national security and political stability index deteriorates. These events not only undermine investors' trust in the government's nuclear energy plan but poses a remarkable risk to the successful completion of the current projects.

Finally, Turkey must develop a long-term and comprehensive Human Resource Development Program in the field of Nuclear Energy by collaborating with universities and other competent national and international organizations to ensure having sufficient nuclear plant operators, engineers, scientists, as well as regulators for the

coming decades, since nuclear power is a long-term commitment affecting not only the current but also subsequent generations.

Conclusions

Although Turkey has sufficient capacity and willingness to initiate nuclear power, considering the size of its economy (GDP over $717 billion in 2015), the power infrastructure and growing demand, Turkey needs to fulfill several requirements in the following years to achieve successful and sustainable integration of nuclear power into its energy mix. Developing a comprehensive national nuclear energy policy together with an HR Development Program, ratifying a New Nuclear Law and establishing an independent regulatory authority are the most significant milestones in this field.

References

World Nuclear Association, 2017, Nuclear Power in the World,
World Nuclear Association, 2016, Nuclear Power in Turkey,
International Energy Agency, 2016, Key World Energy Statistics,
Energy Information Administration, 2016, International Energy Outlook 2016,
OECD,2016, Nuclear Energy Agency, Nuclear Energy Data,
The World Bank, 2017, GDP Growth,
TEIAS, 2017, Turkish Electricity Transmission Company, Turkiye Elektrik Istatistikleri, (in Turkish)
MFA, 2017, Turkish Ministry of Foreign Affairs, Turkey's Energy Profile and Strategy,
BP, 2016, BP Statistical Review of World Energy,
MENR, 2015, Ministry of Energy and Natural Resources, Information on NPPs and Nuclear Power Plants to be Established in our Country (in Turkish),
Namli, H. T. and Namli, S. S., 2014, Nuclear Power in Turkey: Pros and Cons, The 2014 WEI International Academic Conference Proceedings.
Jewell, J. and Ates, S.A., 2015, Introducing Nuclear Power in Turkey: A Historic State Strategy and Future Prospects, Energy Research and Social Science 10 (2015) 273-282.
EPDK,2017, Turkish Energy Market Regulatory Authority, Pre-Licenses in Electricity Market,
IAEA,2015, Internation Atomic Energy Association, Technical Meeting on Topical Issues in the Development of Nuclear Power Infrastructure
TAEK, 2017, Turkish Atomic Energy Authority, Agreements,
World Bank, 2017, http://data.worldbank.org/country/turkey
The Global Economy, 2016, Political Stability Index,
http://www.theglobaleconomy.com/rankings/wb_political_stability/
OECD,2010, Public Attitudes to Nuclear Power, Nuclear Energy Agency, ISBN 978-92-64-99111-8
Akyazi, 2012, Citizens' Preferences on Nuclear and Renewable Energy Sources: Evidence from Turkey, Department of Economics, Bogazici University, Turkey.
EC,2011, European Commission, Press Release, After Fukushima: EU Stress tests start on 1 June,
http://europa.eu/rapid/press-release_IP-11-640_en.htm
IAEA, 2015, Country Nuclear Power Profiles, Turkey, http://www-pub.iaea.org/MTCD/Publications/PDF/CNPP2015_CD/countryprofiles/Turkey/Turkey.htm
Karaduman, 2015, Turkey's Nuclear Ambitions, Gun+Partners, http://gun.av.tr/tr/turkeys-nuclear-ambitions/
The Independent, 2012, Nuclear reactors must be restarted, warns Japanese PM
http://www.independent.co.uk/news/world/asia/nuclear-reactors-must-be-restarted-warns-japanese-pm-7831814.html
EDAM,2011, The Turkish Model for transition to nuclear energy, http://www.edam.org.tr/en/AnaKategori/energy-and-climate-change#
EDAM, 2012, The Turkish Model for transition to nuclear energy-II,
http://www.edam.org.tr/en/AnaKategori/energy-and-climate-change#
Atiyas, 2015, A Review of Turkey's Nuclear Policies and Practices,http://www.edam.org.tr/en/AnaKategori/energy-and-climate-change#