



AN END TO VIETNAM'S NUCLEAR ENERGY PROGRAM?

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On 22 November 2016, the Vietnam National Assembly announced its decision to shut down its planned nuclear power program citing its current 'economic and environmental' concerns. The proposed plants were to have been constructed with the help of Russia and Japan, and would have given an output of 4000 megawatts on completion. With this decision, Vietnam joins the list of countries including Germany and Indonesia that have abandoned their nuclear program post 2011 Fukushima disaster.

Energy scenario in Vietnam

Vietnam's energy sector is state controlled. The country has diverse energy sources such as thermal energy from coal (domestic and imported), natural gas and oil and also hydro power plants as it has large reserves of primary energy resources. It also has a high potential for renewable energy resources, such as biomass, solar, and wind. Nevertheless, the country saw a role for nuclear energy to meet its growing

electricity demand. It has deposits of uranium ore (Triuranium octoxide, U_3O_8 ¹ content greater than 0.015%) in the northern and central regions are estimated at 660 million pounds².

Vietnam's General Statistics Office estimates that electricity demand will continue to grow at recent annual growth rates of 10%-12%, rising from 169.8 terawatt-hours (TWh) in 2015 to 615.2 TWh by 2030³ out of which nuclear energy would contribute 8% in the total electricity generation to meet its burgeoning energy demands.

Vietnam started its nuclear program in 1960s. It has one small 500kW nuclear research reactor at Dalat with the main purpose of training, radioisotope production, neutron activation analysis and basic research. Formerly known as TRIGA Mark II reactor, it was built in 1963 and restored in 1984 and has been working efficiently ever since.

Based on this experience, the country embarked on its plans for setting up commercial



nuclear reactors. In February 2006, the government initiated the nuclear energy program to establish 2000 MWe power plants. The target was further raised in August 2007 to 8000 MWe by the year 2025. But it was not before 2011, that the government issued a master-plan for the plants at PhuocDinh in the southern NinhThuan province. By 2014, the project was already four more years behind schedule due to continuous negotiations on technology and financing. Nevertheless, Vietnam was still set to be the 'first Southeast Asian' country to establish nuclear power plants in the basket of its renewable and clean energy sources.

Vietnam's Nuclear Cooperation Agreements

The three countries with whom Vietnam had entered into the nuclear cooperation agreements are Japan, Russia and the US. Other countries with whom Vietnam has nuclear cooperation agreements are Canada, China, France and South Korea. Of these, Russia was the forefront player in Vietnam's nuclear energy program. It had signed a nuclear cooperation agreement in October 2010. In 2011 it agreed to provide the majority of financing for the project—up to \$9 billion as well as additional assistance such as training and fuel services. Finally, in August 2015 Russia's Rosatom signed a general framework agreement with Electricity of Vietnam (EVN) for construction of unit 1 of the 1000 MWe planned NinhThuan nuclear power plant.

In January 2011, Japan and Vietnam had signed an agreement for cooperation in the development and use of nuclear energy for peaceful purposes. However, this had not gone very far.

In May 2014, President Barack Obama submitted to Congress an agreement for peaceful nuclear energy cooperation between the United States and Vietnam, also known as a "Section 123 Agreement". Vietnam's nuclear energy program was seen to represent a commercial opportunity of \$10 billion to \$20 billion for U.S. nuclear energy suppliers U.S. industry. US-Vietnam Nuclear Cooperation agreement became effective as on October 2014.

Possible reasons for the shutdown

However, all of the efforts seem to have come to a halt for the moment with November's decision. Vietnamese officials mentioned 'economic and environmental'⁴ reasons for shutting down the nuclear program⁵. They have cited "slowing demand for electricity and the declining price of other sources of energy" as reasons behind the decision. Additionally, the 2011 disaster at Japan's Fukushima Daiichi nuclear plant had fuelled cautiousness among Vietnam's public.

The resignation of former Prime Minister Nguyen Tan Dung, a nuclear supporter- played a big role in scrapping the nuclear energy program. Dung was replaced in April by the more fiscally conservative Nguyen Xuan Phuc. PM Phuc has

been backing out from several domestic infrastructure projects such as highways etc. The change of leadership can be seen as one of the factors in stalling the country's nuclear energy dream.

Implications on its clean energy commitments

The Government has for now, decided to invest in coal power plants using advanced and environmentally-friendly clean coal technologies and gas turbine power plants with a capacity of around 6,000 MW. However, by doing so, Vietnam will find it difficult to meet its domestic obligation to reduce air pollution, including the reduction of carbon dioxide emission at least by 8% by 2030⁶. A shift to coal powered energy plants will have a counter-productive impact on the environment.

It is to be noted that in August 2015, Vietnamese Ministry of Industry and Trade presented 'Vietnam Energy Policy' that mentioned development of new and renewable sources of energy such as nuclear energy as one of its 'objectives'. Furthermore, at the UNFCCC COP22 that was held at Marrakesh, Morocco from 7 to 18 Nov 2016, it stressed upon making nuclear energy as a part of the basket of low carbon energy sources to achieve the goals of Paris Climate Agreement.

Conclusion

The nuclear energy project in Vietnam had been mired in technical and budgetary difficulties since inception. But the country was in touch its foreign counterparts and signing nuclear agreements with them till very recently. This sudden scrapping the nuclear power plants by Vietnamese government came as a surprising move.

There is no clarity yet whether Vietnam is permanently scrapping its nuclear energy program or not. Nevertheless, the Russia's Rosatom will continue its presence in Vietnam, helping in developing nuclear technologies and infrastructure for peaceful nuclear energy in the country.⁷ A week later to Vietnamese decision, the Swiss voted against shutting down its nuclear plants for maintaining its energy requirements⁸. With the current developments, one needs to closely look at the trajectory of the nuclear energy programs across the world.

(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

¹ U₃O₈ is a compound of uranium. It is one of the more popular forms of yellowcake.

² International Energy Outlook 2016, U.S. Energy Administration. <http://www.eia.gov/outlooks/ieo/electricity.cfm>, accessed on December 02, 2016.

³ "Coal, nuclear, and renewables expected to boost Vietnam's electricity capacity "(August 2015), U.S. Energy

Information

<http://www.eia.gov/todayinenergy/detail.php?id=22332>,
accessed on December 05, 2016.

Administration.

⁴ Recently, in October 2016, a large number of fish were killed by toxins released from a construction site for a Taiwanese steel factory in April in Ha Tinh Province in central Vietnam. Around 10,000 people protested to shut down the factory.

⁵ Le Hong Tinh, vice chairman of the National Assembly's Science, Technology and Environment Committee, said a key reason for the government's decision was that the price for the plants had doubled to \$18 billion (about 16.5 billion euros). Duong Quang Thanh, CEO of state-run Electricity of Vietnam Group - which was to cover the remaining costs of the plants - said they were "not economically viable because of other cheaper sources of power."

⁶ "Intended Nationally Determined Contribution of Viet Nam", *UNFCC*,
<http://www4.unfccc.int/ndcregistry/PublishedDocuments/Viet%20Nam%20First/VIETNAM'S%20INDC.pdf>,
accessed on December 08, 2016.

⁷ "Vietnam abandons plan for first nuclear power plants", *Reuters*, November 22, 2016, URL:
<http://www.reuters.com/article/us-vietnam-politics-nuclearpower-idUSKBN13H0VO>, accessed on December 10, 2016.

⁸ "Swiss Vote against Shutting down Nuclear Plants", *The Wire*, November 28, 2016, <http://thewire.in/83016/swiss-vote-against-shutting-down-nuclear-plants/>, accessed on December 11, 2016.