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Reviving Nuclear Power: Is the Philippines Ready?

By Julius Cesar Trajano

SYNOPSIS

Philippine President Duterte has signed an executive order to include nuclear power in the country's energy mix. However, there are critical preparatory issues that need to be resolved to enhance the country's nuclear energy development.

COMMENTARY

THE PHILIPPINES has revived its interest in nuclear power as an alternative source of energy in the face of shifting global trends in energy use. Going as far back as 1973 following the global oil crisis, the country's national project, however, did not really take off. The Bataan Nuclear Power Plant – the first and only nuclear power plant in Southeast Asia then – was mothballed in 1986 due to safety concerns.

Some four decades later, on 28 February 2022, Philippine President Rodrigo Duterte signed an [executive order](#), adopting a national position for a nuclear energy programme – in effect reviving the quest for nuclear power. The order expresses the Philippines' commitment to pursue the highest standards of nuclear safety, security and safeguards as well as ensures the peaceful use of nuclear energy.

Why the Philippines Pursues Nuclear Energy

According to the International Atomic Energy Agency (IAEA), adopting a national position is a critical first step to embarking on a nuclear power programme. A national position serves as the foundation for the future development and implementation of the nuclear power programme.

Most importantly, a national position explains why nuclear power is being chosen, while taking into account the results of long-term energy planning and national

priorities, such as energy security, climate change actions, including the mitigation of greenhouse gases, and economic development.

The Philippines has indeed considered these key factors in recent years to determine why it might need nuclear power in its future energy mix. However, its government must address critical issues and challenges to ensure the safe, secure and peaceful use of nuclear power.

With the projected growth of the Philippine economy and population, the increasing need for additional reliable power sources and worsening environmental problems associated with overreliance on imported fossil fuels in the country generate a strong demand for cleaner and more sustainable alternative sources.

The Department of Energy (DOE) of the Philippines considers nuclear energy as a long-term energy option. It included nuclear power in its strategy to strengthen the country's energy security through the diversification of energy sources, mostly low-carbon, as the Philippines moves toward the clean energy transition. The projected demand for clean energy in the Philippines will grow by 4.4% annually, requiring 65 gigawatts of additional capacity by 2040.

Strong Public Support for Nuclear Energy

Nuclear proponents, particularly DOE, have pointed out that with the country's national commitments to the Paris Agreement, including a recent moratorium on building new coal-fired power plants, and the limitation of renewables to become a main energy source, there is still a need for a reliable, base-load power source. The government recognises that nuclear power will have a prominent role in its future energy mix to meet the growing demand for clean energy.

Filipino officials claim that nuclear energy can [decrease the high cost of electricity](#) in the country. The Philippines has the most expensive electricity in the whole of Asia. A median Filipino family pays more than 10% of its monthly income for electricity.

In the past few years, relevant government agencies have actively promoted nuclear power as the best option for the country to bring down the cost of power. However, it has not actually been clear as to how much would be the impact of upfront nuclear energy investments on the electricity costs.

Public acceptance of the use of nuclear power also appears to be strong in the Philippines. Duterte's executive order cites a public perception survey conducted in 2019 indicating that 79% of Filipinos support the rehabilitation of the shelved Bataan Nuclear Power Plant.

Also, 65% of Filipinos are in favour of building new nuclear power plants (NPPs). The Philippines, in this regard, is considering advanced small modular reactors (SMRs), including floating SMRs, from the United States, South Korea and Russia, given the archipelagic nature of the country. DOE predicts that SMR deployment could come as early as [2027-2028](#).

Legal and Regulatory Framework Must be Revised

The executive order recognises a comprehensive legal and regulatory framework would be needed for its nuclear programme. The Philippine Congress needs to legislate a comprehensive nuclear law that will replace decades-old, outdated nuclear regulatory laws.

Such a proposed bill remains pending in the Congress; with the ongoing national elections campaign season, it is uncertain whether the bill will become law before Duterte steps down in June. There is also a need to establish an independent nuclear regulatory body and ratify key global nuclear safety and security conventions and treaties.

The country's record of ratification of nuclear conventions remains incomplete, thereby creating loopholes in the country's nuclear safety and security framework.

For instance, there are four important treaties – the Convention on Nuclear Safety; the Amendment to the Convention on the Physical Protection of Nuclear Material; the Joint Convention on the Safety of Spent Fuel Management; and on the Safety of Radioactive Waste Management – that still need to be ratified by the Senate, especially if NPPs are to be built.

Looking Ahead: Nuclear Waste and Safety Issues

One important campaign issue being hurled by the anti-nuclear energy movement in the Philippines is the nuclear waste to be generated by the NPP. It is now pertinent for the Philippines to ratify the radioactive waste convention.

Adopting a national position for nuclear power is envisioned to be a much-needed impetus for these legislative actions to move forward. A regulatory official had suggested that the Philippines can consider the [geological disposal method](#) in an isolated island, where nuclear waste from future NPPs can be safely and securely buried.

The government also needs to ensure that any propose NPP locations will be safe from disasters given that the Philippines is part of the Pacific Ring of Fire and the typhoon belt along the Pacific Ocean. A national hazard assessment can also verify the country's selection of potential NPP sites and potential hazards (if any) that need to be considered.

So far, the Philippines already has a [geohazard assessment map](#), encompassing hydro-meteorological, seismic, and volcanic hazards that are present in every province, town and city. There are reportedly potential sites that can host NPPs with low vulnerability to such hazards.

The Philippines has decades-long experience in utilising nuclear science and technology. Nuclear power development takes long lead times, but the country has the capacity to comprehensively address critical preparatory issues and the need to ramp up the country's pool of nuclear professionals.

Nevertheless, with Duterte's term concluding soon, it remains to be seen whether the next administration will continue or reverse the country's journey to nuclear energy.

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