



CARRYING FORWARD UPA'S NUCLEAR SPELL

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As part of Manmohan Singh led UPA government's nuclear spell, four noteworthy developments have taken place in India's tryst with nuclear power, during the last four months. On June 7, the Unit 1 reactor at Kudankulam Nuclear Power Plant (KNPP) has reached its full potential and expected to go commercial soon.¹ On May 08, the Supreme Court of India dismissed a plea to stall commissioning of KNPP.² On April 19, India and Russia have signed a framework agreement for building the 3&4 units of the KNPP.³ On March 09 India and France have agreed on the cost of power that will be generated by Jaitapur Nuclear Power Plant (JNPP).⁴ Meanwhile, the overall nuclear power output has increased by over 80% i.e. from 18,634 million units in 2006-07 to 35,333 million units during 2013-14.⁵

All these indicate that Indian nuclear industry is in a take-off stage, even though significant hurdles still remain to overcome. In fact, the UPA government strived hard to unshackle India of the international technology embargo. With the conclusion of the Indo-US nuclear deal, NSG waiver, and India-specific safeguards agreement with IAEA, uranium supplies from Canada, France, Kazakhstan, and Russia helped Indian reactors to operate with high capacity. Nine reactors recorded an unprecedented 97% capacity factor during 2011-12, and with the imported uranium from France, the Kakrapar reactors recorded 99% capacity factor during 2011-12.⁶ However, Manmohan Singh could not expedite the

new nuclear projects owing to pockets of public resistance and non-cooperation by various State governments.

The UPA government brought some momentum to India's civil nuclear programme during the last decade, but could stride only half way in some vital areas that the Narendra Modi-led National Democratic Alliance (NDA) government ought to carry forward. Any policy reversal or putting them on the back-burner, especially in respect to nuclear agreements with several countries, regulatory reform, and rationalization of liability regime, would damage India's 'responsible state' image, concurrently plunging the ascending nuclear energy production.

First, in regard to revitalising India's nuclear regulatory mechanism, the new government must review the provisions of the Nuclear Safety Regulatory Authority (NSRA) Bill, still pending in the Parliament. The Bill has proposed to establish the Council of Nuclear Safety to review policies on nuclear safety, but included the Chairman of the Atomic Energy Commission (AEC) as a member who also heads the Department of Atomic Energy (DAE) that controls nuclear plants. The proposed NSRA, therefore, "seems to meet three out of the four core values viz. competence, independence, stringency, and transparency, but it still lacks somewhat on the count of independence."⁷

Second, rationalisation of India's Civil Liability for Nuclear Damage Act is warranted. The liability law came under serious scrutiny in the wake of the proposal to sign the first commercial civil nuclear agreement with the USA in September last year. The BJP, then in Opposition, remarked that any bypassing of operator's 'right of recourse' in Clause 17 of the Act as 'corruption', and Manmohan Singh's 'gift to American nuclear companies'.⁸ Yet, very few realize how uncannily the liability act, that holds nuclear suppliers liable for nuclear accidents, has stymied India's nuclear energy expansion drive. Though many countries have expressed willingness for civil nuclear business with India, not a single commercial contract for the import of reactors has been signed, except the Kudankulam 3&4 with Russia recently.

Readjustment of the liability law provisions is possible by innovative reconciliation of the concerns of various stakeholders. (1) By having an institutional-procedural

understanding with the suppliers, Indian operator can provide timely feed-back to the supplier on the wellbeing of a particular component or certify after a period of time the usage of the component that it does not suffer from a 'patent or latent defect'. (2) Suitable insurance to the extent to cover probable risks involved can be arranged. To add predictability to suppliers' obligations, liability can be limited to a certain reasonable time frame, like guarantee and warranty period. (3) Create an American-style corpus to which the suppliers could be asked to contribute.

Third, the key to unshackle India's nuclear expansion programme is to garner greater social acceptance of nuclear energy. In this pursuit, the new government must address the prevailing uncertainties regarding nuclear energy. For example, the capability of renewable energy sources to meet India's future electricity needs; cost-effectiveness of nuclear energy; and how safe and secure nuclear energy is. A comprehensive study (2011-12) by SP Sukhatme of IIT Bombay concludes that renewable energy sources if stretched to their full potential can at best contribute 36% of the total need of electricity during the next six decades; but alone cannot meet the future needs, to provide a desired per capita value of 1,840 kWh/yr.⁹ The intermittent nature of solar and wind energy, required heavy base-load power for the manufacturing sector to maintain high economic growth, and mounting energy requirement of residential, commercial and transportation sector combined necessitate leveraging of India's nuclear energy industry.

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With fast construction timeframe, high plant load factor, long lifespan, and low fuel costs nuclear energy, even though capital intensive, is competitive. In India's case, nuclear

energy is cheaper outside the coal belt and a viable option in terms of Long Range Marginal Cost (LRMC). If we take Tarapur-1&2 experiences, it has been found to have delivered for four decades cheapest electricity, the current tariff being about Rs 1/kWh.¹⁰ In addition, both primary and secondary economic benefits of nuclear projects for the local, state and national level are huge. The benefits accrued by the local people around existing nuclear facilities must be propagated and creation of a Social Acceptance Committee can be considered to garner greater public support and act upon their grievances in a humane manner.

Fourth, while addressing safety-security concerns of nuclear infrastructure, the new government has to make people understand the fact that India has no easy energy choices. While citizens have the legitimate right to raise their concerns and genuine concerns need to be addressed by the authorities, drawing baseless parallel to India's programme with any problem takes place anywhere else is imprudent. In fact, nuclear accidents are largely location-, and technology-specific. The specificities and achievements of Indian nuclear projects should be propagated vigorously. India has over 400 reactor years of commercial nuclear operation without any major safety related accident. Its nuclear plants have survived tsunami and earthquake.

Fifth, making possible civil nuclear deals with Australia and Japan someday, and any move in pushing India's candidature for NSG would attest Modi government's nuclear diplomatic acumen. Though the UPA government tried hard to convince both countries for nuclear cooperation, could not ink deals with them finally. Australia is the largest supplier of uranium and promising to meet India's requirements. An accord with Japan is requisite for reactor import as Japanese manufacturers supply crucial components used in the American and French reactors. Also, GE and Westinghouse are owned by Japanese companies Hitachi and Toshiba.

With the absence of coalition compulsions, Prime Minister Modi can swipe the nuclear baton deftly. The new government has to embark on the dual challenge of maximizing benefits from the understandings with global partners while taking along the domestic public to achieve greater acceptance of new nuclear projects.

While carrying forward the UPA's nuclear spell in the immediate-term, capacity building of domestic industrial houses and diversification of India's nuclear industry can be planned in the long-term by implementing the joint ventures with partners like NTPC, Nalco, ONGC, Indian Railways, Indian Oil Corporation, SAIL, etc. Prime Minister Modi, having experience in hosting nuclear project in Gujarat, is expected to bring more vitality to India's nuclear energy vision. Given the employment generation and energy security potential, *Paramanu* justly fits into his pledge for *Sabka Vikas*.

(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)

End Notes

¹ "Kudankulam Unit-1 Hits Full Capacity at 1,000 MWe", *The Indian Express*, June 08, 2014.

² "SC Satisfied with KNPP Safety Directions", *Deccan Herald*, May 08, 2014.

³ "India, Russia Finally Sign Agreement on Kudankulam 3, 4 Units", *The Times of India*, April 11, 2014.

⁴ India, France Agree on Cost of Power Generated by Jaitapur Nuclear Power Plant, *The Economic Times*, March 09, 2014.

⁵ NPCIL, "Nuclear Power Generation (2006-07 to 2014-15)", <http://www.npcil.nic.in/main/allprojectoperationdisplay.aspx>

⁶ Namrata V Lotia, et al, "Development of Framework for the Evolution of Alternative Energies Supply and Demand: A Review", *IOSR Journal of Mechanical and Civil Engineering*, <http://iosrjournals.org/iosr-jmce/papers/ICAET-2014/me/volume-6/13.pdf?id=7622>, p. 58.

⁷ Public Accounts Committee 2013-2014, Ninetieth Report, "Activities of Atomic Energy Regulatory Board", http://164.100.47.134/lssccommittee/Public%20Accounts/15_Public_Accounts_90.pdf, p. 7.

⁸ Sandeep Dikshit, "Nuclear Liability Act: A blatant Compromise, Say BJP, CPI(M)", *The Hindu*, September 20, 2014.

⁹ SP Sukhatme, "Can India's Future Needs of Electricity be Met by Renewable Energy Sources? A Revised Assessment", <http://www.currentscience.ac.in/Volumes/103/10/1153.pdf>

¹⁰ GR Srinivasan, "Safety, Public Acceptance and Future Indian Nuclear Program Post Fukushima", http://www.npcil.nic.in/pdf/news_04aug2011_01.pdf