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THE TIMES OF INDIA**Towards A Nuclear Future**

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We are entering a new era when nuclear energy is seen as part of the solution to growing energy needs, a solution required to bring about development in a climate-friendly manner.

More than 60 countries have written to the International Atomic Energy Agency expressing their desire to develop nuclear power. In the US, the \$8 billion provided for loan guarantees for new nuclear builds by the Bush administration have been augmented by the present administration by an additional \$50 billion. The Nuclear Energy Agency of the OECD projects a growth of nuclear generation capacity from the present 370 GWe to between 600 and 1,400 GWe by the year 2050. (1 GWe=1,000 MWe). The World Nuclear Association has projected a nuclear capacity between 2,050 GWe and 11,000 GWe by the end of this century; 16-17 per cent of this is expected in countries that do not have any nuclear power programme at present.

Major nuclear power technology holders as well as uranium-rich countries are aggressively moving forward to encash the emerging opportunity. New partnerships in nuclear business that transcend geographical boundaries are emerging to synergise capabilities for expanding rapidly and capturing as much market share as possible. These partnerships cover not only nuclear reactors but also a range of fuel cycle activities that include uranium production, enrichment and fuel fabrication. Canada, China, France, Kazakhstan and Russia appear to be especially active in this regard.

A look at our long-term energy needs vis-a-vis indigenous energy resources would reveal that we are and will remain dependent on significant energy imports if we continue in business as usual mode. Since use of fossil energy is fast becoming a sustainability and climate stability concern, access to nuclear energy resources and engagement in global nuclear trade is crucial. Our advanced technological capability in three-stage nuclear programme development coupled with our integration in the global nuclear trade should enable us to bridge our energy deficit through growth in generation capacity with breeder reactors that do not need further energy imports. This would make us truly energy independent.

It is, however, important that we do not get sidetracked while evolving global nuclear business partnerships. Such partnerships, given our technological capability, would not only eventually position us as a major global player, but also add a further degree of immunity against disruptions and vulnerabilities that are associated with this politically sensitive trade domain. We have already witnessed the doublespeak at the G8 as well as the NPT review conference when, after NSG exemption for India, we are being asked to join the NPT as a non-nuclear weapons state. Fortunately, at a time when several nuclear power projects are under negotiation, we have the advantage in working out nuclear business partnerships in our best interests.

There is, however, another side to nuclear energy. We need to clearly understand the perception of risk in the public mind. While we can objectively say that with any evolving technology for example, the shift to air travel risks have actually decreased, the perception of risk has perhaps grown. This, to my mind, is related to the catastrophe syndrome that comes into play with the arrival of a new technology that is more intense. Beyond a particular level of consequence, we find it hard to accept a technology no matter how low the risk in objective terms. The evolution of new technologies has always faced such hurdles. Public acceptance eventually comes about as a result of enhanced familiarity and recognition of the far better benefit to risk ratio.

With nuclear energy, the issue is even more complex. Mankind came to know of nuclear energy through the horrors of the nuclear bomb. The quantitative risk with nuclear electricity has always been shown to be significantly lower than other electricity production alternatives. Hopefully, negative impressions are slowly giving way to positive ones as a result of contributions made by safe and economically competitive nuclear power. Through the activities of the World Association of Nuclear Operators formed after Chernobyl, the nuclear industry has learnt its lesson and taken nuclear energy to a much higher safety level. Today, we not only talk of far lower maximum consequence in the public domain but are also evolving approaches to reduce risks arising out of safety, security and proliferation threats.

We are currently witnessing an intense debate on the level of and responsibility for third-party nuclear liability coverage. While the legal framework must enable adequate protection of the public, we must also be aware of the importance of greater Indian involvement in international nuclear business partnerships. Today, the safety level of nuclear power technology is significantly enhanced. Trying to match in the early stage of a modest Indian programme the risk coverage that a large pool of nuclear power plants, such as in the US, can manage would only mean raising the barrier to growth of nuclear power and denying ourselves the opportunity to be a dominant player in the global nuclear energy market. It is important that, while we safeguard our interests, we do not miss out on opportunities that are available as a result of emotional illogic.

The writer is former chairman of the Atomic Energy Commission.

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