

Nurturing nuclear power in India

R. B. Grover*

The nuclear industry made a beginning with critical facilities and research reactors, and then moved on to power reactors. Initially, the reactor size was small but was gradually increased to 700-1600 MW range to realise the economy of scale. Lessons learnt from various incidents in nuclear reactors have been incorporated into the designs of operating third-generation reactors. The fourth generation of reactors where the goal includes breeding, utilisation of thorium, achieving high temperature for hydrogen generation and improving cycle efficiency is going through a developmental process that could take a long time to realise. Public perception of nuclear energy has fluctuated over time. The present perception is quite positive because of concerns arising from climate change. At COP-28 in December 2023, 25 nations declared their intent to triple nuclear-installed capacity by mid-century. At COP-29, six more countries joined the group of 25. India plans to triple nuclear-installed capacity much earlier than mid-century. The Department of Atomic Energy (DAE), Government of India, has projected a target of 100 GW by 2050, which is more than ten times increase compared to the present installed capacity.

Keywords: Amendments, Atomic Energy Act, fuel cycle, small reactors, system costs.

Buzz regarding small reactors

Designs that l