

SHANTI 2025: A NEW NUCLEAR ERA FOR INDIA'S ENERGY AND INNOVATION LANDSCAPE

I. INTRODUCTION

The Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act, 2025 (the “Act”) came into force upon receiving Presidential assent on December 20, 2025, effecting a significant recalibration of India's civil nuclear framework. The law moves away from the long-standing position where nuclear energy was entirely within the government's control and introduces a regulated structure that allows for private and foreign participation. At the same time, it updates the regulatory and institutional set up governing the sector, with a clear focus on energy security and long-term sustainability.

The Act repeals and replaces the Atomic Energy Act, 1962 and the Civil Liability for Nuclear Damage Act, 2010, creating a single modern statute for civil nuclear power, safety, and liability.

More broadly, the Act reflects a clear shift in policy approach. Civil nuclear power is no longer treated as a space reserved solely for the public sector, but as an area where limited market participation is now possible under government oversight. As the implications of this change are examined by policy makers, industry participants and practitioners, the legislation signals an attempt to balance strategic considerations with the need for capital investment and technological development.

II. KEY FEATURES OF SHANTI ACT

1. Opening the sector to private participation

Under the Act, India's nuclear facilities and activities have been opened to participation by eligible Indian private entities.

Section 3(1) of the Act expands the pool of eligible participants by allowing private companies and joint ventures, in addition to government entities, to apply for licences for civil nuclear projects. However, it is pertinent to note that private companies incorporated outside India are not allowed to operate under the Act. Section 2(9) of the Act defines “company” by reference to Section 2(20) of the Companies Act, 2013, expressly excluding foreign incorporated entities. Consequently, any foreign investment is required to be channelled through companies incorporated under Indian law, thereby ensuring that operational control continues to remain with domestically incorporated entities in line with the regulatory framework.

2. Continued state control over critical Nuclear Functions

While Section 3 allows licensed private entities to conduct a wide range of operational functions related to nuclear facilities, the Act simultaneously maintains strict government oversight over nuclear materials and other critical safety matters.

Section 3(5) of the Act expressly reserves activities such as enrichment, isotopic separation, spent fuel management and reprocessing of high-level nuclear waste for the Central Government. This carve out ensures that, notwithstanding the expanded role of private participants, control over the most critical elements of the nuclear fuel cycle continues to vest exclusively with the state.

Section 5 reinforces the framework by ensuring that uranium and thorium remain under the exclusive ownership and control of the Union Government. It stipulates that activities such as exploration, mining, and mine closure for these minerals can only be conducted by the government or its designated agencies. Furthermore, any uranium or thorium extracted automatically belongs to the government and cannot be sold, transferred, or otherwise disposed of without explicit prior approval.

Viewed alongside Section 3, these provisions reflect a deliberate division of roles under the Act, encouraging private sector involvement where appropriate, while safeguarding government authority over strategic materials and critical operations.

3. Dual permit framework: Licensing and Safety Authorisation

The Act establishes a dual permit system to govern nuclear activities, enhancing regulatory clarity and safety oversight. Under the Act, any entity seeking to undertake nuclear facility construction, operation, or related activities must obtain a licence issued by the Central Government. Separately, activities involving exposure to radiation require a safety authorisation granted by the Atomic Energy Regulatory Board (AERB), the statutory body responsible for technical regulation of nuclear and radiological safety. This two-tiered structure ensures that while the government retains control over strategic and operational approvals, the specialised regulator independently oversees radiation safety standards, thereby strengthening overall governance and risk management in the nuclear sector.

4. Encouraging Innovation through relaxed licensing for research

Section 9 of the Act permits individuals and entities to engage in research, development, design, and innovation related to nuclear energy and radiation for peaceful purposes without the need for a licence. This exemption applies except where activities are specifically reserved for the Union Government or involve national security concerns, with the condition that safety and security standards are maintained.

5. Liabilities of an Operator under the Act

The Act establishes a liability framework that links the operator's fiscal responsibility to the size and risk profile of the nuclear facility.

As per Section 13 of the Act, the liability limits vary according to the thermal capacity of the installation. Smaller reactors and specific fuel cycle facilities are subject to lower liability

caps, starting at INR 100 crore, while larger reactors with capacities above 3,600 megawatts face higher limits, up to INR 3,000 crore. Furthermore, the total liability ceiling remains fixed at 300 million SDRs¹.

Importantly, Section 12 provides relief to operators by exempting them from liability for nuclear damage caused by extraordinary natural disasters or events such as armed conflict, civil unrest, insurrection, or terrorism. This safeguards operators from risks beyond their control.

Additionally, Section 14 assigns any residual liability, amounts exceeding the limits set in the Second Schedule of the Act, to the Union Government. This provision limits the financial exposure of operators, balancing accountability with reasonable protection.

Mandatory insurance is also required for operators.

Lastly, Section 16 of the Act grants the operator of a nuclear installation a right of recourse after fulfilling compensation obligations as outlined in the second schedule. This right allows the operator to seek reimbursement where it is explicitly provided for in a written contract, or where the nuclear incident results from the deliberate actions or negligence of an individual intending to cause nuclear damage. This provision helps protect operators by enabling them to hold responsible parties accountable in specified circumstances, reinforcing fairness within the liability framework.

Overall, the liability framework under the Act offers a clearer, risk sensitive structure that aims to encourage responsible private sector participation while ensuring adequate protection and recourse in the event of nuclear incidents. Notably, the Act provides operators with a right of recourse to recover compensation where it is expressly agreed in a contract or where the nuclear damage results from intentional acts causing harm, thereby reinforcing accountability within the framework.

6. Penalties and Dispute Resolution

The Act establishes a preliminary investigation process that empowers the Union Government or the regulatory Board to examine complaints, nuclear or radiological incidents, statutory returns, and inspection findings before initiating any enforcement actions. Complementing this, the Act introduces a graded penalty system to address violations, categorizing breaches as severe, major, moderate, or minor. Penalties are calibrated based on the severity of the offence, with the highest fines reaching up to INR 1 crore for the most serious violations, thereby ensuring a proportionate and effective enforcement framework. All penalty proceeds collected under this framework are to be credited to the Consolidated Fund of India, ensuring transparency and proper fiscal management.

¹ The SDR is an international reserve asset created by the IMF to supplement the official reserves of its member countries.

Furthermore, the Act reinforces the dispute resolution framework by designating the Appellate Tribunal for Electricity as the authority to hear appeals against decisions of the nuclear regulatory Council. Following this, parties may further challenge the Tribunal's rulings before the Supreme Court of India.

III. CONCLUSION

The Act is a pivotal step in reshaping India's civil nuclear landscape. By opening the sector to responsible private participation while maintaining stringent government oversight and control over strategic resources, the Act strikes a careful balance between innovation and security. Its nuanced liability framework, clear regulatory processes, and robust dispute resolution mechanisms further create an environment conducive to sustainable growth and technological advancement. While the Act lays down the overarching statutory framework, the detailed operational mechanics, compliance processes, and procedural requirements are likely to be addressed through rules and regulations to be framed under the Act. As of date, such rules are awaited, and their eventual will be critical to assessing the Act's on-ground impact.

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