NUCLEAR ENERGY & POWER

The SHANTI Act, 2025

Reconstructing the Legal Architecture of India's Civil Nuclear Sector

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For sixty years, nuclear power in India was exclusively owned by the Government. The Atomic Energy Act, 1962 saw to that, and the Civil Liability for Nuclear Damage Act, 2010 ("**CLND Act**"), governed what happened if something went wrong. Both of these legislation were made at a time when energy demand was lesser compared to present times. Currently, India wants 100 gigawatts of nuclear capacity by 2047, up from under 9 gigawatts today. The demand scenario has largely changed due to incremental demand changes arising due to data centres, semiconductor fabs, artificial intelligence, etc.

In view of changed market scenario, the Government passed the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India Act, 2025 ("**SHANTI ACT/ ACT**") and it replaced both the 1962 Act and the 2010 Act. SHANTI Act was followed up with, draft Rules and Regulations that will decide how much of the Act's promise actually gets delivered.

This article examines that transformation in four parts. Part I looks at the private participation, regulatory and liability reforms the Act itself introduces. Part II maps the opportunities this reform opens up across the nuclear value chain, for developers, EPC contractors, equipment manufacturers, and large industrial and data-centre consumers alike. Part III examines the interplay between the SHANTI Act and the Electricity Act, 2003, on tariff-fixation, policy alignment, and appellate structure. Part IV turns to what this means in practice for the electricity sector: grid connectivity, the emergence of captive nuclear power, and how disputes will actually be resolved.

Part I: Opening The Door, Carefully

The Act answers the primary question in the mind of every prospective investor: “can I actually do this?”

Significantly, the Act permits private participation to produce nuclear energy. Under Section 3, any company may apply for a licence to build and operate a nuclear power plant, and fabricate nuclear fuel up to a notified threshold of Uranium-235 enrichment. However, in order to ensure safeguards, higher-sensitivity activities, enrichment beyond prescribed threshold, spent fuel reprocessing, and heavy water production, remain reserved exclusively for the Government. Moreover, only Indian-incorporated companies qualify as applicants, so foreign participation must proceed through an Indian joint-venture vehicle; existing FDI restrictions on atomic energy remain unchanged.

The Atomic Energy Regulatory Board (“**AERB**”) has been given the power of a regulator to issue regulations, inspect and investigate, and suspend or cancel licences on its own authority. Keeping in with the objectives of the Act to ensure safety and security, the Board members are still chosen by a committee set up by the Atomic Energy Commission.

Who answers if something goes wrong?

The old law fixed operator liability at a flat ₹1,500 crore, whatever the size of the plant, and let an operator who paid that compensation sue its equipment suppliers for the underlying defect, whether or not their contract allowed it. That sounds protective of the operator, but it ran the other way in practice, exposing reactor vendors to liability they could never price or insure against, and it was a large part of why global suppliers, particularly the major American vendors, kept their distance from India for over a decade.

The SHANTI Act rewrites both halves of that bargain. Liability is now graded by the size of the plant. Depending upon the size of the Plant, liability will range from Rs. 100 crores to Rs. 3900 crores.

Further, the automatic right to sue suppliers is gone. Under Section 16 of the Act, an operator can now only go after a supplier if the contract expressly allows it, or if someone acted with intent to cause harm, a change that brings India closer to the international norm under the Convention on Supplementary Compensation for Nuclear Damage, 1997 and the single reform most international vendors had been asking for.

The draft Rules give this new bargain procedural teeth. Rule 76 confirms strict, no-fault operator liability, and Rule 77 requires every operator to maintain insurance or financial security until all spent fuel is removed from the installation's spent fuel pool. Chapter VII establishes a Nuclear Liability Fund, financed by an operator levy, and a Spent Fuel Management Fund, funded through electricity tariffs, alongside segregated decommissioning security similarly tariff-funded.

Part II: Opportunities Across The Nuclear Value Chain

Private participation is now open right across the nuclear value chain, not just at the level of owning and operating a plant. A developer can enter through joint ventures with NPCIL, BHAVINI or NTPC, or invest independently in SMR-based projects aimed at industrial clusters, data centres or remote locations the conventional grid struggles to reach.

For EPC contractors, the Act opens up nuclear construction, reactor, turbine and balance-of-plant work, as a long-term opportunity comparable in scale to large conventional infrastructure projects, alongside nuclear-grade civil works and the refurbishment of existing facilities.

Equipment manufacturers and technology providers stand to gain the most immediate access. The Act and draft Rules create a route to supply reactors, pressure vessels, steam generators and other specialised components, as well as instrumentation, control systems and radiation safety equipment. It also opens the door to global technology partnerships, Russia's VVER, South Korea's APR-1400, France's EPR and the US's AP1000 among them, and to advanced reactor technologies such as SMRs, molten salt reactors and HTGRs that had no real route into India under the earlier regime.

For large industrial and data-centre consumers, the same opening creates an early route into captive and near-site nuclear power, a model Part IV returns to in the context of how it will actually connect to the grid.

Part III: Interplay Between SHANTI Act And Electricity Act

Under the Electricity Act's, tariff determination for generation is a function of the Central and State Electricity Regulatory Commissions.

However, under the Section 37 of the SHANTI Act, it is the Central Government that will fix the tariff for

nuclear plants. In setting those norms, the Act mandates that the Government must have regard to the cost of fuel, the cost of spent fuel management, decommissioning cost, and other relevant factors.

Moreover, as laid down under Sections 49 and 50 of the Act, appeals under the SHANTI Act do not go to a new, standalone nuclear tribunal, rather they lie to the Appellate Tribunal for Electricity ("**APTEL**"). However, the Act does provide for constituting new Technical Members (Atomic Energy) to APTEL's bench specifically to handle the nuclear-specific technical content those appeals will bring. Thus, it appears that Electricity Act, 2003 will govern the supply of electricity, while the function of tariff fixation will remain primarily with the Government.

Furthermore, the government aims to develop consistency between the theme, planning and regulatory architecture between both Acts. Section 32 requires the Central Government's National Nuclear Energy Policy ("**NNEP**") to be framed consistently with the National Electricity Policy ("**NEP**") already prepared under the Electricity Act, so that nuclear capacity planning is not allowed to run at cross purposes with the country's broader power-sector plan. That alignment is reinforced institutionally as well as on paper. Additionally, Section 47 places the Chairperson of the Central Electricity Authority on the Atomic Energy Redressal Advisory Council, giving the electricity sector's own technical authority a standing seat in nuclear dispute redressal.

Part IV: What It Means For The Electricity Sector

A nuclear project in India now has to satisfy two different regulators speaking two different regulatory languages. The SHANTI Act and the Atomic Energy Regulatory Board govern licensing, safety, liability and strategic oversight, while grid connectivity, scheduling, dispatch, open access and market regulation continue to sit with the Central Electricity Regulatory Commission ("**CERC**") and, on appeal, APTEL, under the Electricity Act, 2003. That is a genuine change for a sector that has largely sat outside the ordinary rules of electricity supply until now: nuclear capacity planning is, for the first time, required to sit inside the same National Electricity Policy that governs every other source of generation, rather than being planned in isolation. In practice, though, it also means running two regulatory tracks in parallel, with separate approvals, filings and proceedings across the life of a single project.

On price, the two regimes have already been tested against each other. Nuclear tariffs are fixed by the Central Government rather than CERC, and APTEL confirmed as much in its decision of 27 March 2025

in *NPCIL v. CERC* (Appeal No. 134 of 2024), holding that CERC has no jurisdiction over nuclear tariff disputes under the Electricity Act. That leaves developers and their lenders needing tariff structures, whether cost-plus, a regulated-asset-base model, or some hybrid, and long-term power purchase agreements built around nuclear's cost profile, without the benefit of CERC's usual tariff jurisprudence to fall back on.

Getting nuclear power onto the grid still runs through the ordinary electricity-sector process. Connectivity is governed by CERC's Connectivity Regulations and the Grid Code, and a developer will have to work through long-term access applications and STU or CTU approvals, settle whether a project counts as inter-state or intra-state, and work out what transmission charges or exemptions apply, the same questions any large generator faces, now applied to a technology the grid framework was not originally built around.

Captive and near-site nuclear power is emerging as a distinct model of its own, giving large, round-the-clock consumers, data centres, steel and aluminium plants, chemical clusters, and green hydrogen producers, a route to firm, low-carbon baseload power built for their own use, a role until now associated mainly with coal, gas and renewable capacity. How this plays out, and whether it draws large consumers away from the grid the way captive coal and solar power already do, is likely to be one of the more closely watched developments as the sector takes shape.

Disputes will not all land in one place either. Sector-specific disagreements go first to the Atomic Energy Redressal Advisory Council and on appeal to APTEL, while compensation claims for nuclear damage go before a separate Nuclear Damage Claims Commission, alongside the ordinary CERC/APTEL route for tariff, grid-access and other regulatory disputes under the Electricity Act. EPC and supply contracts, tariff and PPA issues, and grid-access disagreements are likely to be where most of this plays out in practice.

Part V: Conclusion

The SHANTI Act's real test will not simply be whether new reactors get built and licensed safely; that part of the story, licensing, safety and liability, is now reasonably well mapped out. It will be whether nuclear electricity finds a workable, bankable place in India's power market: priced on terms CERC has no power to second-guess, connected to the grid through the ordinary electricity-sector process, and

financed against contracts and dispute-resolution avenues that are, in several respects, still being worked out in practice.

That process starts with the draft Rules and Regulations, open for comment until 4 September 2026. Indian utilities and, through bodies such as the US-India Strategic Partnership Forum, international suppliers are already preparing their submissions, and how the final Rules address these questions will do as much to determine the Act's success as anything already written into its text.

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