Building India With Nuclear Power

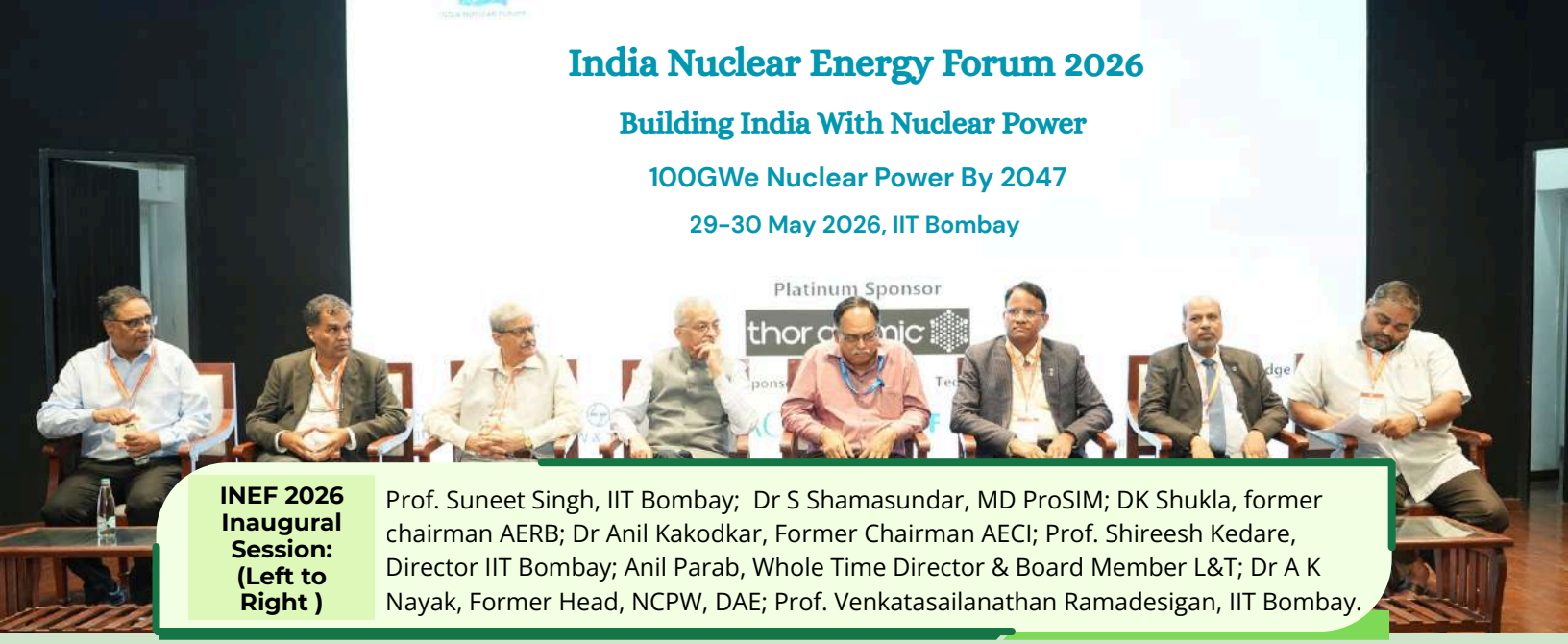
Industry Perceptions, Concerns, Expectations & Policy Recommendations



India Nuclear Energy Forum (INEF) 2026

29-30 May 2026 IIT Bombay

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INEF 2026 Inaugural Session: (Left to Right)

Prof. Suneet Singh, IIT Bombay; Dr S Shamasundar, MD ProSIM; DK Shukla, former chairman AERB; Dr Anil Kakodkar, Former Chairman AECI; Prof. Shireesh Kedare, Director IIT Bombay; Anil Parab, Whole Time Director & Board Member L&T; Dr A K Nayak, Former Head, NCPW, DAE; Prof. Venkatasailanathan Ramadesigan, IIT Bombay.

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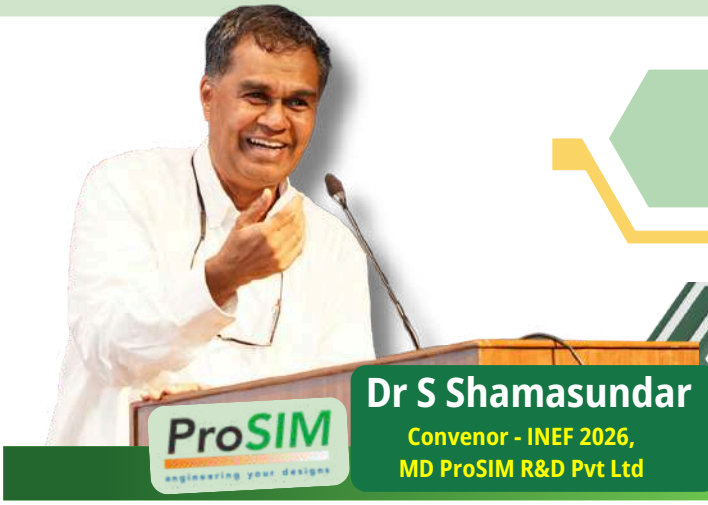
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A Confluence of Nuclear Energy Stakeholders

Leading Nuclear Energy experts, policymakers, industry representatives, researchers, and international delegates at the inaugural session of INEF 2026, setting the stage for discussions on India's nuclear energy expansion and the development of a robust nuclear ecosystem.

INEF 2026 Summary



Dr S Shamasundar
Convenor - INEF 2026,
MD ProSIM R&D Pvt Ltd

India Nuclear Energy Forum (INEF) 2026

Post Shanti Act, discussions started on how to accelerate Indian government's vision of 100 GWe of Nuclear energy by 2047 and India's Nuclear Energy Mission. SHANTI Act envisages private players to own and operate nuclear power plants. It also opens flood gates for India go become a global nuclear energy technologies powerhouse. Indian nuclear supply chain should aim to benefit from global opportunities. Indian start-ups developing SMRs / MMRs and other technologies can play a significant role and capture markets globally. International technology collaborations will aid to strengthen Indian nuclear landscape.

350 +	278	161	Global Participation
articipants	Delegates	Organizations	India, France, Japan, Nigeria, Singapore, Switzerland, UK and USA

India Nuclear Forum (INF), Department of Energy Science and Engineering (DESE) and GESH of IIT Bombay collaboratively curated a platform INEF-2026, a confluence of all stakeholders of nuclear energy. Participants included from:

- Government agencies
- DAE entities including NPCIL, BRNS, BARC, IGCAR, AERB;
- Consular officials from various embassies.
- Prospective nuclear operators from public and private sector;
- Vendor ecosystem from EPCs, service providers, consultants, system and equipment suppliers
- SMR/MMR, large reactor technology providers
- Academic Institutions, Nuclear Start-ups, Investors / funding agencies

Distinguished keynote speakers, panelists, & participants deliberated on various topics of interest including:

- Prospective Nuclear Operator Concerns, expectations, and guidance
- Nuclear supply chain
- Nuclear reactor technologies, SMRs / MMRs
- Nuclear Fuel Supply
- Collaborative R&D for nuclear energy
- Human capacity development
- Nuclear Start-ups
- Economics of nuclear power plant
- International experience in setting up nuclear power plants
- Action plan to accelerate nuclear energy mission of India.

Forum was successful in bringing together all the stakeholders, who interacted extensively about different aspects of India's nuclear vision. To cater to the burgeoning energy requirements of India, and ensure energy security, 100 GWe nuclear was seen starting point and more nuclear energy baseload power would be required. Details of the deliberations, on industry concerns, expectations and policy recommendations are described in this document.

Perspectives of Nuclear Energy Experts and Leaders

Thorium for Energy Security

Dr. Anil Kakodkar emphasized that India must accelerate its transition towards thorium-based nuclear energy to achieve long-term energy security and independence. He cautioned about future uranium resource constraints and supply-chain vulnerabilities, urging intensified research and development in advanced thorium technologies and small modular reactors. Drawing lessons from international progress, he stressed that sustained innovation and strategic investments are essential for realizing India's vision of becoming a global leader in clean nuclear energy.



Dr. Anil Kakodkar
Former Chairman
Atomic Energy Commission

Safety First, Always



Dr. D.K. Shukla
Former Chairman, AERB

Dr. D. K. Shukla emphasized that India's ambitious nuclear expansion must be supported by a strong culture of safety, regulatory compliance, and technical competence. Referring to the evolving legal framework and the SHANTI Act, he noted that opening the sector to broader participation also brings greater responsibility. He stressed that obtaining a nuclear licence requires proven capabilities in design, safety, quality assurance, waste management, and lifecycle management, underscoring that nuclear energy remains a highly disciplined and safety-driven enterprise

Innovation Drives Growth

Dr. A. K. Nayak, highlighted the need for a balanced approach combining proven reactor technologies with next-generation innovations. He emphasized that achieving India's 100 GWe nuclear capacity target by 2047 will require strong planning, accelerated deployment of advanced reactors, robust R&D, and close collaboration among govt, industry, academia, and regulators. He underscored the importance of developing indigenous technologies to strengthen India's long-term energy security and global nuclear leadership.



Dr. A. K. Nayak
Former Head of the Nuclear
Control & Planning Wing (NCPW)

Execution Powers Expansion



Mr. Anil Parab
Director and Senior Executive
Vice President of L&T

Mr. Anil Parab, emphasized that achieving India's target of 100 GWe nuclear capacity by 2047 will require a rigorous program-management approach that converts policy vision into executable projects. He highlighted the importance of strong industrial capabilities, engineering excellence, indigenous manufacturing, and disciplined project execution. Stressing that nuclear technology is a highly demanding sector, he called for close collaboration among industry, government, regulators, and academia to build a robust and globally competitive nuclear ecosystem.

Collaboration for Nuclear Future

Dr. Ravi Bhushan Grover, highlighted the importance of building a strong and integrated nuclear ecosystem to support India's target of 100 GWe nuclear capacity by 2047. He stressed that sustained collaboration among govt, industry, academia, research institutions, and regulators is essential for accelerating innovation, strengthening human resource development, and ensuring the safe and reliable expansion of nuclear energy. Dr. Grover noted that nuclear power will play a vital role in India's long-term energy security, clean energy transition, and sustainable economic growth. He emphasised the need for private sector investments and participation in nuclear R&D.



Dr. R. B. Grover
Member of the Atomic Energy
Commission

Perspectives of Nuclear Energy Experts and Leaders

Uniting India's Nuclear Vision



Prof. Abhay Karandikar
Member of NITI Aayog

Delivering the valedictory address at INEF 2026, Prof. Abhay Karandikar, emphasized that achieving India's target of 100 GWe of nuclear power by 2047 will require a coordinated national ecosystem. He highlighted the need for stronger collaboration among government, industry, academia, startups, regulators, financial institutions, and international partners. Stressing the importance of public trust, policy stability, innovation, and effective execution, he noted that nuclear energy will be a critical pillar in India's clean energy transition, energy security, and sustainable economic growth.

Building Nuclear Ecosystems



Prof. Shireesh Kedare
Director of Indian Institute of Technology Bombay

Prof. Shireesh Kedare, emphasized that India's nuclear ambitions can be achieved through close collaboration among academia, industry, policymakers, regulators, startups, and research institutions. He noted that forums such as INEF create a vital platform for dialogue, innovation, and capacity building. Stressing the importance of technology development, skilled manpower, and research-driven solutions, he underlined that a strong innovation ecosystem will be essential to support India's long-term clean energy and energy security goals.

Regulatory Clarity Matters



Mr. Ranjay Sharan
President, Nuclear Energy Business, Reliance Industries, (Former Project Director NPCIL)

Mr. Ranjay Sharan, highlighted the challenges faced by prospective nuclear developers. He noted that developers are evaluating a range of technologies, including PHWRs, PWRs, BWRs, SMRs, and advanced reactor concepts, each carrying unique licensing and regulatory requirements. Stressing that uncertainty in approval processes can increase project risks & financing costs, he advocated for a predictable & streamlined regulatory framework that maintains rigorous safety standards while enabling timely project execution and greater private-sector participation in India's nuclear expansion

Fast Breeder Reactors for Future



Dr. Venkatraman
Former Director, IGCAR

Dr. B. Venkat Raman, emphasized the strategic importance of fast breeder reactor technology in achieving India's long-term nuclear energy goals. He highlighted the role of advanced fuel-cycle technologies, indigenous innovation, and efficient utilization of nuclear resources in strengthening energy security. Stressing the need for sustained research, industry participation, and technological self-reliance, he noted that fast reactors will be a key pillar in India's journey towards large-scale clean energy generation and the realization of the 100 GWe nuclear capacity target by 2047.

Strengthening the Fuel Cycle



Mr. S. K. Malviya
Executive Director NPCIL

Mr. S. K. Malviya highlighted the critical role of a resilient nuclear fuel cycle in supporting India's long-term nuclear expansion plans. He emphasized that achieving the national target of 100 GWe nuclear capacity by 2047 will require careful planning across fuel supply, resource utilization, reprocessing, waste management, and infrastructure development. Stressing the importance of indigenous capabilities and technological self-reliance, he noted that a sustainable fuel-cycle strategy will be fundamental to ensuring energy security, operational reliability, and the long-term success of India's nuclear energy programme.

Building India's Nuclear Energy Ecosystem

Accelerating India's Nuclear Mission Through Stakeholder Collaboration

India Nuclear Forum (INF), is dedicated to fostering a vibrant and inclusive nuclear energy ecosystem by facilitating continuous engagement, collaboration, and knowledge exchange among all stakeholders across the nuclear sector.



A stable, sustainable, and resilient nuclear energy ecosystem is critical to achieving India's ambitious target of 100 GWe of nuclear power capacity and realizing the vision of Viksit Bharat. The success of all major nuclear energy nations has been underpinned by well-developed ecosystems that bring together government agencies, regulators, operators, technology providers, industry, academia, investors, and skilled workforce providers in a collaborative framework.

A 3-phase approach to accelerate India's Nuclear Mission

Extract of Executive Summary

Policies needed to make India a Global Nuclear Energy Technology Powerhouse, aiming at global markets, for export of indigenous technology, supply chain and services.

Short Term (0-12 months)

- Announce SHANTI Rules and Regulations and have stake holder consultation to finalise the same.
- Create a nuclear Energy Develop-ment Council (NUDEC), An inter- ministerial body, chaired by cabinet secretary/ principal secretary for policy framework definitions and review.
- Create an executive arm Nuclear Energy Mission Directorate, (NUMID), with an inter-departmental task force, for stakeholder coordination.
- Decide reactor technology mix to enable fleet mode.
- Creation of national nuclear site bank.
- Strengthen autonamy if AERB.
- Classify nuclear energy as priority sector.
- Increase capacity of regulator.
- Nuclear Infrastructure status, Priority sector definition.
- Green Taxonomy.
- Financing Window – IIFCL/ PFC/ REC.
- Model project documents such PPA, Concession agreements.
- Develop nuclear energy parks in different states, to house NPPs, test reactors, certification & testing centers, training & skill development centers.
- SECI type intermediary procurer.
- National Nuclear Human Resource Mission.

Medium Term (12-24 months)

- FDI Reforms. Distinguish between FDI in nuclear power plants and FDI in Nuclear Technologies.
- Nuclear Manufacturing Mission.
- SMR Mission – for green hydrogen, Ammonia, Desalination etc.
- MMR Mission – to replace DG sets, create self sustained industrial parks, etc.
- Public outreach.
- Integrated Digital clearance system.
- Declare nuclear power plant as protected areas.
- R&D focus on advanced technologies, including in reactor design, SMR, MMR, thorium fuel in private sector, academia.
- Establish multiple research reactors open to private parties.
- create a nuclear project dispute resolution panel.

Long Term (24-48 Months)

- Enable AERB through a Nuclear Safety Regulatory Authority (NRSA) legislation.
- Export strategy (nuclear technology, supply chain,services.
- Advanced reactors development including SMRs and MMRs.
- Thorium technology leadership.
- Global Nuclear Technology Leadership.
- Hydrogen, Ammonia, Desalination Integration.
- Grid integration roadmap.
- Nuclear Waste Management Roadmap.

Executive Summary - Policy Recommendations

This document presents a set of policy recommendations based on industry perceptions, Concerns and expectations derived from a series of consultative meetings, workshops, discussions before, during and after the India Nuclear Energy Forum (INEF-2026) held at IIT Bombay on 29-30 May, 2026.

A key issue is to make nuclear energy sector business friendly and investor friendly, while keeping the safety and security issues as mandated for nuclear power plants.

Executive summary of the recommendations are in the following 10 headings. They are detailed in subsequent sections.

1. India Nuclear Mission:

a.) Create National Nuclear Energy Development Council (NUDEC) for Policy Level Definitions, implementation oversight and review.

i.) Consisting of Cabinet Secretary, Principal Secretary, NITI Aayog, DAE and all ministries concerned, and industry representatives.

b.) Create a National Nuclear Energy Mission Directorate (NUMID) as an executive arm. Interdepartmental task force with industry participation to ensure industry, all stake holder participation.

i.) Consisting of DAE, AERB, and all concerned ministries, and industry stakeholders.

ii.) Develop inter-ministerial coordination framework for all nuclear energy related activities.

iii.) Works as a single window agency.

c.) Come out with an integrated nuclear energy development roadmap for 100 GWe nuclear by 2047.

d.) Short list reactor technologies including PHWR 700, LWR 1000-1650 MW, SMRs and MMRs through EoI mode, and allocate a share in 100 GWe.

e.) Enable Fleet mode deployment to derive benefits cost and time reduction and increase localization.

f.) Such fleet mode should also enable increased localization upto 70-80%.

g.) Standardise Project Development Framework by issuing.

i.) Model power purchase agreement, model concession agreement, standard EPC framework, standard risk allocation framework etc, to improve bankability.

h.) Work towards creating integrated nuclear energy parks with NPPs, test reactors, certification centers, training and skilling centers.

i.) Create a coordinated road map for Grid Integration Roadmap, under guidance of ministry of Power involving CEA, Grid India, CTUIL, NTPC, PGCIL, NPCIL, etc.

j.) Establish state government facilitation framework by establishing

i.) Nuclear energy facilitation cells,

ii.) Land banks,

iii.) Single window systems,

iv.) Community engagement frameworks,

v.) Site readiness programs.

h.) State government participation is essential for acbieving national deployment targets.

Details in Page No 10

2. Licensing Rules, Regulations, and Siting

a.) Rules and Regulations to be finalized after consultations with industries and all stake holders including different ministries. Finalise licensing rules and regulations with stakeholders inputs.
b.) Create a timebound roadmap for announcement / deployment of clearly defined licensing rules with well laid out qualification criteria.
c.) Increasing capacity of AERB, and Independence of AERB.
d.) Establish a licensing engagement cell, a single window clearance system, with 3 stage- licensing approach

i.) Early Engagement,
ii.) Generic Design Assessment,
iii.) Site Specific licensing.

e.) Create a national nuclear portal for digital clearance and tracking covering various agencies involved including AERB, MoEFCC, CEA, CWC, DGCA, CRZ, and State Governments. Create milstone tracking mechanism with timebound approvals.
f.) Developing a National Nuclear Site Bank in different categories to significantly accelerate project deployment.

i.) Coastal Sites – Large LWRs/ PHWRs,
ii.) Inland sites – Large PHWRs/ LWRs,
iii.) Brownfield sites – Fleet expansion,
iv.) Industrial sites – for CPPs, SMRs,
v.) Reserved Sites – for advanced reactors,
vi.) Sites for research reactors.

g.) Government may examine creation of **Nuclear Safety Regulatory Authority (NSRA)** through separate legislation at an appropriate stage. Details in Page No 11

3. Policy Interventions to promote nuclear energy

a.) Green Classification, Green Taxonomy.
b.) Nuclear as infrastructure.
c.) Power offtake, Demand Assurance, and payment security.
d.) India Nuclear Insurance Pool Expansion.
e.) Nuclear dispute resolution mechanism.
f.) Notification of Nuclear Energy as a priority sector for funding.
g.) Include nuclear energy in Harmonised Master List of NaBFID.
h.) Create a dedicated nuclear project finance window. Details in Page No 15

4. Economics of nuclear power plants, financing and investments

a.) Make policies, rules, regulations to make nuclear projects bankable.
b.) Work towards developing an integrated financing system with dedicated lending windows.
c.) Sovereign support mechanism through IIFCL / PFC / REC or Or any other Entity felt fit by the GoI.
d.) Long tenor debt (30+ years).
e.) Sovereign payment security mechanism through SECI type intermediary.
f.) First-of-a-kind support for initial projects through Viability Gap Funding schemes.
g.) Rupee bond market access.
h.) Nuclear infrastructure status.
i.) Green taxonomy inclusion.
j.) Distinguish FDI in **(i)** nuclear power plant projects and **(ii)** FDI from nuclear technology companies (Reactor technologies, fuel cycle technologies and such critical areas) to make Indian Nuclear Industry FDI friendly.
k.) FDI in Nuclear Reactor technologies, fuel fabrication facilities, and Nuclear Power Plants to be made flexible. Mechanism to review to increase FDI percentage after 3 years. Use a phased approach to increase FDI in nuclear progressively.
Declare Nuclear Power as priority sector.
Declare infrastructure status to Nuclear Sector.
l.) Customs duty exemption for nuclear energy imports
m.) GST of nuclear power to be at 5% (on par with renewable energy).
n.) NaBFID eligibility through harmonised masterlist.

Details in Page No 21

5. A framework for licensing of Reactor Technologies (PHWR, BSMR, MMR, SMR)

a.) Standardise a limited number of reactor designs to enable fleet mode deployment which results in cost reduction and time compression.
b.) Enable fleet mode deployment - Capacity targets for various technologies including PHWR Fleet, LWR, SMRs, MMRs to enable Fleet mode to be determined by national nodal agency through EoI route.
c.) Manufacturing localization targets to increased local manufacturing in phased manner.
d.) National SMR Mission to take cater to the needs of
(i.) Industrial captive power,
(ii.) Data centers,
(iii.) Green Hydrogen, Ammonia production,
(iv.) Desalination,
(v.) Export of technology,
e.) National MMR Mission
(i.) Work to replace DG sets of all capacities,
(ii.) To develop independent power supply industrial parks, housing societies, and small scale captive power requirements.
f.) National SMR Mission. Details in Page No 30

6. Nuclear Fuel and Heavy Water Supply & Security

a.) Create a national nuclear fuel supply framework for long term fuel assurance.
b.) Assurance of longterm uranium, and heavy water supply.
c.) Create strategic reserves.
d.) Fuel fabrication access.
e.) Publish policy on spent fuel & waste management including back-end fuel cycle, reprocessing rights, decommissioning. This clarity is needed to make projects bankable.
f.) Define responsibilities of private operators in spent fuel management
g.) Create decommissioning fund.
Details in Page No 33

7. Nuclear Supply Chain

a.) Establish a nuclear manufacturing mission.
b.) Create policies to enhance capabilities of Indian nuclear supply chain, and to increase capacity.
c.) Create a PLI scheme.
d.) Set up nuclear energy parks with PLI type incentives.
e.) Work towards export promotion.
f.) MSME vendor development.
g.) FDI in special areas such as instrumentation and control, special steels and forgings, heavy equipment, etc.
h.) QA & certification support. Develop pool of inspection agencies, TSOs.
i.) Develop nuclear vendor qualification program
j.) Introduce phased manufacturing programs to increase the local content in each phase.
k.) Special focus on key technical areas such as digital technologies, instrumentation & control systems, special steels and forgings, heavy equipment manufacturing. Create enablers for FDI and JVs with international technology providers. Details in Page No 36

8. Human Capacity Development

Human Capacity Development, through collaborative arrangement between DAE entities, academic institutions and industry bodies.
a.) Identify human capacity development as a key infrastructure for nuclear energy expansion.
b.) Involve academic institutions under UGC, AICTE, HBNI, BARC, IGCAR, NTPC and private players to create a task force.
c.) Develop UG and PG academic programs, PhD programs for nuclear energy.
d.) Develop integrated Masters programs in reactors physics, reactor engineering.
e.) Develop skill development programs relevant to nuclear industry and implement in Diploma and ITI programs; work with skill development commission to create skilling centers across the country.
f.) Develop PG training programs, operator licensing programs, simulation centers.
g.) Encourage international collaborations in workforce development. Details in Page No 37

9. Collaborative R&D in nuclear energy to create global benchmarks in India.

a.) Create a public-private nuclear research framework.
b.) Create a Small Business Innovation & Research (SBIR) for nuclear inline with SBIR of DoE USA, USA and DBT of GoI.
c.) Develop indigenous designs of SMRs / MMRs by private players.
d.) Identify Thorium R&D as a thrust area and allocate funding.
e.) Provide tax incentives for investment in Nuclear R&D.

Details in Page No 39

10. Public Perception, Mass Awareness for acceptance of nuclear energy

a.) Local Area Development in Nuclear Project sites.
b.) Mass awareness campaigns in schools, colleges, political and administration, and general public on safety of nuclear energy.
c.) Create transparent nuclear information framework.
d.) Create social media campaigns to promote nuclear.
e.) Emergency preparedness transparency.
f.) Public information centers.
g.) Local employment and skilling in NPP sites.

Details in Page No 40

India Nuclear Forum (INF) plans to engage with all stake holders of including different ministries of government, DAE, AERB, nuclear industry, vendors and academics, to accelerate the Nuclear Energy Mission of India.

India Nuclear Forum (INF) is committed to create a robust Indian nuclear energy ecosystem. INF provides policy recommendations based on industry concerns. *Contact:* info@indianuclearforum.in or *whatsapp* - +91-89049-02223 for further details.

Dr S Shamasundar
Convenor, India Nuclear Energy Forum, (INEF-2026)
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MD, ProSIM

Industry Perceptions, Concerns, Expectations, & Policy Recommendations

Head	Concern	Expectation
1. India Nuclear Mission		
Develop India as a Global Nuclear Energy Technology Powerhouse-Supplier and Partner	• India shall aim to become a global nuclear energy technology powerhouse. • India should aim global markets for nuclear technology, supply chain, and value added services in nuclear energy sector. • A framework drawn for domestic deployment only forecloses the potential export dividend of an indigenous capabilities created including engineering, technology, R&D, manufacturing base, and services.	• Develop the policy framework with export in view from the outset: an indigenous-technology export pathway with appropriate end-use safeguards. • Government-to-government partnership frameworks and an active Indian role in global nuclear energy platforms. • Position the IPHWR family to serve underserved Global South demand for affordable, proven, mid-sized baseload. • Develop pathway to enable and empower startups to create next generation SMRs / MMRs and nuclear related technologies that can become globally competitive.

Create a Nuclear Energy Development Council (NUDEC) for Policy Framework and Review	• Need for policy development and review at highest level.
	• Need for inter-ministerial consultation in policy development.
	• Need for stakeholder consultation.
	• Quarterly review of Nuclear Mission Progress.
	• Need to develop mechanisms for inter-ministerial issues.
	• Periodic review of SHANTI bill implementation.
		• Create a nodal agency with stakeholder participation to develop policy framework chaired by Cabinet Secretary / principal secretary.
		• Members
		  ○ DAE
		  ○ AERB
		  ○ MoP
		  ○ Finance
		  ○ DPIIT
		  ○ NITI Aayog
		  ○ States
		• Industry Body Representatives.

Create an executive arm National Nuclear Energy Mission Directorate (NUMID)	• No standing institutional interface between DAE and private developers through implementation. • Need for a mechanism for inter-ministerial consultations, DAE. • Lack of coordination agency for implementation.	• NUMID to act as a central nodal agency for nuclear mission impmentation, project monitoring, investor facilitation, and stakeholder coordination. • It should consist of DAE, AERB, and all ministries including (not limited to) MoP, DPIIT, Finance, MoEF. • NUMID shall have representatives from industry and stake holders.

Industry Perceptions, Concerns, Expectations, & Policy Recommendations

Head	Concern	Expectation
2. Licensing Rules, Siting, Regulations		

Pre-Licensing Engagement Cell	• No formal pre-application mechanism — developers face a binary choice between full licensing cost and staying out.
	• AERB receives lower-quality first submissions.
		• Dedicated Pre-Licensing Engagement Cell within AERB, engaging developers well before formal siting-consent application.
		• Develop a 3 stage licensing framework
		  ○ Early stage engagement,
		  ○ Generic Design Assessment,
		  ○ Site Specific Assessment.
		• Published fee-for-service terms, fees ring-fenced for AERB capacity; outputs as non-binding guidance.
		• Directly analogous to the US NRC pre-application engagement program.

Create Digital Nuclear Project Clearance Portal And single Window Agency	• AERB consents plus environmental, CRZ, water, transmission, aviation and state clearances today run largely sequentially. • A centralised mechanism to fast track approvals, clearances is needed.	• Single Window Nuclear Project Clearance cell with digital tracking including. • AERB as lead; partner agencies (MoEFCC, CWC, CEA/CTU, DGCA, state energy/ revenue / water / environment & forests, CRZ authorities etc.) process in parallel on statutory timelines. • This nodal agency should work as developer's single point of contact for inter-agency coordination.
Licensing Procedure.	• Licensing mechanism details, clarity of procedures, interfaces with safety regulation. • Administrative time taken, for multi-agency approvals.	• Conduct stakeholder meetings /consultation and take industry inputs to educate and finalize rules of licensing. • Announce clearly stipulated qualification criteria. • Publish time-bound licensing roadmap.

Industry Perceptions, Concerns, Expectations, & Policy Recommendations

Head	Concern	Expectation
2. Licensing Rules, Siting, Regulations		
Statutory Milestone Timelines — Seven-Year Project Clock	• Recent indigenous units took 12–14 years from first pour of concrete to commercial operations. • Without time discipline, private capital cannot be priced.	• Integrated 84-month project clock from siting-consent application to COD, each milestone on a statutory target timeline. • AERB to publish annual performance and written reasons for any extension; targets are aspirational deadlines with published-performance discipline, not mandatory caps. • Subsequent units of a multi-unit project to reach 60–72 months; conditional on design certification, parallel-track processing and long-lead procurement being in place first.
Statutory Underpinning of AERB Independence	• AERB's authority and resources today rest substantially on executive arrangement rather than statutory. • Statutory mandate for AERBs independence and authority.	• Place AERB's independence, funding insulation and core risk-acceptance thresholds on a clear statutory basis. • Precedent — US NRC and UK ONR derive independence and defined risk criteria from statute; post-Fukushima consensus is that legally entrenched regulator independence is the decisive safety variable. • Government may examine creation of Nuclear Safety Regulatory Authority (NSRA) through separate legislation at appropriate stage, while strengthening AERB manpower and autonomy in the immediate interim period.
Regulatory Mechanism	• Lack of clarity and understanding on regulatory mechanisms in various stages of project. • Time Taken in regulatory clearances.	• Educate new operators about regulatory mechanisms. • Increase capacity of regulator. • Create digital tracking and approval systems. • Consultation with stakeholders in formulation of Regulations and AERB REGDOCs.

Head	Concern	Expectation
2. Licensing Rules, Siting, Regulations		
Risk-Informed Licensing Path for Advanced & Standardised Reactors	A one-size-fits-all process applies the full first-of-a-kind review burden even to designs with well-established safety cases, lengthening review without commensurate safety gain.	• Risk-informed, technology-inclusive licensing path within AERB, calibrating depth of review to the safety significance of each system and the maturity of the design. • Most intensive scrutiny reserved for novel features; • Precedent — US NRC Part 53 framework (approved 25 March 2026, effective 29 April 2026); • IAEA endorses risk-informed regulation.
Predictable Periodic Safety Review Cycle	Periodic Safety review is essential to nuclear safety. It must be predictable to be bankable.	• Codified ten-year PSR cycle consistent with IAEA SSR-2/2, with scope and acceptance criteria published in advance. • Mandatory pre-review engagement 12 months ahead; maximum nine-month review period. • Clear distinction between mandatory and recommended upgrades; mandatory-upgrade cost pass-through via change-in-law.
AERB Capacity, Autonomy and Funding	• An under-resourced regulator regulating well-funded operators is a central risk. • Regulatory reforms in tune with global changes including usage of AI/ ML tools.	• Increase AERB technical strength in stages over five years; fully cost-recovered funding model with licensee fees ring-fenced for AERB capacity and operations. • Salary reform to recruit and retain expertise competitive with the operators it regulates. • Create AERB Centre of Excellence for advanced-reactor regulation with academic partners; precedent — US NRC and UK ONR fee-funded independence. • Use AI tools for regulatory speed up.

Head	Concern	Expectation
2. Licensing Rules, Siting, Regulations		
Physical and Cybersecurity Framework	• Nuclear power plants are critical national infrastructure facing evolving cyber threats. • Security coordination for private operators. • Clarity regarding regulation of security by Licensing and Safety Regulator.	• Notify private plants as Protected Systems under s.70A of the IT Act 2000 with NCIIPC as sectoral lead. • License condition alignment with AERB security documents, IAEA NSS No. 17 and INFCIRC/225/Rev.5, with three-yearly third-party audit; physical air-gap isolation of safety-significant systems. • Nuclear Sector Cyber Incident Response Protocol (AERB–CERT-In–NCIIPC, 24-hour reporting); evolving compliance cost recoverable via change-in-law.
Physical Security & CISF Deployment	Nuclear sites require armed protection that, by law and capability, only a central armed force can provide.	• Classify private NPP facilities as Protected Areas with default CISF deployment at MHA-prescribed force levels; full cost borne by the operator and recoverable in tariff (private-airport precedent under the CISF Act 1968). • IB personnel clearance under a published Nuclear Personnel Reliability Programme (90 days; 30-day provisional for non-sensitive areas). • Vital-area protection per AERB methodology and INFCIRC/225/Rev.5; anti-drone, insider-threat and supply-chain-integrity framework; three-yearly joint AERB–MHA–CISF security review.
Radiation-Worker Health & Safety	Worker protection must be uniform across operators and across permanent and contractor workforces, and portable across careers.	• AERB dose limits with operator ALARA commitments below the ceiling and published performance; National Radiation Worker Registry with portable dose records. • Funded health surveillance including post-employment; AERB-certified Radiation Protection Officer cadre with direct AERB communication rights. • Ring-fenced Radiation Worker Disability & Compensation Fund; equal protection for contractor workers, with the operator as principal employer for radiation safety.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
3. Policy interventions		
Design-Acceptance Pathway for Foreign-Licensed Reactor Designs	A full de novo Indian review of designs already licensed by a credible foreign regulator duplicates work and forfeits a mature international safety case.	• Design-Acceptance pathway under which AERB gives structured credit to prior review by a recognised foreign regulator. • Indian review focused on indigenization, site-specific factors and India-specific requirements, preserving AERB's independent and final judgement. • Precedent — UK Generic Design Assessment; US NRC–Canadian CNSC–UK ONR regulatory cooperation.
Nuclear Plant	• Large exclusion zone requirements impacting land acquisition. • Lack of clarity regarding minimum distance between Nuclear Power Plants developed by different entities. • Uncertainty affecting land identification and site planning. • Public acceptance concerns at site. • Access to Siting related testing infra and facilities (accessible with DAE entities) and are not available for private players. for eg - radiation studies. • Lack of understanding of approach of Licensing Authority and Safety Regulator and Clarity on DAE's role.	• Notification of siting guidelines specifying minimum separation distance between Nuclear Power Plants. • Hand holding by DAE in Site Selection. • Early clarification to facilitate land acquisition and project planning. • Fast track Nuclear Siting Mechanism. • Structured community engagement and local development programs. • Parallel activities with land acquisition. • Early notification of revised exclusion zone requirements. • Create siting related testing infrastructure in academic institutes / private industry to accelerate siting.

Head	Concern	Expectation
3. Policy interventions		
Creation of National Nuclear Site Bank	A large multi-unit site needs roughly 800–1,200 acres; acquisition under the RFCTLARR Act 2013 can take three to five years without facilitation.	• Notify nuclear power generation as a public purpose under the RFCTLARR Act 2013, conditioned on a valid siting-consent application and a signed PPA or term sheet. • National Nuclear Site Bank of pre-characterised, pre-cleared sites jointly with the states, drawing first on land already within DAE and NPCIL holdings. • Create a special purpose vehicle to takeup site bank.
Priority Water Allocation & Standard Coastal Pathway	Water allocation is a state-level decision that can stall projects; coastal intake/outfall clearance is handled case by case.	• Standardised clearance protocol for nuclear water allocation and CRZ intake/outfall, developed with the Ministry of Jal Shakti and MoEFCC — a single predictable methodology in place of case-by-case adjudication. • Beneficial use of waste heat (e.g. desalination) enabled on a published revenue-sharing formula; allocation remains the states' decision.
Coastal-Site Resilience & Climate Adaptation	Coastal nuclear siting in a warming climate requires a published, forward-looking design basis.	• AERB Coastal Nuclear Site Design Basis Guide (site elevation, storm-surge and tsunami protection, Category-5 cyclone wind loading, salt-spray protection), reviewed five-yearly with high-emissions-scenario climate projections built in. • Coastal disaster-preparedness plan exercised with IMD, the state disaster authority and the Coast Guard; standard marine-outfall regulations; 5-km no-fly zone with emergency helipad clearance. • Parallel inland-site guidance covering drought resilience and water-stress protection.

Head	Concern	Expectation
3. Policy interventions		
Green Taxonomy & Classification	Need to access and be eligible for green & blended finance, green bonds, and carbon credit mechanisms.	Classification of nuclear energy as clean green energy.
Market Offtake & Demand Assurance	• Lack of long-term demand visibility for Nuclear Power Projects. • Absence of mandatory procurement obligation for nuclear power.	• Introduction of Nuclear Purchase Obligation (NPO) for DISCOMs on the lines of Renewable Purchase Obligation (RPO). • Progressive increase in NPO targets to support long-term nuclear capacity addition.
Power Offtake & Payment Security	• Payment security concerns due to varying financial health of DISCOMs. • Counterparty risk for Nuclear Power Developers. • Challenges in executing long-term PPAs with multiple procurers.	• Establishment of a Government-designated Intermediary Procurer on the lines of SECI. • Centralized execution of PPAs and power allocation mechanism. • Robust payment security framework for Nuclear Power Developers. • Delinking of developer payments from DISCOM payment delays.

Head	Concern	Expectation
3. Policy interventions		
Power Offtake (3 tier - Tariff mechanism)	A firm power offtake is critical. More critical is the right framework to allocate risk appropriately between all the stakeholders, for arriving at these tariffs. Tariff framework should address the following concerns: **1) Project viability and Bankability** **2) Fuel supply risk** **3) Tariff Rationalisation** **4) Competitive framework** **5) Foreign Exchange and price fluctuation very difficult to predict / anticipate over a 40 year period** • A 35-year levellised auction tariff forces an unbearable risk premium for capital cost, regulatory evolution and fuel cost *India's thermal UMPP auctions (Mundra, Sasan, Tilaiya) already demonstrated this failure mode — stranded assets, renegotiated tariffs, litigation*	• Tariff determined on a cost-plus two-part basis under dedicated Nuclear Tariff Regulations adapted from CERC principles: capacity charge (RoE, interest, depreciation, normative fixed O&M) plus energy charge (fuel, heavy water, variable O&M, waste levy as pass-through). • No reverse auction, no levelised price discovery, no contract-for-difference; normative-capex discipline — overruns at developer cost, savings accrue to the developer. • Independently audited first-of-a-kind cost allowance for the first three projects. Precedent — two decades of DAE/NPCIL cost-plus tariff practice; US PUC cost recovery; France's Versement Nucléaire Universel; UAE Barakah regulated cost-recovery off-take ***Adoption of a Three-Part Tariff Framework*** **1) Fixed Capital Charge** — bid-discovered through competitive auction; **Objective 1** - Competitive Auction will drive the Fixed tariff downwards to achieve Tariff Rationalisation. **Objective 2** - Availability based fixed tariff (take or pay arrangement) will provide much needed fall back option for the Developer to derisk any future Fuel Supply risk. While G2G assurances, being highly reliable, should be made available, they may also get adversely impacted due to the volatile / evolving geopolitical environment. Hence the Project needs to be derisked from geopolitical uncertainties. **Objective 3** - Bankability of long tenure project loans - 30-40 years (much longer tenure than what Indian Debt Capital Market has seen). **2) IDC Charge** — Interest During Construction to be levied on the off-taker State during the construction period (akin to the UK Regulatory Asset Base / RAB framework), or alternatively be funded by a Central Government Promoted Fund / Scheme rather than capitalise into Total Project Cost and recover same through post-COD tariff; **Objective 1** - Avoid compounding effect of the Interest on Interest by discharging the IDC liability during the period it gets accrued thereby improving Capital efficiency. **Objective 2** - Tariff Rationalisation - Avoid the impact of IDC compounding which translates into excess post COD tariff approx INR 1.0 per KWhr over the period of 40 years. **3) Variable Charge** — full pass-through of fuel and heavy water costs, consistent with established CERC and Hon'ble Supreme Court precedent on imported-fuel risk. **Objective 1** - Derisk the project beyond construction risk. **Objective 2** - Project viability to secure financing. **Note**: Nodal Agancy / Implementation Agency needs to be identified / designated which will enter into offtake agreements with the Developers backed by GOI.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
3. Policy interventions		
Transmission & Grid Integration	• Transmission charges impacting competitiveness of Nuclear Power. • Nuclear Energy Grid Integration Roadmap not available. • Grid ramping ramping capabilities to be upgraded.	• Waiver/concession of Inter-State Transmission System (ISTS) charges to DISCOM to promote procurement of power from nuclear power plant similar to Renewable Energy projects. • Create a grid integration roadmap involving CEA/ POSOCO/ Grid India / NTPC/ PGCIL / NPCIL and Such entities under Ministry of Power Guidance.
State-Government Concurrence Mechanism	State-level clearances and cooperation determine project velocity and need a single, predictable interface.	• Model State Nuclear Cooperation Memorandum offered for voluntary adoption — covering land, water, transmission, off-site emergency planning, employment and local development. • A single state nodal officer and a district coordination committee, giving developers one predictable state interface.
Standard-Form Right-of-Recourse Contract Terms	The SHANTI Act 2025 removed statutory supplier recourse; operators and suppliers need commercially intelligible standard terms to allocate residual liability.	• Standard-form contractual right-of-recourse terms as a Schedule to the rules: defined recourse circumstances (defective equipment or services, or intent to cause damage), with a hard quantum and time limit aligned to international supplier-liability norms. • Insurance products available to suppliers; operator obligation to defend and channel claims through the SHANTI framework rather than parallel proceedings.
Operationalising the Convention on Supplementary Compensation	India ratified the CSC in 2016, but the international supplementary layer above the national cap is not yet operational.	• Implementing rules clarifying claim channeling, contribution calculation and Indian-court jurisdiction for CSC purposes. • Notify the designated competent national authority; coordinate with the IAEA as Depositary on contribution and claim management.

Head	Concern	Expectation
3. Policy interventions		
India Nuclear Insurance Pool Expansion	• INIP capacity of ~₹1,500 crore is less than new ₹3,000-crore top-tier graded operator cap — an unfunded gap a single claim could exhaust, with no automatic reinstatement. • Uncertainty in liability allocation multi-unit installation.	• Expand the pool to atleast ~₹4,000 crore in the near term (at least the top-tier cap), on a path to ~₹7,500 crore over five years, via additional domestic capacity and structured international retrocession with established foreign nuclear pools. • Automatic reinstatement after a claim; IRDAI framework permitting insurers to take additional nuclear risk; policy wording standardised to the SHANTI contractual-recourse framework. • Private developers to access the pool on the same terms as NPCIL. • Greater clarity for multi-unit installation.
Special Nuclear Dispute-Resolution Mechanism	Nuclear disputes require specialist expertise that ordinary commercial arbitration may not provide.	• Nuclear Project Dispute Resolution Panel of senior technical, legal and commercial specialists. • Standard tiered dispute clauses (negotiation, expert determination, mediation, arbitration) with an Indian seat and Indian law in the model PPA, technology-supply and EPC contracts. • Disputes touching AERB technical determinations are not arbitrable — the developer's recourse is judicial review.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Operator–Supplier Tort Channeling	Without channeling, suppliers will continue to demand commercially unsustainable indemnities and pricing premia.	• Clarify in the rules that all nuclear-damage claims are channelled through the SHANTI framework and the operator–supplier indemnity. • Tort-exclusion provision: no parallel tort or contract action against the supplier (other than the contractual right of recourse) is maintainable in respect of nuclear damage.
Off-Site Emergency-Plan Responsibility & Funding	Off-site emergency planning is a public responsibility that must be clearly allocated and reliably funded.	• On-site plan drafted, exercised and funded by the operator and approved by AERB. • Off-site plan owned by the District Magistrate, prepared with the operator, AERB and the state disaster authority. • Operator funds the off-site plan through a statutory levy into a District Off-site Emergency Fund; continuously staffed Public Information Centre; potassium-iodide stockpile for the 16-km zone. • Emergency-preparedness cost recoverable as approved O&M in tariff.
Viability Gap Funding (VGF) Support	• High upfront capital investment impacts financial viability of early Nuclear Power Projects. • Initial projects may not be cost-competitive compared to other generation sources. • Developers face challenges in achieving acceptable project returns during initial deployment phase. • First-of-a-kind private projects carry institutional-learning costs that a pure cost-plus tariff would otherwise load onto the consumer.	• Government may consider Viability Gap Funding (VGF) support during initial phase (say 10 yrs) of Nuclear Power deployment. • VGF support may reduce overall cost of capital and improve affordability of nuclear power. • Facilitate development of domestic nuclear ecosystem and supply chain till economies of scale are achieved. • Confirm first-of-a-kind private nuclear eligibility under the Government's existing Viability Gap Funding and infrastructure-financing mechanisms, rather than create a bespoke nuclear facility. • Support confined to the first cohort, linked to certified construction milestones, conditioned on a tariff discount passing the benefit to consumers, and tapered as the sector establishes its cost record.

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Project Financing & Cost of Capital	• High capital cost and long gestation period result in elevated financing requirements. • High interest burden impacts tariff competitiveness. • Developers face challenges in achieving acceptable project returns during initial deployment phase.	• Government may facilitate long-tenure loans of 25–30 years through Banks, Financial Institutions and Commercial Lenders. • Rupee bond market access. • Development of dedicated financing mechanisms for Nuclear Power Projects. • Availability of lower-cost debt to improve project viability and reduce consumer tariff. • Incentives in line with renewable energy. • Facilitate long term PPAs. • GST rate of 5%. • Duty waiver for imported components / equipment/ systems. • Extend PLI scheme to nuclear sector.
Tariff Certainty & Revenue Recovery	• Lack of established tariff determination framework for Nuclear Power Plants. • Uncertainty regarding recovery of capital-intensive investments. • Absence of standardized tariff regulations.	• Notification of dedicated Nuclear Tariff Regulations by DAE /MoP. • Clear provisions for tariff determination, cost recovery, Return on Equity (RoE) and payment mechanisms. • Stakeholder consultation during formulation of tariff regulations. • Adoption of Cost Plus (Regulated Tariff) mechanism for Nuclear Power Projects.
Standardised Model Nuclear PPA	• Private nuclear developers cannot reach financial close without a bankable, standardised, long-tenor off-take contract. • Renewables solved this with model PPAs from MoP, SECI and CERC; nuclear has no equivalent.	• Model Nuclear PPA as a Schedule to the SHANTI rules: 35-year tenor (five-year extension by consent); three-part tariff. • Capacity recoverable on deemed availability at a normative plant-availability factor of 85%; energy as direct pass-through with quarterly true-up. • Three counterparty options: central pooled off-take by a designated nominee (SECI-type) with back-to-back state agreements; direct bilateral off-take with industrial buyers rated AA- and above; or a hybrid. • Precedent — Hinkley Point C 35-year off-take; UAE Barakah 60-year PPA; SECI central-counterparty model.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Foreign Direct Investment	Foreign Direct Investment issue is not clear. Need for periodic review of FDI in nuclear energy. Need to distinguish FDI in nuclear power plants and nuclear technologies such as reactor design, nuclear fuel and related high end technologies. In the interest of achieving the 100GWe Nuclear mission, it is imperative that India needs Foreign Technology Providers to bring their technology to India and adapt it. Such Technology (adapted for India) shall be housed in India for developers to access under a commercially competitive framework, while the Foreign Technology provider continues to own, control and be responsible for the Indian Adaptation.	• Foreign Direct Investment (FDI) in Indian NPP SPVs Permit foreign direct equity participation in the Indian Nuclear Power Project (NPP) SPV up to a maximum of 49%, with the Indian promoter retaining majority shareholding and operational control. This pathway is intended for financial investors — private equity, pension funds, sovereign wealth funds — as well as for strategic foreign partners who wish to take equity alongside a supply relationship. The 49% cap preserves the broader principle of Indian-led control of nuclear assets, consistent with the SHANTI Act framework. • Operationalising this requires amendment of the existing prohibition on FDI in nuclear power, in coordination with the Department for Promotion of Industry and Internal Trade. Implementation details — Government route versus automatic, security clearance, sectoral oversight — sit with the SHANTI implementation rules and the FDI policy amendment itself. • Foreign Technology, Fuel and Services via Indian-Incorporated foreign owned companies (FOCs) Permit foreign reactor OEMs, fuel suppliers and technology providers to participate through an Indian-incorporated Foreign-Owned Company (FOC) — majority or fully foreign-owned (51% to 100%) — governed by Indian law, sitting outside the NPP SPV as a contractual counterparty under long-term commercial arrangements. • The FOC holds core reactor IP or fuel cycle IPs, proprietary designs and fuel sourcing relationships on its own books, under the foreign player's commercial control; what crosses the boundary into the NPP SPV is the product or service under contract, not the underlying IP. This protects the foreign player's commercial position while ensuring the contracting counterparty to the Indian developer is Indian-incorporated.

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
FDI up to 49% from Day One, with Safeguards	FDI in atomic energy remains a prohibited sector under the extant Consolidated FDI Policy and FEMA framework The April 2026 AEC clearance of up to 49% is announced intent, not operative law — a DPIIT Press Note and FEMA (NDI) Rules amendment are still required.	• DPIIT to notify up to 49% FDI under the approval route, fully accessible from the first year of financial close with no staggering. • Safeguards: beneficial-ownership disclosure to the ultimate natural-person level; FATF compliance; investors only from civil-nuclear-cooperation countries; absolute bar on restricted countries; Indian-promoter retention of at least 51% with majority board control; Indian-national Chief Nuclear Officer and at least two-thirds Indian board; DAE to have control over reactor technology, fuel cycle and change of control. • Expansion beyond 49% only as a future review after at least three years of operating experience; defence-sector FDI liberalisation is the template.
Automatic Change-in-Law & Regulatory-Cost Pass-Through	Nuclear regulatory cost evolves over decades — post-construction safety reviews, lessons-learned upgrades, new certification — none of which can be forecast at financial close.	• Narrowly defined but automatic change-in-law clause: changes in tax law; new AERB rules or codes materially affecting cost; fuel-cycle service fee changes; environmental, water or land regulation; new international-convention obligations. • Quarterly true-up without fresh adjudication per event; all other risk — construction cost, performance, market — remains with the developer.
Force Majeure & Deemed Generation	Nuclear plants face regulator-directed shutdowns (periodic safety review, global lessons-learned) that are no-fault but commercially severe.	• Three force-majeure categories: natural events (deemed capacity-charge recovery plus tenor extension); non-natural events such as war or terrorism (deemed recovery, tenor extension, remediation cost via change-in-law); off-taker or grid events (deemed generation at the normative availability factor). • AERB-directed regulatory shutdown treated as a no-fault pass-through where demonstrably not attributable to operator negligence.

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Lender Step-In Rights & Refinancing Flexibility	Long-tenor project finance requires lenders to be able to protect their position without collapsing the asset.	• Standard tripartite Direct Agreement (developer, off-taker, senior lenders): cure rights, at least 180 days' notice before PPA termination, step-in to nominate a substitute operator on existing terms subject to AERB consent. • Post-COD refinancing without off-taker consent where new lenders accept the Direct Agreement and tenor and tariff are unchanged; refinancing gains shared 50:50, the off-taker's share passed through as a tariff reduction at the next reset.
Model Concession Agreement for the Project Lifecycle	The PPA governs off-take, but a bankable project also needs a concession-level instrument fixing rights and obligations over the full build-own-operate lifecycle — today assembled from scratch per project.	• Model Concession Agreement as a companion Schedule to the Model PPA: two-part tariff; defined change-in-law and change-in-scope mechanisms; calibrated force-majeure regime; concession term aligned to plant design life (up to 60 years) with defined renewal and hand-back; step-in consistent with the lender Direct Agreement. • Precedent — India's model concession agreements for national highways and major ports; UAE Barakah and UK new-build concession-level instruments.
Must-Run Baseload Status & Curtailment Compensation	Without contractual must-run status, a nuclear plant can be backed down by a load-dispatch centre for merit-order reasons it cannot control, stranding the fixed costs the capacity charge is meant to recover.	• Explicit must-run dispatch entitlement embedded in the Model PPA (except declared grid emergency or AERB-mandated shutdown). • Deemed-generation compensation at the normative availability factor for any non-emergency curtailment — protection renewable PPAs already provide, more warranted for capital-intensive firm baseload.
Captive, Data-Centre & Behind-the-Meter Off-Take	Sole reliance on distribution-utility off-take concentrates counterparty risk on the weakest link in the chain; large creditworthy industrial and digital buyers are not clearly enabled for nuclear.	• Confirm in the rules that private nuclear may contract directly with captive and group-captive consumers, data center operators and open-access industrial buyers rated AA- and above, alongside or instead of the central off-taker. • Align with the Electricity Rules on captive use and open access; treat such contracts as eligible PPAs for financing and infrastructure purposes. • India's data-center load projected at ~13.56 GW by 2031-32; precedent — the AWS off-take from the Susquehanna nuclear plant (US).

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Infrastructure-Sector Classification	Without infrastructure status, nuclear is shut out of the long-tenor, concessional finance channels available to comparable assets.	• Notify nuclear power generation as a sub-sector of the MoF Harmonised Master List of Infrastructure Sub-sectors. • Unlocks 20-year ECB on the automatic route, IIFCL credit enhancement, InvIT eligibility, concessional withholding tax under s.194LC, and tax-free infrastructure bonds.
Priority Sector Lending Status	Priority-sector classification is the single most efficient way to channel domestic bank capital into long-tenor projects; the framework is mature for renewables, absent for nuclear.	• Govt of India recommendation to the RBI that lending to private nuclear projects qualify for priority-sector treatment, on the same footing as other clean-energy infrastructure. • Calibration of any sub-target left to the RBI.
Dedicated Nuclear Project Finance Window	A single project would consume a disproportionate share of any one DFI's exposure limit; the cumulative pipeline implies a debt requirement far beyond any single institution's capacity over years.	• Dedicated nuclear project finance window jointly at IIFCL, PFC and REC — indicative ₹1,00,000 crore over five years; tenor up to 25 years with a construction-period moratorium; pricing at MCLR plus a calibrated spread, reducible with a sovereign guarantee. • Eligibility conditioned on AERB-approved siting and design, a signed PPA, an executed technology-supply agreement, and at least 30% committed equity. • Structurally analogous to the US DOE Loan Programs Office Title XVII facility, including its project-by-project credit discipline.
Sovereign-Backed Payment Security	State distribution utilities, in their current financial condition, are not bankable counterparties for 35-year obligations.	• Four-tier architecture: (1) off-taker letter of credit of ~1.5 months' billing; (2) escrow / payment-security mechanism funded from designated revenue streams; (3) Government of India backstop callable on sustained default and recoverable from subsequent transfers; (4) termination payment covering outstanding senior debt plus equity at the agreed return. • Precedent — UK Low Carbon Contracts Company guarantee; US DOE LPO Title XVII; India's tripartite renewable-PPA structure.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Long-Tenor Rupee Bond Market Access	Bank finance alone cannot carry the cumulative requirement; a deep 25–35-year rupee bond market is essential.	Confirm with the financial-sector regulators that bonds issued for private nuclear projects qualify under the existing infrastructure-bond and infrastructure-debt categories already open to insurers, pension funds and provident funds — parity without a bespoke carve-out.
Green & Transition-Finance Eligibility	Nuclear is excluded from India's sovereign green-bond framework and most ESG and taxonomy-aligned mandates, cutting it off from a material share of global green capital.	• Take up with the Ministry of Finance and SEBI the recognition of nuclear as a transition-finance-eligible activity within India's green-taxonomy and green-debt frameworks. • Precedent — EU Taxonomy classifies nuclear as transitional (upheld by the EU General Court, September 2025); Bruce Power 2021 nuclear green bond; EDF 2022 green loan and 2023 green bond; Barakah 2024 green-loan refinancing.
Codified Capital-Structure Norms	• Absence of codified norms forces per-project negotiation and denies lenders certainty.	• Codify in the rules: debt-to-equity up to 75:25; foreign-currency debt up to 50% of total debt; promoter equity lock-in of at least five years post-COD; refinancing eligibility from COD plus three years. • Interest-during-construction capitalisable to project cost consistent with Ind AS 23 and CERC tariff regulations.
Codified Capital-Structure Norms	Absence of codified norms forces per-project negotiation and denies lenders certainty.	• Codify in the rules: debt-to-equity up to 75:25; foreign-currency debt up to 50% of total debt; promoter equity lock-in of at least five years post-COD; refinancing eligibility from COD plus three years. • Interest-during-construction capitalisable to project cost consistent with Ind AS 23 and CERC tariff regulations.
GST, Customs Duty & Direct-Tax Parity	• Nuclear equipment (HSN 8401) and EPC attract 18% GST while solar was cut to 5% by the 56th GST Council (effective 22 September 2025) — a ~13-point disadvantage for a competing clean baseload technology. • The s.80-IA tax holiday sunset in 2017 and was not carried into the Income Tax Act 2025.	• Ministry of Finance and the GST Council: must create 5% GST rate applied to nuclear power; • customs and project-import relief on nuclear-specific equipment during construction. • Generation-stage tax incentive via a fresh statutory provision (revival of 80-IA is not available).

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
Construction-Phase Insurance Framework	Greenfield nuclear construction requires specialist cover that the domestic market does not yet package consistently.	• Standard four-cover package through GIC RE and the India Nuclear Insurance Pool: Construction All Risks; Erection All Risks with Delay-in-Start-up; Marine Cargo for large-component transit; construction third-party liability. • Access to international nuclear reinsurance above pool retention; premiums confirmed as approved capex for tariff pass-through.
Cost-Plus / Regulated Asset Base Hybrid with Construction-Period Cost Recovery	• The single largest financing gap is the upfront build: a multi-year construction period in which a large asset earns nothing yet accrues interest. • A cost-plus tariff alone recovers this only after COD, by which time the burden has compounded; cost-plus (a tariff methodology) and RAB (a revenue-recovery mechanism) are complements, not alternatives.	• Apply the cost-plus inputs to a regulated asset base with a defined construction-period cost-recovery overlay: a modest, regulator-set charge beginning during construction once milestones are independently certified. • Cap the construction-period charge; condition each tranche on AERB- and independent-engineer-certified milestones; true up against final approved normative capex so consumers never pay for unbuilt capacity. • Precedent — Sizewell C financial close 4 November 2025 (~£38bn) under the RAB model (Nuclear Energy (Financing) Act 2022), with a ~£3.46/MWh construction-period levy; UK estimates ~£30bn consumer saving versus a CfD structure.
Construction-Period Cost-of-Capital Recognition	Even with construction-period recovery, the first projects carry a first-of-a-kind risk premium on both debt and equity that the consumer should not fully bear and that can stall financial close.	• Tariff framework to explicitly recognise and allow recovery of the cost of capital incurred during construction for the first cohort, tapering as the cost base is proven. • Direct public risk-capital support beyond this routed through existing infrastructure-financing mechanisms rather than a bespoke nuclear instrument.

Head	Concern	Expectation
4. Economics of Nuclear Power Plants; financing; investments		
NaBFID Eligibility through the Harmonised Master List	NaBFID is purpose-built for long-tenor infrastructure debt, but private nuclear can draw on it only once nuclear is confirmed within the Harmonised Master List.	• On notification under the Master List, confirm private nuclear generation as eligible for NaBFID financing and credit enhancement. • Position NaBFID (authorised capital ~₹1 lakh crore) as a corner-stone lender alongside the dedicated IIFCL–PFC–REC Window.
Multilateral & Sovereign Partial-Risk Guarantees	International development-finance support can materially lower the cost of capital, but only if the framework actively enables multilateral participation.	• Pair the sovereign credit-enhancement facility with partial-risk and political-risk guarantees from the World Bank Group (including MIGA) and the ADB; structure the first projects to be eligible for such cover. • The World Bank lifted its prohibition on financing nuclear power on 11 June 2025 and the ADB moved to re-engage in November 2025 — a shift India's framework should be positioned to use.
Export Credit Agency Financing Framework	Where reactor systems, large components or specialist services are sourced internationally, ECA finance is among the cheapest long-tenor capital available, but requires an accommodating framework.	• Confirm that private nuclear projects may access export-credit-agency cover and lending, coordinated with the relevant ECAs and consistent with the foreign-currency-debt norm. • Precedent — UAE Barakah and Korean/French nuclear exports financed substantially through ECAs; KEXIM and Bpifrance track records.
Ring-Fenced Nuclear Decommissioning Fund	The public must be assured that the money to decommission a plant exists, secured during operation rather than dependent on the operator's solvency decades later.	• Per-unit-of-generation contributions sized, with a 25% contingency, to the inflation-indexed end-of-life cost; held in trust off the developer's balance sheet under a government appointed manager. • Conservative investment mandate (government securities, AAA bonds, infrastructure debt); withdrawal only against certified decommissioning expenditure; excess reverting to Government, any shortfall recoverable from the developer.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
5. Reactor Technologies		

Short list reactor designs for fleet mode type deployment using EoI mode	• New private and public sector operators are now dealing with reactor technology providers on a stand alone basis.
	• Create basis to engage, discuss and negotiate on a national basis.
	• Fleet mode deployment of chosen reactor types can reduce the cost by 15-30%; and compress time by 30-40%.
		• Government must explore to select few reactor technologies for deployment and allot a % weightage to each reactor design.
		  ◦ Indian PHWR design
		  ◦ LWR Design of 1000-1650 MW
		  ◦ SMRs
		  ◦ MMRs
		• Once the % share of each reactor design is fixed, new NPP operators can engage and negotiate with reactor OEMs.
		• Engage with reactor design OEMs.

PHWR Technologies	• Handholding with detailed design basis documentation; Engineering design support; Safety practices; Operational procedures; and Management practices. • Capacity building of indigenous vendors for delivering PHWR units on time.	• Modalities and framework for technology access to adopt 220 MW BSR a and 700MW PHWR to private players. • Design and engineering support agency to be created to maintain design integrity throughout the life of the plant. • Identify and facilitate private / public sector design / engineering agencies outside of DAE to work as engineering support agencies • Design details of 700 MW and 220MW PHWR to be released to private developers. • Vendor certification, qualification processes to be shared; qualified and short listed vendors of NPCIL to be shared.
Design Certification for Standardised PHWR Units	Each project bears the full first-of-a-kind regulatory burden of demonstrating PHWR design safety even though the design already operates commercially.	• Design Certification (type-approval) pathway for standardised PHWR units. • Once a configuration is certified, unit licensing addresses only site-specific factors (seismic, meteorological, hydrological, demographic) and does not re-examine the certified design. • The single most consequential reform for multi-unit deployment; precedent — US NRC design certification and Korean APR1400 standard-design approval.

Head	Concern	Expectation
5. Reactor Technologies		
Standardised IPHWR Technology-Licensing Framework	Developers will build the proven IPHWR family, but without published, predictable licensing terms the largest single capital-cost dependency cannot be priced or financed.	• Standardised IPHWR Technology Licensing Framework as a Schedule to the rules: non-exclusive license to the IPHWR-700 or IPHWR-220 design; access to NPCIL or NPCIL-approved engineering services and continuing design updates and operating-experience feedback. • Two-part royalty: upfront technology-access fee capped at ≤3% of indigenous reference capital cost per unit, plus a continuing royalty capped at ≤1 paisa per kWh. • Strict IP-confidentiality and no-sub-licensing obligations, with reversion of design information on decommissioning or developer insolvency.
EPC Partnership Models with Transparent Pricing	Developers differ in nuclear-construction experience and need a choice of delivery models with transparent pricing.	• Three models selectable at financial close: • Model A — NPCIL full lump-sum turnkey EPC; • Model B — NPCIL nuclear island, developer balance of plant (the Barakah-type split); • Model C — developer or Indian EPC partner leads under NPCIL technical-services oversight. • Each model priced transparently and benchmarked to the DAE-determined indigenous reference capital cost per MWe.
NPCIL Performance Guarantee & Construction Liquidated Damages	For NPCIL to be a credible technology licensor to private developers, it must stand behind its technology as international licensors do — a precondition for bankability.	• Guaranteed net capacity and heat rate, with capped liquidated damages for shortfall; construction-schedule LDs for NPCIL-scope delay with force-majeure and owner-caused carve-outs. • Ten-year design-defect warranty with generic-lessons application across the licensed fleet, capped per unit; excess escalated to DAE or covered by a design-defect tranche of the insurance pool. • Rules to explicitly authorise NPCIL to give these warranties, with a sovereign backstop where obligations exceed its balance-sheet capacity; precedent — Westinghouse, Framatome, Rosatom and KEPCO all provide comparable warranties.

Head	Concern	Expectation
5. Reactor Technologies		
Imported Large Reactor Technologies	• Two levels of licensing – technology license and site specific license. • Time and cost burden of utility trying to acquire foreign technology may make project unviable. • Design Adaptability and reviews.	• Create a comparative study and analysis of reactor technologies. • Develop and define approval and licensing frameworks for private companies to acquire and import large reactors technologies that are approved by regulators of those countries which may or may not be operational. • Finalization of imported technologies to be decided through EoI for commercially viable and suitable at Govt. of India level with provision of transfer of technology and domestic manufacturing content. • Early engagement of technology providers and AERB. Licensing rules for imported reactors to be made clear to new operators.
SMR / MMR Technologies	• Clarity on mechanism for regulatory approval, licensing of SMR/ MMR. • Clarity on import of SMR / MMR technologies approved by overseas regulators. • Expertise to compare various SMR / MMR technologies available globally.	• Clarify rules and regulations for transfer of technology for SMRs, MMRs. • Develop schemes for development, deployment of Indian SMRs/ MMRs by private industries initiate studies to develop comparative studies of SMRs/ MMRs available globally and provide inputs to Industry. • Develop and define approval and licensing frameworks for private companies to acquire and import SMR/ MMR reactors technologies that are approved by regulators of those countries which may or may not be operational. • Finalization of imported SMR/MMR technologies to be decided through EoI for commercially viable and suitable at Govt. of India level with provision of transfer of technology and domestic manufacturing content. • Create an Indian SMR mission. • Create an Indian MMR mission.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
5. Reactor Technologies		
Fleet & Serial Procurement for Nth-of-a-Kind Cost Reduction	Procuring units one at a time forfeits the largest single source of nuclear cost reduction — the Nth-of-a-kind learning curve from building a standardised design in series.	• Enable fleet or serial procurement under the technology-licensing framework: multi-unit and multi-project framework orders for the standardised IPHWR design and short listed imported reactor technologies. • NPCIL, other technology providers and the supply chain plan against a committed serial pipeline; resulting cost savings passed to consumers through the normative-capex reset. • Precedent — the Korean APR1400 and the historic French fleet; serial construction of a single standardised design is the decisive driver of cost and schedule reduction. • Create mechanisms for procurement of foreign reactor technologies to enable fleet mode.
6. Nuclear Fuel Supply Security; Heavy Water Availability		
Long term Fuel Supply	• Uncertainty towards Fuel availability over the Project Life. • Private sector is completely restricted from engaging in procurement of raw fuel and its enrichment. • Complete dependence on Imported fuel through Government tie ups. • Inability to venture into any fuel security / diversification planning. • Limited options in fuel fabrication supply causing dependency.	• GOI assurances to provide long term fuel over the life of the asset is a MUST Have for private players to build and operate NPPs. • Define clear framework for procurement of natural and enriched uranium. • Government- to -government (G2G) agreements to ensure long term fuel supply security. • Pricing and terms to be defined for fuel and heavy water supply for those operators choosing NPCIL PHWR units. • Diversify fuel fabrication capacity and supply chain. Encourage private sector players for nuclear fuel fabrication. • Long-term fuel supply agreements with NPP operators and creation of strategic reserves. • Enable and accelerate shift towards thorium based fuels.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
6. Nuclear Fuel Supply Security; Heavy Water Availability		
Heavy Water Availability for PHWR Projects	• Uncertainty regarding long-term availability of Heavy Water for PHWR technology. • Dependence on Government support for strategic materials.	• Long-term Government assurance on Heavy Water availability for PHWR projects. • Clear framework for allocation and supply of Heavy Water to private developers. • Visibility on future Heavy Water production and distribution plans.
Fuel Security and Safeguards	• Safeguards compliance and material accounting obligations for multiple operators • Need for clarity on fuel ownership, transport, and custody responsibilities.	Give clarity of framework for fuel custody, transport security, and regulatory oversight.
Spent Fuel & Waste Management	• Lack of clarity on long-term spent fuel ownership and responsibility. • Need for centralized storage, transport, and disposal. infrastructure for spent fuel • Public and environmental concerns regarding waste management.	• National Policy on spent fuel management and disposal. • Interim storage and backend fuel cycle facilities • Clear operator responsibilities for waste handling and decommissioning. • Strengthen waste reprocessing capabilities. • strengthen R&D towards minimising the waste. • SOPs, guidelines, and checklists for handling spent fuel. Including transfer to DAE/ Government.

Cost-Plus Fuel-Cycle Service Contracts including Heavy Water Assurance	• Fuel-cycle dependence is a critical strategic and commercial risk that must be made transparent and predictable.
	• PHWR operators depend on assured long-term heavy-water supply.
		• Cost-plus, audited fuel-cycle service contracts:
		  ◦ a 25-year Long-Term Fuel Supply Agreement with the Nuclear Fuel Complex;
		  ◦ a parallel Heavy Water Supply Agreement with the Heavy Water Board including a strategic-reserve commitment.
		• Spent Fuel Management Services Contract with the designated DAE entity.
		• Government Letter of Comfort confirming sufficient front-end capacity.

Head	Concern	Expectation
6. Nuclear Fuel Supply Security; Heavy Water Availability		
Spent-Fuel Policy Clarity	Private operators need certainty on the back end reprocessing rights, title and storage to finance and operate NPPs.	• Spent Fuel Policy Notification confirming: an enforceable right to reprocessing at designated DAE facilities on published service fees; spent-fuel title vesting in Government on transfer, with reprocessed uranium returned for recycle and plutonium retained for sovereign purposes. • Away-from-reactor storage right at published fees where reprocessing capacity is unavailable; DAE obtains the necessary international consents on the operator's behalf.
Front-End Fuel-Cycle Access & Strategic Reserve	Private operators must be protected from being squeezed out of indigenous fuel supply as the public fleet expands.	• Annual Uranium Allocation Plan with a floor allocation of at least 15% of incremental indigenous production reserved for private operators; direct right to contract imported uranium under existing bilateral agreements (subject to safeguards declaration and DAE notification). • Published non-discriminatory NFC conversion-and-fabrication tariff; NFC capacity expansion. • National strategic uranium reserve of not less than five years of total fleet consumption.
International Cooperation & Safeguards Framework	Private operators cannot and should not negotiate independently with the IAEA or foreign governments on safeguards and cooperation.	• DAE as the single point of contact with the IAEA for all private-facility safeguards declarations, executing item-specific safeguards instruments on the operator's behalf; existing bilateral cooperation agreements (US 123, Russia, France, Canada, Australia, Kazakhstan and others) extended to private operators on NPCIL-equivalent terms. • Foreign-technology-consultancy approvals within 90 days (21-day fast track for a published positive list); published Nuclear Export Authorisation Pathway with NSG-equivalent end-use verification.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
7. Supply Chain		
Enhance Supply Chain Capabilities	• Limited domestic nuclear supply chain capacity & capability. • Long term procurement cycles dependence on small pool of suppliers. • technology access constraints.	• Create focused initiatives to develop comprehensive supply chain including manufacturing, variety of services, design and engineering, testing, certification etc., to achieve 70-80% localisation and enable export from Indian supply chain. • Incentives for indigenous production and capability development. • Encourage global technology partnerships. • Incentives / subsidy for Indian suppliers to get certifications (ISO19443, ASME, etc). This will assist Indian nuclear supply chain to go global. • Clear visibility about long-term supply orders to potential nuclear equipment manufacturers. • Encourage FDI / JVs in select areas of critical importance such as -digital, instrumentation and control, Special steels and forgings, heavy equipment. • QA certification support, wherein we may consider a possible Target.
Indigenous Supply-Chain Coordination & Vendor Qualification	A multi-project programme will sharply increase demand for forgings, steam generators, calandria, coolant channels and pumps; the supply chain must invest ahead of that demand.	• DAE coordination with the Ministry of Heavy Industries to give critical-path suppliers visibility of the long-term private pipeline, so capacity is built ahead of demand. • Alignment of domestic supplier quality infrastructure — nuclear codes, qualification and certification to recognised standards — so Indian vendors can qualify into the supply chain. • Annual published NPCIL vendor pricing reference against which developers can benchmark quotations.
Indian Codes, Standards & Modern Construction Methods	A durable indigenous industry requires durable indigenous codes and standards; conventional construction methods leave the schedule compression demonstrated elsewhere unrealised.	• Accelerate a comprehensive Indian nuclear code-and-standards framework — harmonised with ASME Section III and IAEA standards but owned and maintained domestically. • National programme to adopt modularisation and factory fabrication, digital engineering and design twins, advanced welding and NDE, and disciplined configuration management — central to the schedule improvement demonstrated across the Korean and UAE fleets.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
8. Human Capacity Development		
Human Capacity Development	• Limited experienced manpower for nuclear power sector in market. • Limited nuclear engineering related academic programs. • Lack of skilled workforce training programs for nuclear energy (eg. welders).	• Identify nuclear work force as a key infrastructure need for nuclear energy expansion. • Involve academic institutions under UGC, AICTE, along with HBNI, BARC, IGCAR, NTPC and private players to create a task force. • Develop UG and PG academic programs, PhD programs for nuclear energy. • Develop integrated Masters programs in reactors physics, reactor engineering . • Develop PG training programs, operator licensing programs, simulation centers. • Encourage international collaborations in workforce development. • Deployment of private sector employees to NPCIL projects under operation & under construction for training. • Dedicated modules for project construction and later for O&M phase. It can be on the similar lines of NPTI one year program for diploma engineers and degree holders in thermal power plant. • Develop National Nuclear skill development and certification programs. Skill development of specialist trades needed for nuclear energy sector to be taken up by skill development commission and other agencies. • Develop framework for training and licensing workforce for Indian and foreign reactor technologies. • Training and licensing framework used by foreign OEMs and approved by their regulators can be verified and accepted by Indian Regulators. • DAE to provide access for practical field training as such facilities exist only with DAE entities currently.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
8. Human Capacity Development		
Operator-Personnel Certification Pipeline		• Establish a National Nuclear Operator Training Institute in collaboration with DAE, NPCIL, BARC, HBNI, NTPC and private operators. • Establish secondment of candidates with residency at NPCIL sites; standardised qualification timelines; lateral entry from cognate programmes with bridge training. • Recognition of selected international qualifications (US, UK, Canadian, Korean) with bridge training; senior expatriate operators capped at 10% of a unit's crew. • Operator training programs. • Integrated reactor physics and reactor engineering courses. • Creation of simulation centers. • Apprenticeship programs. • Encourage international collaborations.
NPCIL Deputation Framework for the Initial Workforce	The first private projects will need certified operators before the indigenous training pipeline matures.	Authorise NPCIL to depute qualified personnel to private developers on cost-plus-margin terms for initial years post-COD, retaining NPCIL service continuity and pension; deputed personnel hold operating licenses without re-certification.
National Nuclear Knowledge Management & the Indigenous Talent Base	India's nuclear human capital, built over six decades, is a finite and slowly renewed national resource; a multi-operator expansion will place it under strain.	• National nuclear knowledge-management initiative capturing and codifying the institutional expertise of the retiring generation before it is lost. • Expand nuclear-engineering and -science capacity at the IITs, NITs, HBNI and select universities ahead of demand; a national fellowship and apprenticeship architecture to retain top talent in the sector. • Work with UGC, AICTE to create this mechanism.

Industry Perceptions, Concerns, Expectations & Policy Recommendations

Head	Concern	Expectation
9. Nuclear R&D - Collaborations		
Nuclear R&D - Collaborations	• Very limited R&D outside of DAE entities in nuclear area. • Private sector R&D can bring speed up and bring dynamism to nuclear industry. • Difficulty of access to DAE R&D facilities. • Need to remove technology dependence on overseas providers.	• Set up nuclear research reactors in multiple locations to facilitate research. Make such facilities easily accessible to private players. • Create a SBIR (small business innovation research) program in nuclear energy area in line with SBIR of DOE USA. (in India, DBT runs such SBIR programs successfully). • Create active programs to fund private players and start ups to develop MMRs/ SMRs and nuclear energy related technologies. • Provide access to private parties to utilise R&D facilities under DAE. • Create R&D projects for thorium fuel research to accelerate fuel supply independence.
Public–Private Nuclear Research Framework	Private sector participation in R&D a must to realise nuclear mission.	• Develop Public–private nuclear research framewor: private developers co-fund and gain structured access to advanced-reactor research — small modular reactors, high-temperature and molten-salt concepts, thorium-fuel development. • Create tax incentives for R&D in nuclear energy, including SMR / MMR design, fuel cycle, thorium usage etc.

Head	Concern	Expectation
10. Public perception and mass awareness about Nuclear Energy		
Public perception and mass awareness about Nuclear Energy	• Significant fear / apprehension about nuclear energy in public mind that hinder NPP projects. • With Limited number of sites, such perceptions hinder growth of nuclear power.	• Create multi-mode, socio political technological awareness campaigns in a vigorous mode across different sections of population including schools and colleges. • Create a dedicated fund for such mass awareness programs. • Government should create a matching fund, for investments/ expenses by private operators in such efforts of mass education / awareness. • Such awareness programs should use various social media, and digital channels in local Indian languages and use variety of workshops and other means of mass communication.
Local-Area Development & Community Engagement	Community trust is foundational to social license and should be codified rather than negotiated project by project.	• Codified developer obligations: Local Area Development levy (~0.5–1.0% of project cost and 1.5–2.0 paise per kWh thereafter) into a fund administered by the district; Community Health Program covering the 16-km emergency-planning zone • Minimum 30% local share of non-technical operational employment with developer-funded skilling • Annual plain-language disclosure of environmental, safety and operational data, with AERB as independent verifier
National Transparency & Public-Information Framework	The greatest long-term risk to the program is social.	• National public-information and transparency framework: plain-language disclosure of safety, environmental and operational performance, independently verified by AERB. • Standing engagement protocol for host communities; a credible, factual national effort to inform public understanding of radiation, safety and waste — transparency as core infrastructure, not reputational courtesy.

Organisations Participated in INEF-2026

Government

Atomic Energy Commission	Atomic Energy Regulatory Board	BARC	Board of Research in Nuclear Sciences (BRNS)
British High Commission New Delhi	CSIR	Electronics Corporation of India Limited	Embassy of France in India
IGCAR		U.S. Consulate General Mumbai / U.S. Department of State	

Nuclear Power Plant Operators including prospective new operators

Adani Group	Bajaj Energy	GRACE	Gujarat State Electricity Board
Hero Future Energies	ITER I/O	Jindal Advisory Services Pvt Ltd	Jindal Nuclear
NPCIL	NTPC	Reliance	Tata Power
Renew		Torrent Power Limited	

Nuclear technology providers - reactors / SMR/ MMR/ Fuel/ etc

Cambridge Atomworks Limited	Clean Core Thorium Energy	Copenhagen Atomics	EDF France
Framatome Private Ltd	HEXANA	Rosatom	Tenex
Thorium Atomic Power Corp (Thoratomic)		Westinghouse	

Nuclear Start-ups

Anutara	ASPL Fusion	Big Bang Boom Solutions	Fairwood Nuclear Private Limited
Fusion Fission Powers Co. Ltd	IYNS	Pranos Fusion Private Limited	PolyEnergetics Private Limited

Organisations Participated in INEF-2026

Academic and R&D

BITS Pilani	Homi Bhaba National Institute	IIT Bombay	IIT Gandhinagar
IIT Jammu	IIT Kanpur	IIT Madras	Jadavpur University
Global institute	Green Energy Transition Research Institute	Somaiah Vidyavihar University	Sai University
University Department of Chemical Technology		Anthropocene Institute	

Associations, Industry Bodies

ASME India Pvt Ltd	India Energy Network	Indian Nuclear Society	Pahle India Foundation

Service Providers, Consultants

Accenture	Aquatherm Engineering Consultants (India) Pvt. Ltd	Afro Asian Insurance & Reinsurance Brokers India	Bureau Veritas
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Power Research and Development Consultants	Prinja Parnters	ProSIM	RELSAFE PRA Consulting Private Limited
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Nuclear EPCs / Vendors / System integrators

AB Engineering and Systems Pvt Ltd	ACEDS Private Limited	ACME Cleantech Solutions Pvt Ltd	Altmin Pvt Ltd
Amritt Inc	AVEVA	Babcock Power APAC Pvt. Ltd.	Bagmane Group
Bajaj Group	Bajaj Steel Industries Ltd	BARODA EQUIPMENT AND VESSELS Pvt Ltd	BHEL
Bhukanwala Industries	BORON RUBBERS INDIA	BRIJBASI FIRE SAFETY SYSTEMS PVT LTD	Cadmatic
Catamaran Ventures LLP	Cemindia Projects Ltd	Clean Earth Energy Solution India Pvt Ltd	Dassault Systemes India

Organisations Participated in INEF-2026

Nuclear EPCs / Vendors / System integrators

Dembla Valves Limited	Dineshchandra R. Agrawal Infracon Pvt Ltd	Diwakar Solar	Dr. Fritsch Machines & powders Pvt Ltd
Enecovery Waste Solutions Private Limited	ER-KA-ES Financial Advisory Pvt. Ltd	ESAB INDIA LTD	ESENPRO POWER TRANSMISSION PVT LTD
Everllence France	Expo Advanced Materials Pvt. Ltd.	EyeROV (IROV Technologies Private Limited)	FASTENERS AND ALLIED PRODUCTS PVT LTD
First Source Impex Pvt Ltd	GAIL (India) Limited	GALENA METALS PVT. LTD	GET-ETC
Rosatom	HAL Offshore Limited	HCC INDIA	IBCPL
Idam Infrastructure Advisory	Kirloskar oil engines limited	L&T	LISEGA India Private Limited
Manoir France SAS	MASCOT Valves Pvt Ltd	Material Intelligence Lab	Minar Hydro systems Pvt Ltd
ModeliCon InfoTech LLP	MTC	MULTITEX FILTRATION ENGINEERS Ltd	NADI AIRTECHNICS PVT LTD
NEDO	NuSpark Energy Pvt ltd	NUWAY TECH SOLUTION LLP	POWERICA LIMITED
Precision Equipments (Chennai) Pvt. Ltd	Prodigy Clean Energy	R K Control Instruments Pvt Ltd	RADIANT HITECH ENG. Pvt Ltd
RATHI STEEL AND METAL Pvt Ltd	RATNAMANI METALS & TUBES LTD	Renolit India Pvt Ltd	SAEL Industries Limited
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Session
Concerns & Expectations of New Nuclear Operators

Mr. Swapan Kataria, CEO, Thor Atomic; Mr. Somes Bhandyopadhyay, MD Gujarat State Electricity Board; Mr. Narendra Wadwa, CEO, Bajaj Energy; Mr. A P Samal, CGM Nuclear Cell, NTPC; Prof. Ranjay Sharan, President, Nuclear Energy Business, Reliance; Mr. N Rama Mohan, Former Executive Director, NPCIL; Dr Shamasundar, MD ProSIM R&D Pvt Ltd; Mr Saurabh Agarwal, President Jindal Nuclear; Mr. Sanjay Garudapally, Founder, Global Renewable Advanced Clean Energy (GRACE); Mr. CP Tiwari, Tata Power.



Session
Steps to set up and operate a nuclear power plant

Mr. Arvind Shrivastava, Former Associate Director and Civil Group Head, NPCIL; Mr. S K Malviya, Executive Director, NPCIL; Mr. D K Shukla, Former Chairman, AERB; Mr. Thomas Mathew, Former Executive Director, NPCIL; Mr. Rohit A Banerjee, Former Director Projects, NPCIL.

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Session

Nuclear Supply Chain

Ms Sarita Mhatre, Dy Director, Directorate of Purchase and Stores, Dept of Atomic Energy; Mr. Robin Kumar, Quality Assurance, NPCIL; Mr. Umesh Chandra, India Energy Network; Mr. Laurent Olivier; Global Head, Supply Chain, EDF France; Mr. KU Agarwal, Former Assosiate Director, Purchase NPCIL; Dr Nitendra Singh, public- private engagement coordinator, ITER, France.



Session

Nuclear Reactor Technologies, SMR/MMR

Mr. Eugene Shwageraus, Cambridge Atom works; Dr. Alok Mishra, MD, Westinghouse, India; Dr A K Nayak, Dean, Research, Somaiah Vidyavihar University, Former Head, NCPW, DAE; Dr Sylvain NIZOU, CEO, HEXANA; Dr. Kalirajan, MD EDF; Mr. Thomas Jam Pedersen, Co-Founder & CEO, Copenhagen Atomics.

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Session
Nuclear Fuel Supply

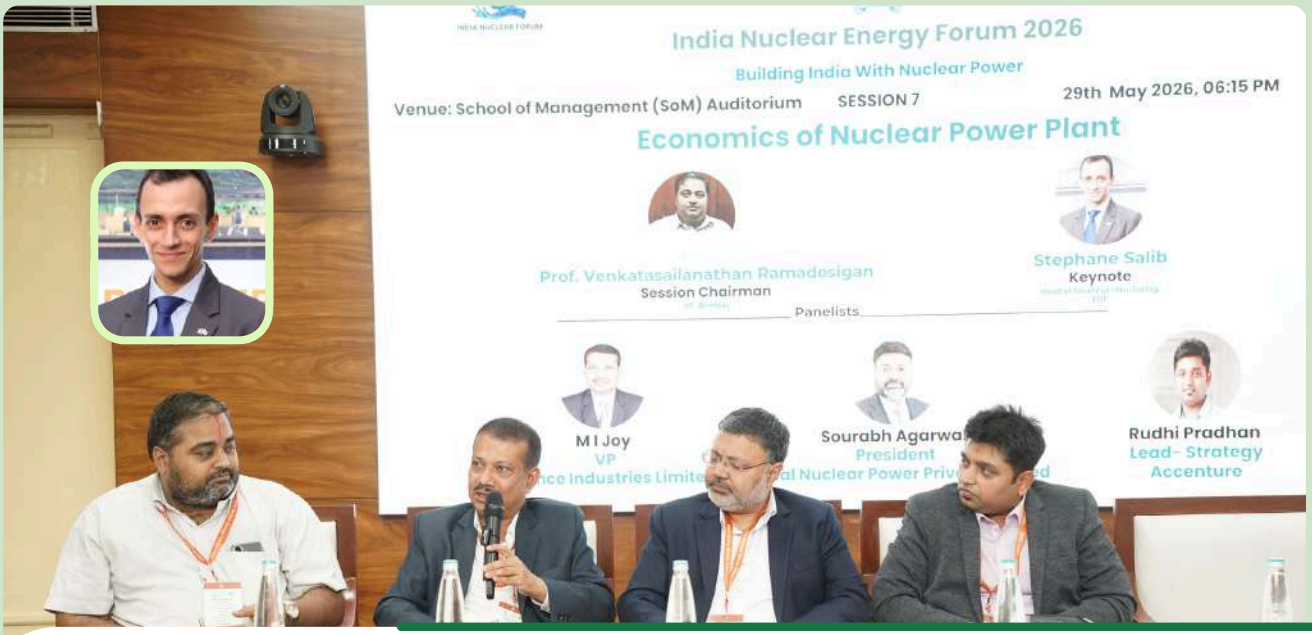
Mr. Vladimir Finov, Director, TENEX India; Dr Marta Nogaz, VP Fuel - Business Development-Framatome; Dr Umashankari, BARC; Mr. Kailash Agarwal, Former Director, NRG-BARC and Specialist at IAEA; Dr S Shamasundar, MD ProSIM R&D Pvt Ltd; Dr. Phillip Fernando, Former Associate Director, NPCIL; Mr Swapan Kataria, CEO Thor Atomic; (Inset Photos) Mr. Mehul Shah, CEO, Clean Core Thorium; and Dr. CHan - CTO of Clean Core.



Session
Nuclear Startups/ Nuclear Vendors

Mr. Pradeep Bhat, Co-Founder & CEO, Poly Energetics; Dr. Vijayaraghavan Chakravarthy, Precision Equipment; Mr. Rajendra Mistry, CTO, MASCOT Valves Pvt Ltd; Mr. K U Agarwal, Former Associate Director, NPCIL; Mr. Amit Patil, Vice President Marketing, Clean Earth Energy Solutions (CEES); Mr. Jayakrishna, Team Leader, ProSIM R&D Pvt Ltd.

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Session
Economics of Nuclear Power Plants

Prof Venkatasailanathan Ramadesigan, IIT Bombay; Mr. M I Joy, VP, Reliance Industries Limited; Mr. Sourabh Agarwal, President, Jindal Nuclear Power Private Limited; Mr. Rudhi Pradhan, Lead- Strategy, Accenture; (Inset Photo) Mr. Stephen Salib, Head of Financial Structuring, EDF, France.



Session
Nuclear Startups/ Nuclear Vendors

Mr. Dev Shetty, Sdtork Controls Pvt Ltd; Dr Samyak Munot, IYNS; Prof. Prabhat Ranjan, CEO and Co-founder, ASPL Fusion; Dr. A K Nayak, Former Head, NCPW, DAE; Mr. R.K. Singh, Indian Nuclear Society, Former Head, MRP&AS, BARC; Mr. Vivek Javani, Sr Technical Leader, Dassault Systemes; Mr.Vishwajeet Raj, Team Leader, ProSIM R&D Pvt Ltd; Mr. Santosh Mankani, Project Manager, ProSIM R&D Pvt Ltd.

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Session
Human Capacity Development

Prof Suneet Singh, IIT Bombay; Ms Remya Sharma, NPCIL; Prof (Ms) Preeti Aghalayam, IIT Madras; Mr. Sunil Ganju, Chairman, Atomic Energy Education Society (AEES); Dr Suresh Ukranade, Dean Somaiah Vidyavihar University; Prof. Naveen Kumar, Associate Dean, Homi Bhaba National Institute (HBNI) DAE; (Inserted Photo) Dr Kallol Roy, Visiting Faculty IIT- Madras, Former CMD BHAVINI(DAE).



Session
Collaborative R&D for Nuclear Sector

Mr. Ranbir Saran Das, Director Fairwood Nuclear; Prof S V Prabhu, IIT Bombay; Prof Raghunathan Rengasamy, IIT Madras; Dr. R B Grover, member Atomic Energy Commission, Chairman, Board of Research in Nuclear Sciences (BRNS); Dr B Venkatraman, (Former Director IGCAR).

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INEF 2026 Valedictory Session

Prof Suneet Singh, Mr. Umesh Chandra, Mr. N Rama Mohan, Dr Venkataraman B, Mr. R K Singh, Mr KU Agarwal, Mr R B Grover, Prof Abhay Karandikar, Dr S Shamasundar, Dr A K Nayak, Mr Kailas Agarwal, Mr Prasenjit Pal, Mr Thomas Mathew, Prof Sanjay Mahajani, Prof Venkatsailanathan Ramadesigan.

Patrons



Dr Anil Kakodkar
Former Chairman, Atomic Energy Commission, Govt of India



Prof Shireesh Kedare
Director
IIT Bombay

Convenors



Dr. Arun Kumar Nayak
Dean research Somaiya Vidyavihar University, Former Head, NCPW, DAE



Dr Shamasundar S
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Prof Suneet Singh
IIT Bombay



Prof Venkatasailanathan Ramadesigan
IIT Bombay

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MD, Westinghouse, India



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CEO, Dynatom, Switzerland



Mr Ashish Tandon
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Former Director
NRG BARC



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Vice President, Indian Nuclear Society



Mr. Kailash Agarwal
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Mr Ranjay Sharan
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Dr. Samyak Munot
VP, IYNS



Mr. Thomas Mathew
Former Executive Director, NPCIL



Mr Ujjwal Bhattacharya
CMD, STEAG India; Former Director Projects, NTPC



Mr. Umesh Chandra
India Energy Network



Dr Venkataraman B
Former Director, IGCAR, DAE



Mr Vijay Joshi
Director, Rosatom India

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