

Nuclear Liability Developments in India

27 May, 2015 – Toronto

Organized by: Mindfirst Inc. - Hosted by: Torys LLP

Els Reynaers Kini, Partner, M.V. Kini, Mumbai
General Secretary, Nuclear Law Association India

Email: else@mvkini.com ; secretary@nlain.org

Web: www.mvkini.com ; www.nlain.org

Structure

- I. India's energy scenario
- II. India's nuclear trade
- III. Civil Nuclear Liability for Nuclear Damage Act, 2010 & Rules, 2011
- IV. Creation of the India Nuclear Insurance Pool (INIP)

I. NPPs in India & aspirations

● Current:

- Coal most important energy source, but domestic coal reserves are estimated to be exhausted in about 40 years.
- **21 NPPs** (2 BWRs + 18 PHWRs + 1 VVER) with current installed capacity **5780 MWe**, which represents about 2% of general energy mix.
- India follows a closed fuel cycle approach.

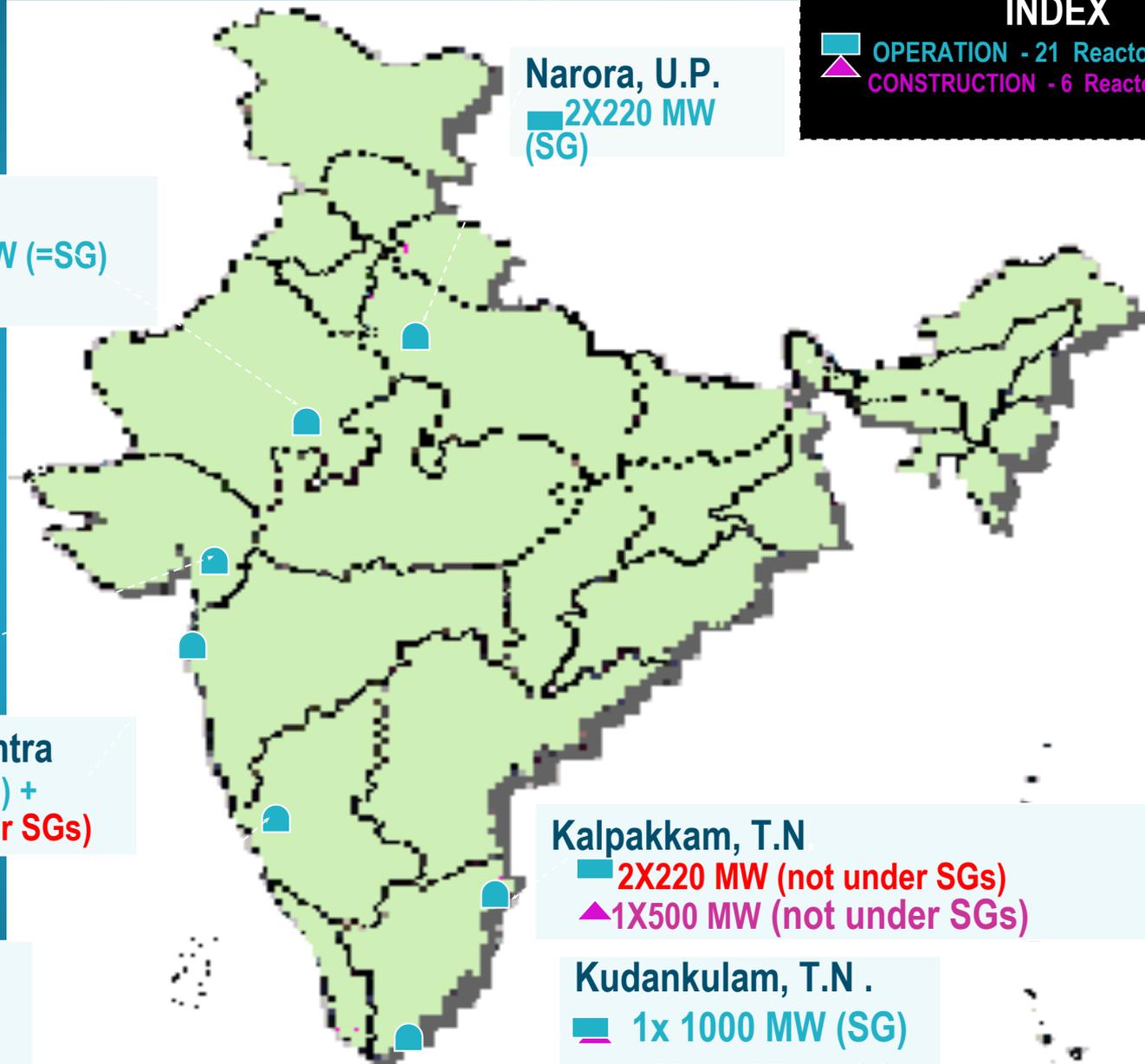
● Future:

- 6 reactors under various stages of construction = 4300 MWe
- Further plans: 8 new PHWRs of 700 MWe + 8 new LWRs of 1000 MWe and more + 1 new PFBRs + AHWR of 300 MWe.
- 20 000 MWe by 2020.
- 63 000 MWe by 2032 → 4 to 6,4% of energy mix; renewables: 5 to 6%.
- 300 GWe by 2050 = 25% of electricity needs (incl. Thorium cycle).

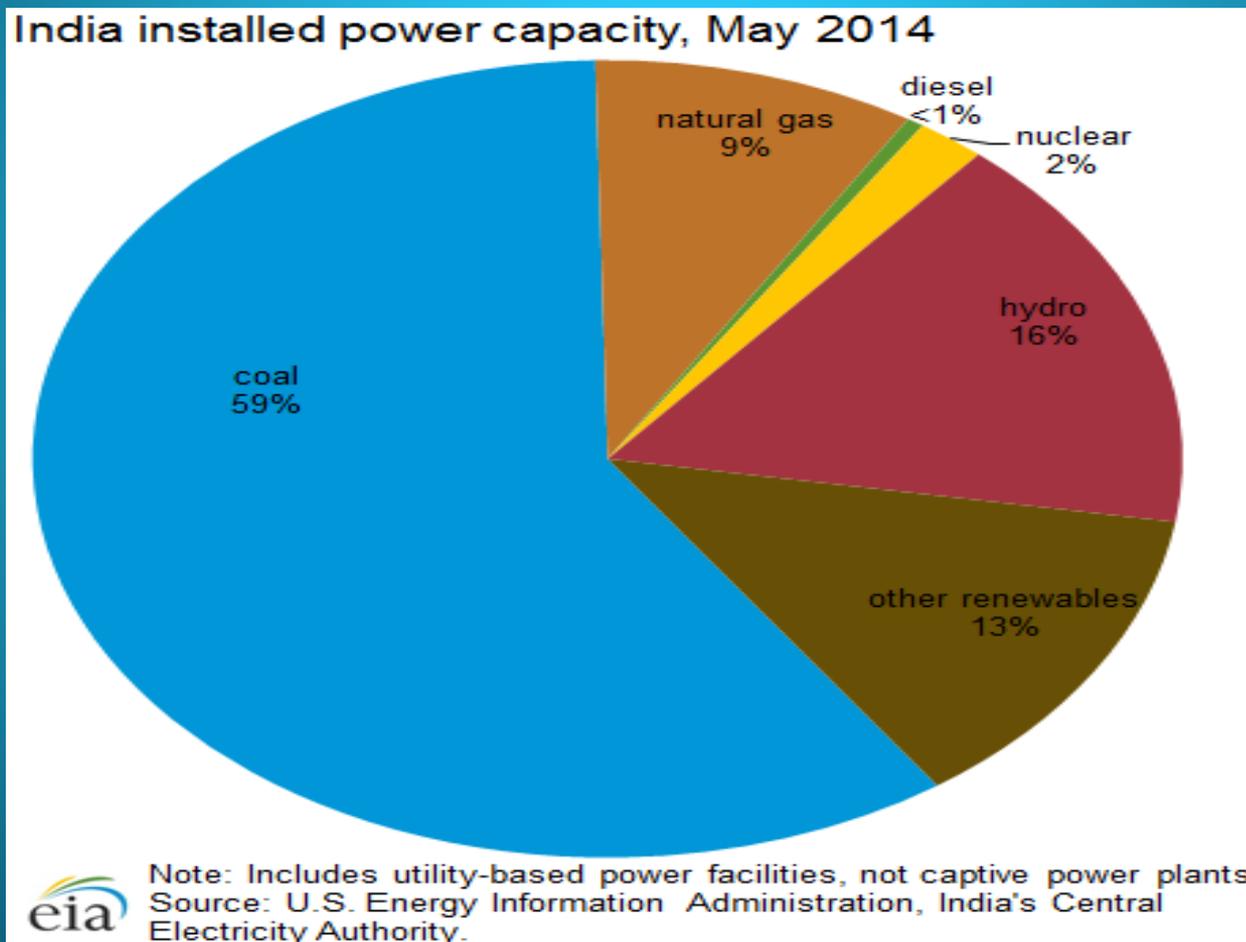
Nuclear Power Plants in India

INDEX

■ OPERATION - 21 Reactors (5780 MW)
▲ CONSTRUCTION - 6 Reactors (4300 MW)



I. India's installed power capacity



I. India's policy: 3-stage nuclear program

- While India has developed indigenous technological capability in all aspects of nuclear power, its ability to develop nuclear power has been restricted due to the limited availability of Uranium (**only 1% global deposits**). Given the abundance of **Thorium** reserves (**largest of all global reserves, min. 25%**), India has envisaged a three-stage nuclear program focusing on the conversion of Thorium to fissile material.

Stage 1: setting up of PHWRs + LWRs (*done & ongoing*).

Stage 2: setting up of FBRs (*being finalized – to be fully achieved by 2050*): by converting abundant U238 of natural Uranium into Plutonium: power generation can be increased to 300GWe for about 70 years.

- Fast Breeder Test Reactor (FBTR): since 1985 @ Kalpakkam
- 500MWe Prototype FBR (may go critical end of 2015)

Stage 3: setting up of AHWRs (*planning stage – post 2050*): by converting Thorium into U233 → nuclear capacity can be increased to 1000 Gwe and sustained for 500 years!

- 2 nuclear operators – both government-owned:
 - NPCIL: PHWRs + LWRs
 - BHAVINI: FBRs

II. Int'l developments

- **18 July, 2005:** Indo-US Joint Statement, in which India was recognized as “**a responsible State with advanced nuclear technology**” (praised for its non-proliferation record), followed by **separation plan**.
- The **India Safeguards Agreement** was signed with the IAEA on February 2, 2009, in which an “**item specific**” approach is adopted. India has offered to place 14 thermal power reactors under the IAEA Safeguards between 2006 and 2014 (an Annex, to be updated).
- In July, 2014 it also ratified an Additional Protocol (during which it added 2 PHWRs under safeguards). Now 10/18 PHWRs= safeguards.
- Essentially 8 NPPs (Indian PHWRs) + FBRs, are excluded from safeguards; part of India's declared strategic nuclear programme.

II. Int'l developments

- On **September 6, 2008**: NSG members grant India a "**waiver**" from its guidelines restricting transfer of technology to nuclear non-NPT States.
- This enabled India to sign bilateral agreements on **civilian nuclear energy technology cooperation** (France, the US, UK and Canada); and **Uranium supply agreements** (Russia, Mongolia, Kazakhstan, Argentina, Namibia, Canada and Australia).
- Prior to this breakthrough, India's NPPs had some of the lowest load factors (**avg. 50% in 2008-2009**, 61% in 2009-10; 71% in 2010-11; 79% in 2011-12; 80% in 2012-13; **current avg. 85%**).

II. Uranium supply agreement - Canada

- Canada-India Nuclear Cooperation Agreement, April 2013.
- **16 April, 2015:** Modi-Harper meeting – Uranium supply agreement, with Cameco Corporation agreed to supply 3,200 metric tonnes of Uranium over 5 years (to facilities under the IAEA Safeguards regime).
- **Note:** India insists on **reprocessing rights** on all imported fuel; to enable it to **reprocess spent fuel** and use it in the FBRs in accordance with its **closed fuel cycle** approach.

II. Foreign participation

- After the opening up of nuclear trade for India, NPCIL is now looking at setting up projects either based on designs developed by NPCIL for PHWRs, or in technical cooperation with foreign vendors for LWRs and use global supply infrastructure.
- Foreign participation to be allowed in activities such as construction of nuclear plant, fuel supply, maintenance, etc., but not to be allowed in the nuclear power generation business. Hence, no BOT models possible at this juncture.
- Note: the Atomic Energy Regulatory Board (AERB) insists that any reactor to be set up in India, must be licensed in the country of origin.

III. CLND Act & Rules – operator liability

- Civil Liability for Nuclear Damage Act, 2010 (entered into force: 11.11.11) and Civil Liability for Nuclear Damage Rules, 2011.
- Section 2(m) of the Liability Act defines “**operator**” as: *“in relation to a nuclear installation, means the Central Government or any authority or corporation established by it or a **Government company** who has been granted a license pursuant to the Atomic Energy Act, 1962, for the operation of that installation”*.
- As per the Atomic Energy Act, 1962, a **government company** = in which not less than 51% of the paid up share capital is held by the Central Government → **JVs with private companies possible as minority shareholders (reality: other PSUs)**.
- Section 4: liability principles
 - S. 4(1): the operator of the nuclear installation shall be liable for nuclear damage caused by a nuclear incident → legal channeling.
 - S. 4(2) recognizes the principle of joint and several liability where there is more than one operator.
 - S. 4(4) reflects the principle of strict and no-fault liability of the operator.

II. India – International treaties

- Party Convention on Early Notification of a Nuclear Accident, 1986; Convention Assistance Convention, 1986; to Convention on Nuclear Safety, 1994. Not party to either the Vienna or Paris regimes.
- Convention on Supplementary Compensation for Nuclear Damage, 1998 (CSC); entered into force **15 April, 2015** (met min. 400GW installed capacity requirement):
 - 6 Parties: Japan, Argentina, Morocco, Romania, UAE & US.
 - **India signed on 27 October, 2010, but not yet ratified.**
 - **Canada signed on 3 December, 2013, but not yet ratified.**
 - India and Canada = Annex States → countries which declare that their domestic law complies with the CSC's Annex.
 - **Key aspect: Art. XIII:** jurisdiction over actions concerning nuclear damage from a nuclear incident shall lie only with the courts of the Contracting Party within which the nuclear incident occurs.

II. CLND Act – Amount of liability

- Section 6(1): the maximum amount of liability in respect of each nuclear incident shall be **SDRs 300 million** (about USD 420 million), or such higher amount as may be notified by the government (cf. Art. 4 Annex CSC).
- Section 6(2) of the CLND Act further outlines the liability of an operator for each nuclear incident as follows:
 - a) In respect of nuclear reactors having thermal power equal to or above ten MW, **Rupees 1,500 Crores** (about **USD 237,5 million**);
 - b) In respect of spent fuel reprocessing plants, Rupees 300 Crores (about **USD 47.5 million**);
 - c) In respect of the research reactors having thermal power below ten MW, fuel cycle facilities other than spent fuel reprocessing plants and transportation of nuclear materials, Rupees 100 Crores (about **USD 15.85 million**).

III. CLND Act & Rules – Central Government

- Section 7: The Central Government shall be liable:
 - where the liability exceeds the amount of liability of an operator determined under S. 6(2); [*up to the amount specified under S. 6(1); after that could rely on CSC Funds*].
 - events prescribed under S.5 of the CLND Act:
 - i. a grave natural disaster of an exceptional character; or
 - ii. act of armed conflict, hostility, civil war, insurrection or **terrorism**.

III. CLND Act & Rules - Insurance

- Section 8: insurance & financial liability
 - S. 8(1) of the Liability Act makes it mandatory for the operator to take out an insurance policy or other financial security, or combination of both, to cover his liability determined under Section 6(2).
- Currently: insurance policies only provided for “cold zone” (where no nuclear reaction takes place) and NPCIL relies on **bank guarantees** by way of financial security, for which it pays an annual fee.

III. CLND Act & Rules – S. 17

- Section 17 of the Liability Act states that the “operator of the nuclear installation, after paying the compensation for nuclear damage in accordance with Section 6, shall have a right of recourse where-
 - a) such right is expressly provided for in a contract in writing;
 - b) *the nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects or sub-standard services;*
 - c) the nuclear incident has resulted from an act of commission or omission of an individual done with the intent to cause nuclear damage.”
- Section 17(a) and (c) are cf. Art. X Vienna Convention; Art. 6(f) Paris Convention; Art. 10 CSC Annex.

III. CLND Act & Rules – Rule 24

- **Value:** Liability Rules tried to curtail the RoR by specifying in Rule 24(1) that with regard to the contract referred to in clause Section 17(a) of the Act; such contract shall include a provision for RoR for not less than the extent of the operator's liability under S. 6(2) or the **value of the contract itself, "whichever is less"**.
-
- **Time:** Rule 24(2) further specifies that the provision for the RoR referred to in Rule 24(1) shall be for the duration of the initial license issued under the Atomic Energy (Radiation Protection Rules), 2004 (which is **five years**), or the product liability period, "**whichever is longer**". The "product liability period" is defined in Rule 24 as "the period for which the supplier has undertaken liability for patent or latent defects or sub-standards services **under a contract**".

III. CLND Act & Rules – Rule 24 – definition supplier (Explanation 1 (b))

- “supplier” shall include a person who:
 - (i) **manufactures and supplies**, either directly or through an agent, a system, equipment or component **or builds a structure on the basis of functional specification**; or
 - (ii) **provides build to print or detailed design specifications to a vendor** for manufacturing a system, equipment or component or building a structure **and is responsible to the operator for design and quality assurance**; or
 - (iii) provides quality assurance or design services.

III. Interpretation – def. supplier

- A company could be supplying a component or equipment in accordance with **drawings supplied** by another company, or could adhere to specified quality assurance plan. → Such an entity would be a sub-vendor, but not the prime supplier covered by the supplier definition.
- In some cases, the operator (NPCIL) itself may be supplier as it provides build to print or detailed design specifications to a vendor. [*See also: Q&A.10 – MEA’s FAQ*] → to be contractually defined.
- Similarly, there can be instances where a plant owner might select a standard product from a company catalogue. → In such cases too, the company cannot be held responsible for the “wrong selection by the owner”.

III. Denouement?

- Indo-US meeting: **25 January, 2015**: finalized the text of the Administrative Arrangement to implement the September 2008 bilateral 123 Agreement (exchanged 20 March, 2015).
- Ministry of External Affairs posts its FAQ on 8 Feb, 2015 (“an authoritative understanding” by the MEA of the CLND Act & Rules):
 - **Q&A.3**: No proposal to amend the CLND Act or Rules.
 - **Q&A.4**: India intends to ratify the CSC.
 - **Q&A.6**: the CLND Act is “broadly in conformity” with the CSC & Annex.
 - **Q&A.8**: S. 17(b) relates to product liability / service contracts, which are “ordinarily part of a contract between the operator and the supplier”. “Its operationalization will be through contract conditions agreed by operator and supplier”, and, therefore, is not contrary to Article 10(a) of the CSC Annex.

III. MEA's FAQ (8 Feb, 2015) cont'd

- **Q&A- 9: Does Section establish a mandatory RoR?**

- - Section 17 “is not mandatory but an enabling provision”, it does not require an operator to include a RoR in its contract; nor to exercise the RoR (cf. A.G. opinion);
- - But “there may be policy reasons for having a **risk sharing mechanism**”. “**As a matter of policy, NPCIL, which is a public sector undertaking, would insist that the nuclear supply contracts contain provisions that provide for a right of recourse**, consistent with Rule 24 of CLND Rules”.
- - In this regard, the **India Nuclear Insurance Pool (INIP)** has been instituted to provide a source of funds through a market-based mechanism to compensate third parties for nuclear damage.

III. MEA's FAQ (8 Feb, 2015) cont'd

- **Section 46 CLND Act:** “the provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force, and nothing contained herein shall exempt the **operator** from any proceedings which might, apart from this Act, be instituted against such **operator**”.
- **Q&A- 11-12&13: Does Section 46 permit claims for compensation to be brought under other laws?**
 - - Against the **operator**: yes
 - - Against the **supplier**: no (see Parliamentary debates and amendments which were not adopted).
 - - Can victims approach **foreign courts** against operator/suppliers: no

IV. India Nuclear Insurance Pool (INIP)

- Officially launched on **20 March, 2015**; effective: June, 2015 (?).
- GIC – Re (General Insurance Corporation of India), the only re-insurer in the country, would be the administrator.
- INIP will cover the risks of the liability of the:
 - Operator under S. 6(2) of the CLND Act (= **Tier 1 Policy**) ; and
 - Suppliers under S. 17 of the Act = **Policy for the Supplier's Special Contingency (Tier 2: Policy for turnkey suppliers; Tier 3: other suppliers)**.
- Liability amount to be covered: Rs. 1,500 Crores (= Rs. 15 billion = USD 237.5 million).
- Proposal:
 - 50% (= USD 118.75 million) by GIC Re, 4 other Public Sector Undertakings (PSUs) & 7 private companies; and
 - 50% = Government on a tapering basis.

IV. INIP – pricing of premiums

- GIC Re, the Pool administrator, is engaged with NPCIL and others to work out the premiums based on “risk appraisal”.
- The pricing of the premiums = expected to be 2% of the insured amount; will depend on factors such as risk probability related to exposure to people and property around nuclear installations, with possible severity of damage; life expectancy / volume of items; etc.
- Analysis Matrix: 1) criticality to safety; 2) lifespan of items.
- The Department of Atomic Energy (DAE) has undertaken a Probabilistic Safety Assessment study.

IV. Key takeaways

- “Hold harmless” clauses can no longer be inserted in NPCIL-supplier contracts.
- Key to assess and contractually agree on applicability supplier definition + Policy for the Supplier’s Special Contingency. → Unlike current (global) practice, where contracts are silent on RoR; the Indian context would require to determine this very precisely (tenders would ask to strike-out: supplier/vendor).
- INIP policy is mandatory for operator; INIP policy optional / advisable for suppliers → subrogation by INIP in the event of dispute (will be settled by INIP if both operator and supplier have an INIP policy; otherwise INIP/GIC Re to establish fault in Court against supplier). **Note:** escalation insurance costs.