राष्ट्र की सेवा में परमाणु

एनपीसीआईएल
NPCIL

ATOMS IN THE SERVICE OF THE NATION

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड
Nuclear Power Corporation of India Limited

बेटी बचाओ
बेटी पढ़ाओ

CORPORATE PROFILE 2025

NUCLEAR POWER IS SAFE, CLEAN AND SUSTAINABLE

ELECTRICITY SCENARIO AND NUCLEAR POWER IN INDIA

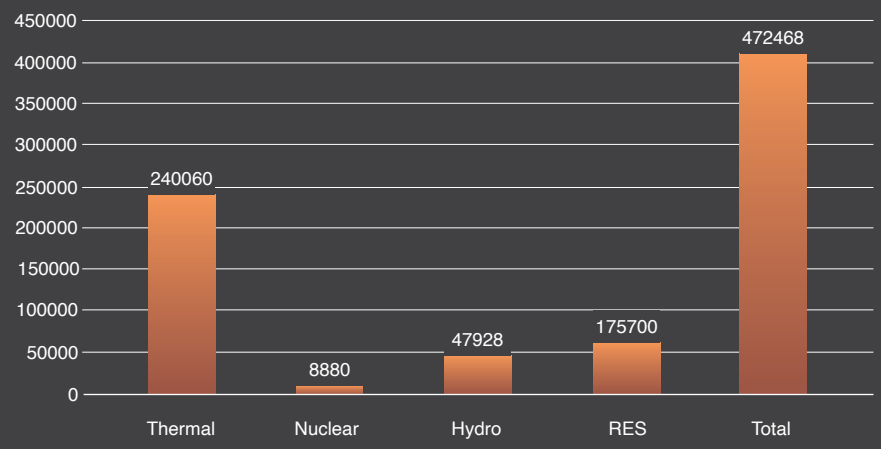
ELECTRICITY - A PRIME DRIVER OF GROWTH AND PREFERRED FORM OF ENERGY

The role of electricity in manifesting a nation's overall progress is unquestionable. Ever since it was discovered and harnessed, electricity continues to be the preferred form of energy because of its high efficiency, instant and effortless access and cleanliness. Electricity has literally brought light to the darkest corners of the world and has revolutionized the daily life of common people all across the globe. Even a few minutes of electricity outage throws life completely out of gear, all of us have experienced this. Moreover, progress has come to be seen in direct correlation to the per capita consumption of electricity.

Installed Capacity in MW

(As on April, 2025)

Source:
Central Electricity Authority



NUCLEAR POWER - AN INEVITABLE OPTION FOR INDIA

In order to meet the large electricity demand of the country, India has been consistent in its approach of promoting all sources of energy. Though India is endowed with clean sources of energy, the pursuit of nuclear power as a clean and sustainable source is vital. India is blessed with vast resources of Thorium. Thorium utilization for large scale power production and associated technology development are one of the important aspects of Indian nuclear power programme. This is important due to its energy security in terms of fuel reserves, since India has one of the largest reserves of Thorium. Operation in closed nuclear fuel cycles involves reprocessing and recycle of fuel. A three stage nuclear power programme based on closed fuel cycle is the flagship of Indian Nuclear Energy programme. Stage one aims at developing natural Uranium fuelled Pressurized Heavy Water Reactors. The second stage aims for utilizing Plutonium-based fuels in Fast Breeder Reactors. The third stage focuses on the development of advanced nuclear power systems for utilization of Thorium. The first stage has attained commercial maturity, while the stage is set for the second stage and R&D for the indigenous third stage programme with its fuel cycle linkages is being pursued as the long term energy strategy of the country.

With a view to faster capacity addition, option of additionalities has also been explored, through implementation of Light Water Reactors with international co-operation. Diversified energy resource base is essential to meet electricity requirements and to ensure long term energy security.

INTENDED NATIONALLY DETERMINED CONTRIBUTION

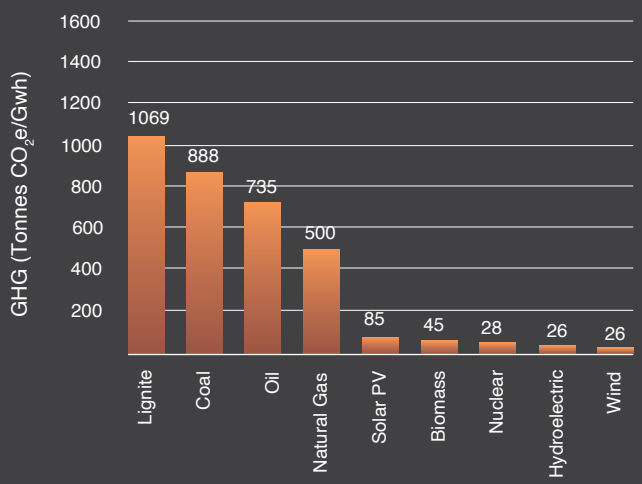
India as part of its Intended Nationally Determined Contribution (INDC) to address climate change aims to achieve:

- 500 GW Non-fossil energy capacity by 2030.
- 50 percent of its energy requirements from renewable energy by 2030.
- Reduction of total projected carbon emissions by one billion tonnes till 2030.
- Reduction of the carbon intensity of the economy by 45 percent by 2030, over 2005 levels.
- The target of net zero emissions by 2070.

India is the only country among the G20 nations that is progressing rapidly to meet its climate goals.

LIFE CYCLE GREEN HOUSE GAS (GHG) EMISSIONS INTENSITY OF VARIOUS ELECTRICITY SOURCES

Sources: WNA Report



MAJOR ATTRIBUTES OF NUCLEAR POWER

NUCLEAR POWER IS AN INTENSE SOURCE OF ENERGY

Nuclear power is an intense source of energy and the transport infrastructure needed for nuclear fuel is very small. 10,000 MW nuclear power capacity needs only around 2000 tons of natural Uranium in a year, as against 35-50 million tons of coal needed for a coal fired thermal power station of the same capacity requiring about a shipload or 20 train-loads per day to transport the coal.

NUCLEAR POWER IS CLEAN AND ENVIRONMENTALLY BENIGN

Nuclear power is environmentally benign, and is a clean source of base load electricity, available 24x7. The life cycle of Green House Gas (GHG) emissions of nuclear power are comparable to that of wind and solar power. Till April 2025, release of about 798 million tons of CO_2 equivalent GHG emissions to the environment were averted by nuclear power generation.

NUCLEAR POWER IS SAFE

Nuclear power is a safe and reliable source of energy. Safety is overriding priority in all activities. Safety is given paramount importance in design, construction and operation of nuclear power stations. To achieve highest safety, a "Defence-In-Depth" philosophy is followed, involving multiple barriers, diversity, redundancy, independence and fail-safe design of the safety related systems. Safety of nuclear power stations is further ensured through sound design, using international standards and codes, stringent quality assurance, approved operating procedures, in-service inspection and maintenance of safety systems, etc. Nuclear Power Plants are operated strictly in accordance to approved technical specifications and procedures by trained, qualified and licensed persons. Robust regulatory mechanism comprising multi-tier reviews are in place. There are also periodic audits and reviews at station, corporate and regulatory level. World over there has been over 20,280 reactor-years of experience of commercial nuclear power operation and in India, there is over 636 reactor-years of experience of Commercial Nuclear Power Operation as on April 2025. Every event in an operating Nuclear Power Plant is reviewed based on lessons learnt and accordingly the systems, procedures, aspects related to training and safety culture are further strengthened.

LONG-TERM NUCLEAR POWER PROGRAMME OF THE COUNTRY

India's long-term nuclear power programme is based on the potential to utilize the vast indigenous Thorium resources for large-scale electricity generation for centuries.

India's modest Uranium resources can support a first-stage programme of over 10,000 MW based on Pressurised Heavy Water Reactors (PHWRs) for present and near term needs using natural Uranium as fuel and heavy water as moderator and coolant. The energy potential of natural Uranium can be increased to about 3,00,000 MW in the second stage of the programme in the coming years through Fast Breeder Reactors (FBRs), utilizing depleted Uranium and Plutonium obtained from the recycled spent fuel of the first stage along with Thorium as blanket, to produce U-233. With the deployment of Thorium in the third-stage Breeder Reactors (BRs), using U-233 as fuel, the energy potential for electricity generation is substantially large and sustainable for centuries.

Indigenous industrial infrastructure for reactor programme is well developed. Special infrastructure for the production of fuel, heavy water, reactor control and instrumentation have been developed within the Department of Atomic Energy (DAE). Indian industry has gained valuable experience and reached a stage of maturity in manufacturing equipment, components and handling of mega package contracts for these reactors.

Indian Three Stage Nucler Power Programme			
	Fuel	Type of Reactor	Energy Potential (GW-Yrs)
1st Stage	U-235 (Nat U, Low Enriched U)	PHWR	320
2nd Stage	Pu-239	FBR	42,000
3rd Stage	U-233	BR	155,000

Light Water Reactors (LWRs) are additionality for nuclear power capacity expansion

NUCLEAR POWER IS RELIABLE

Nuclear Power Plants are sources of continuous, reliable, large scale and round the clock electricity. It is not subject to changing weather or climate conditions. Nuclear Power Plants maintain high availability and capacity factors. In India, various operating units have recorded continuous operation of more than a year several times.

NUCLEAR POWER IS ECONOMICAL

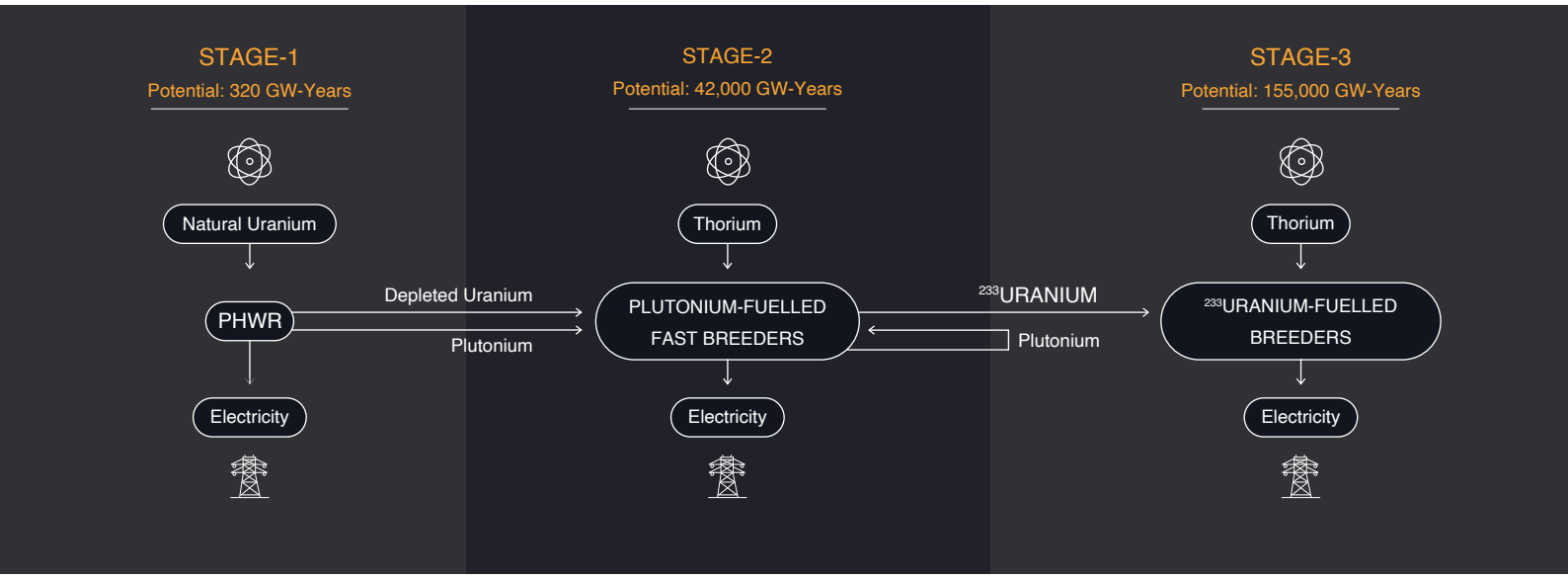
Nuclear power is cost competitive with other forms of electricity generation. Also, in case of nuclear power, decommissioning and waste management costs are internalised in tariff, whereas in case of fossil fuel base power plants, impact of CO_2 emission is not internalised in the tariff. NPCIL's average tariff of nuclear power generation during the year 2024-25 was about ₹ 3.90/KWh.

HUGE POTENTIAL

Nuclear power has a huge potential and can ensure long term energy security of the country in a sustainable manner by utilizing the vast indigenous Thorium resources for large scale electricity generation for centuries.

NUCLEAR POWER - SUSTAINABLE FOR CENTURIES

India's 3-Stage Nuclear Power Programme Multiplies Power Generation by Expanding the Nuclear Fuel Base



NPCIL-POWER BEHIND NUCLEAR POWER

Nuclear Power Corporation of India Limited (NPCIL) is a Central Public Sector Enterprise under the Department of Atomic Energy (DAE), Government of India. It was incorporated on September 17, 1987 as a Public Limited Company under the Companies Act 1956, with the objective of operating the atomic power stations and implementing the atomic power projects for the generation of electricity, in pursuance of the schemes and programmes of Government of India under the Atomic Energy Act. With the formation of NPCIL, the nuclear power generation moved to commercial domain. NPCIL is involved in implementation of the first stage of PHWRs and LWRs as additionalities with international cooperation.

NPCIL is a MoU signing company with Administrative Ministry (DAE) since 1991-92 as per guidelines issued by Department of Public Enterprises (DPE). As per credit rating agencies CRISIL and CARE, it is AAA rated (highest credit rating) company.

JOURNEY OF NPCIL

Design, Construction and Operation of Nuclear Power Plants

(NPCIL initial asset worth ₹ 1313 Crore)

1987	NPCIL	TAPS-1&2 I RAPS-2 MAPS-1&2 I NAPP-1&2 KAPP-1&2
1984	NPB	
1967	PPED	
1954	DAE	

DAE: Department of Atomic Energy
PPED: Power Projects Engineering Division
NPB: Nuclear Power Board

NPCIL - VISION

To be globally proficient in nuclear power technology, contributing towards long term energy security of the country.

NPCIL - MISSION

To develop nuclear power technology and to produce nuclear power as a safe, environmentally benign and economically viable source of electrical energy to meet the increasing electricity needs of the country.

NPCIL AT A GLANCE (Data as on March 31, 2025)

Authorized Share Capital	₹ 25,000 Crores
Paid Up Capital	₹ 19,753 Crores
Net Worth	₹ 65,475 Crores
Total Assets	₹ 1,91,607 Crores
Total Comprehensive Income (Net Of Tax)	₹ 4,343 Crores
No. of Units in Commercial Operation Total	25*
Installed Capacity	8,880 MW*
Projects Under Construction	7 Units (6,100 MW)
Projects Sanctioned	10 Units (7000 MW)
Sites Accorded In-Principle Approval	32,000 MW

*Including Rajasthan Atomic Power Station Unit-1 (100 MW PHWR), owned by DAE, which is under long shutdown since 2004.

NPCIL CORE VALUES

Safety

Safety is an overriding priority in our all activities

Ethics

Upholding the highest ethical standards, with honour, through integrity and mutual trust

Excellence

Continual improvement through learning, self-assessment and setting higher benchmarks

Care

Care and compassion for people and protection of the environment

OBJECTIVES

- To maximise the power generation and profitability from nuclear power stations with the motto 'Safety First and Production Next'.
- To increase nuclear power generation capacity in the country, consistent with available resources in a safe, economical and rapid manner, in keeping with the growth of energy demand in the country.
- To continue and strengthen Quality Assurance (QA) activities relating to nuclear power programme within the organisation and those associated with it.
- To develop personnel at all levels through an appropriate Human Resources Development (HRD) programme in the organisation with a view to further improve their skills and performance consistent with the high technology.
- To continue and strengthen the environmental protection measures relating to nuclear power generation.
- To continue and strengthen the Neighbourhood Welfare Programme / Corporate Social Responsibility (CSR) activities for achieving inclusive growth of surrounding population.
- To share appropriate technological skills and expertise at national and international levels
- To bring about modernisation and technological innovation in activities.
- To coordinate and endeavour to keep the sustained association with the other units of Department of Atomic Energy (DAE).

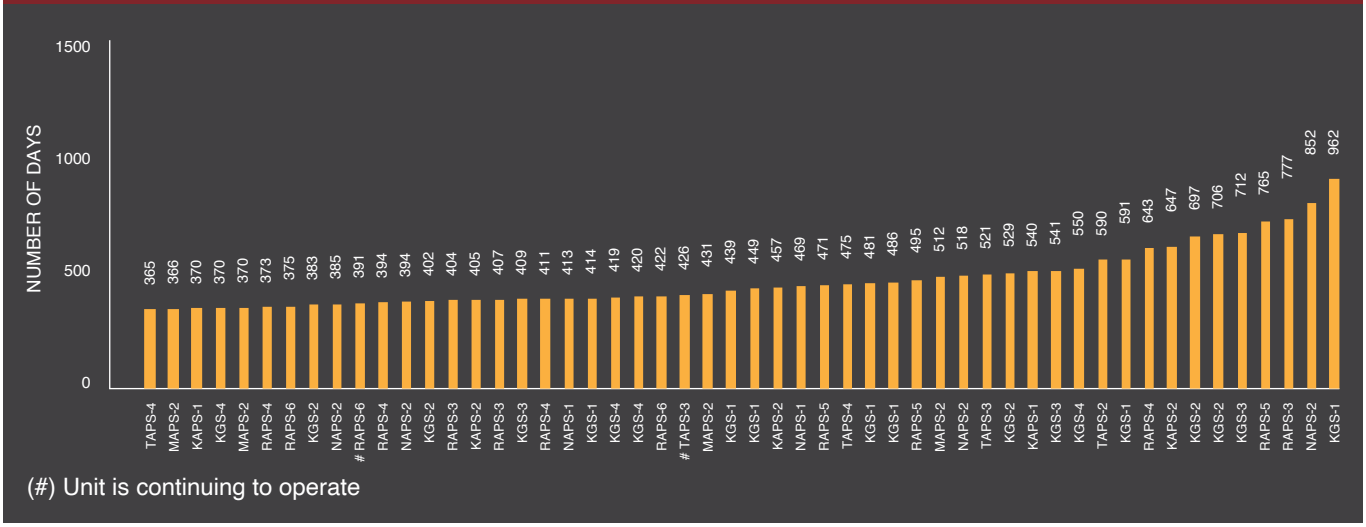
NPCIL OPERATING PERFORMANCE

OPERATIONAL PERFORMANCE

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Installed Capacity*	6,780	6,780	6,780	6,780	6,780	8180	8880
Generation (MUs)	37,813	46,472	43,029	47,112	45,855	47,971	56,681
Capacity Factor (%)	70	82	81	88	87	85	87
Availability Factor (%)	73	87	83	88	87	85	88
CRISIL Credit Rating	AAA (Highest Safety)	AAA (Highest Safety)	AAA (Highest Safety)	AAA (Highest Safety)	AAA (Highest Safety)	AAA (Highest Safety)	AAA (Highest Safety)

*Includes RAPS-1 (100 MW PHWR), owned by Department of Atomic Energy (DAE), is under extended shut-down since 2004.

CONTINUOUS OPERATION FOR MORE THAN A YEAR REGISTERED BY NPCIL'S REACTORS AS ON APRIL 30, 2025 (52 TIMES)



Presently, NPCIL operates 25 reactors with an installed capacity of 8880 MW. Generation by all units of NPCIL in the financial year (FY) 2024-25 was 56,681 MUs. NPCIL has set several records in the safe operation of Nuclear Power Plants.

Indigenously designed, constructed and operated Unit-1 of Kaiga Generating Station (220 MW PHWR) registered safe and reliable longest continuous operation of 962 days in the year 2018, setting a World Record at that time. Presently, it is second longest in continuous operation among all the reactors technologies in the world. So far, Indian Nuclear Power Plants have registered continuous operation for more than a year 52 times till April 30, 2025 and of these six reactors, KGS-1, RAPS-3, RAPS-5, NAPS-2, KGS-2 and KGS-3 have operated continuously for more than 700 days.

TAPS 1&2: Tarapur Atomic Power Station Unit 1&2 has completed over 56 years of safe and reliable commercial operation. These units were the first Nuclear Power Units in Asia and presently are the oldest operating Nuclear Power generating units in the world.

NPCIL PLANS

FINANCIAL PERFORMANCE

NPCIL is a profit making company. During 2024-25, total comprehensive income (net of Tax) was ₹ 4,343 Cr. The Company Bonds have been accredited with a 'AAA' rating indicating highest safety from both CRISIL and CARE.

MEMORANDUM OF UNDERSTANDING (MOU)

NPCIL is MoU signing company. NPCIL signs performance MoU every year with DAE based on guidelines issued by Department of Public Enterprises (DPE). NPCIL'S MOU rating for the year 2023-24 was "Excellent". Rating for 2024-25 is awaited.

SAFETY

Nuclear Power Plants of the Company have registered about 636 reactor years of safe and reliable by the end of April, 2025.

NPCIL - PRESENT AND FUTURE PLANS

Presently, NPCIL operates 25 reactors with an installed capacity of 8880 MW. The nuclear power reactors under operation are tabulated below:

State	Location	Units	Capacity (MW)	Type
Maharashtra	Tarapur	TAPS - 1&2	2X160	BWR (LWR)
		TAPS - 3&4	2X540	PHWR
Rajasthan	Rawatbhata	RAPS - 1	1X100	PHWR
		RAPS - 2	1X200	PHWR
		RAPS - 3&4	2X220	PHWR
		RAPS - 5&6	2X220	PHWR
		RAPS - 7	1X700	PHWR
Tamil Nadu	Kalpakkam	MAPS - 1&2	2X220	PHWR
	Kudankulam	KKNPP - 1&2	2X1000	PWR (LWR)
Uttar Pradesh	Narora	NAPS - 1&2	2X220	PHWR
Gujarat	Kakrapar	KAPS - 1&2	2X220	PHWR
		KAPS - 3&4	2X700	PHWR
Karnataka	Kaiga	KGS - 1&2	2X220	PHWR
		KGS - 3&4	2X220	PHWR
Total			**8880**	

Includes RAPS - 1 (100 MW PHWR), owned by Department of Atomic Energy (DAE), is under long shut-down since 2004.
BWR - Boiling Water Reactor I PHWR - Pressurized Heavy Water Reactor I LWR - Light Water Reactor

NPCIL PLANS

NUCLEAR POWER PROJECTS UNDER COMMISSIONING / CONSTRUCTION

The following Nuclear Power Projects are at various stages of Commissioning / Construction

State	Location	Units	Capacity (MW)	Type
Rajasthan	Rawatbhata	RAPP - 8	1X700	PHWR
Haryana	Gorakhpur	GHAVP - 1&2	2X700	PHWR
Tamil Nadu	Kudankulam	KKNPP - 3&4	2X1000	PWR (LWR)
Tamil Nadu	Kudankulam	KKNPP - 5&6	2X1000	PWR (LWR)
Total			**6100**	

PHWR - Pressurized Heavy Water Reactor I LWR - Light Water Reactor

Kudankulam Nuclear Power Project 3 & 4 Tamil Nadu

Kudankulam Nuclear Power Project 5 & 6 Tamil Nadu

Rajasthan Atomic Power Project 8 Rawatbhata, Rajasthan

Gorakhpur Haryana Anu Vidyut Pariyojana 1 & 2 Gorakhpur, Haryana

NUCLEAR POWER PROJECTS SANCTIONED AND UNDER PRE-PROJECT ACTIVITIES

The following sanctioned Nuclear Power Projects of a total capacity of 7000 MW are under various stages of pre-project activities and are planned to be setup in fleet mode.

State	Location	Units	Capacity (MW)	Type
Madhya Pradesh	Chutka	CMPAPP - 1&2	2X700	PHWR
Karnataka	Kaiga	KGS - 5&6	2X700	PHWR
Rajasthan	Mahi Banswara	MBAPP - 1&2	2X700	PHWR
		MBAPP - 3&4	2X700	PHWR
Haryana	Gorakhpur	GHAVP - 3&4	2X700	PHWR
Total			**7000**	

NUCLEAR POWER PROJECT SITES ACCORDED 'IN-PRINCIPLE' APPROVAL

The Government has accorded 'In-Principle' approval of the following sites for setting up nuclear power reactors in future. Pre-project activities at new sites, for which 'in-principle' approval by the Government of India exists, have been initiated so as to enable early launch of projects at these sites.

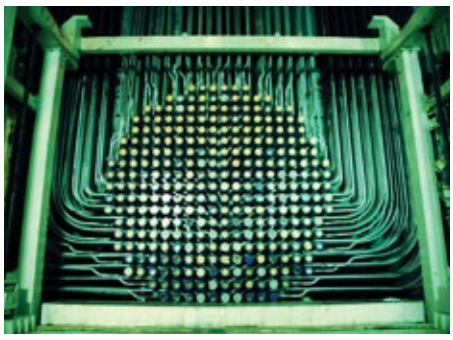
State	Location	Units	Capacity (MW)	Type
Maharashtra	Jaitapur	Jaitapur, Units - 1 to 6	6X1730	LWR
Andhra Pradesh	Kovvada	Kovvada, Units - 1 to 6	6X1208	LWR
Gujarat	Chhaya Mithi Virdi	Chhaya Mithi Virdi, Units - 1 to 6	6x1000*	LWR
West Bengal	Haripur	Haripur, Units - 1 to 6	6X1000*	LWR
Madhya Pradesh	Bhimpur	Bhimpur, Units - 1 to 4	4X700	PHWR
Uttar Pradesh	Narora	Narora, Units - 3 & 4	2X700	PHWR

*Nominal Capacity I PHWR - Pressurized Heavy Water Reactor I LWR - Light Water Reactor

RENOVATION & MODERNISATION

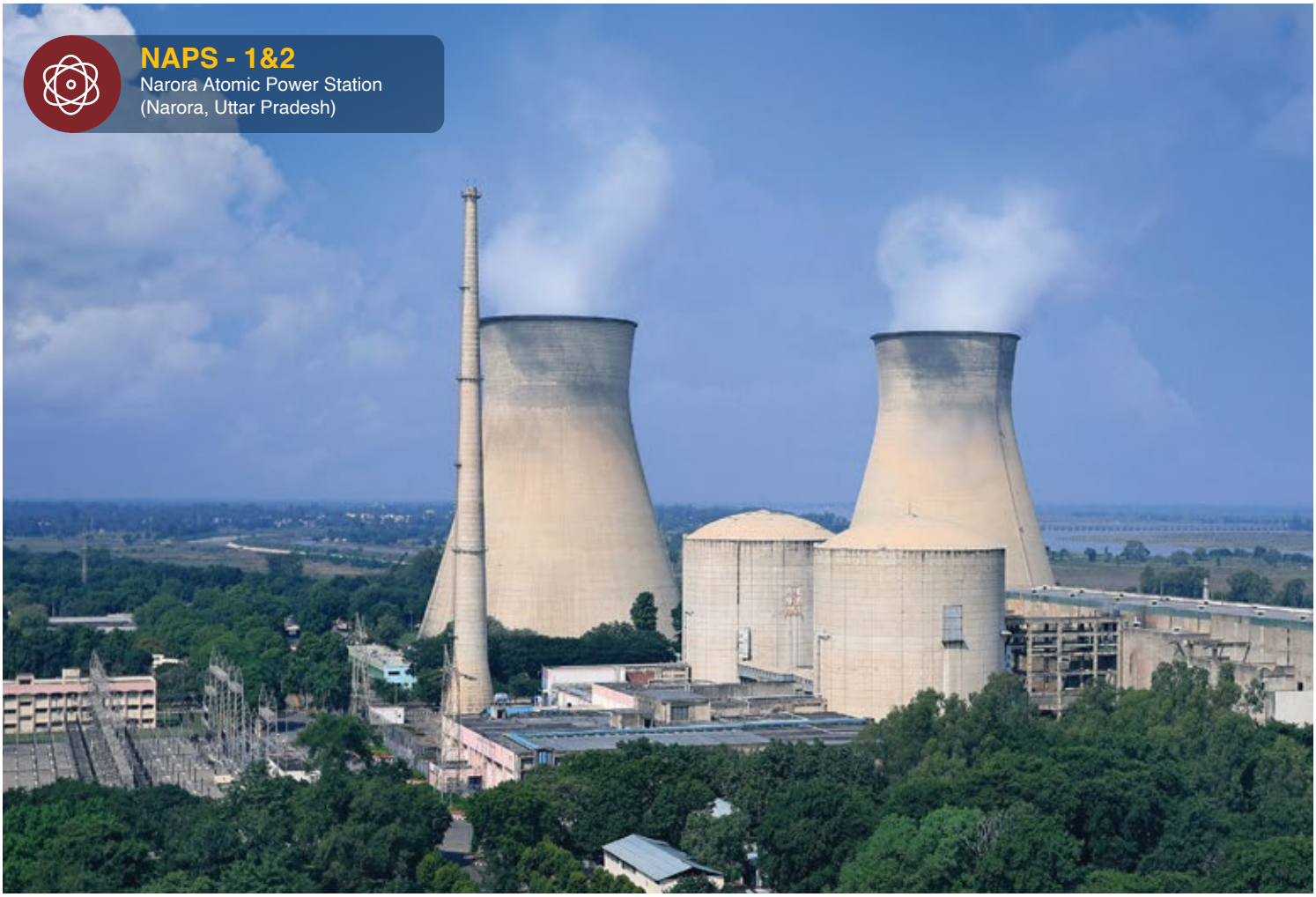
Over the years, the following highly technical and complex tasks have been performed successfully by indigenously developed engineering solutions involving special remote tools and techniques:

- En-masse Coolant Channel Replacement (EMCCR): RAPS-3, RAPS-2, MAPS-1&2, NAPS-1&2 and KAPS-1&2.
- En-masse Feeder Replacement (EMFR): MAPS-1, RAPS-3, RAPS-2, NAPS-1&2 and KAPS-1&2.
- Core Shroud Inspection of TAPS -1&2.
- MAPS-1&2 reactor units were restored to their original rating of 220 MW each through the innovative solution of spargers.
- Safety upgradation and back fitting of additional safety features based on continuous reviews.



Completion of EMCCR & EMFR in RAPS - 3 in record time

INDIAN NUCLEAR POWER PLANTS AT A GLANCE



NAPS - 1&2
Narora Atomic Power Station
(Narora, Uttar Pradesh)

TAPS - 1&2
Tarapur Atomic Power Station
(Tarapur, Maharashtra)


KAPS - 3&4
Kakrapar Atomic Power Station
(Kakrapar, Gujarat)


TAPS - 3&4
Tarapur Atomic Power Station
(Tarapur, Maharashtra)

KKNPP - 1&2
Kudankulam Nuclear Power Plant
(Tirunelveli, Tamil Nadu)

KAPS - 1&2
Kakrapar Atomic Power Station
(Kakrapar, Gujarat)

Indian PHWR Evolution

2000s
Commercialisation

1990s
Consolidation

1980s
Standardisation

1980s
Indigenisation

1970s
Technology
Demonstration

& Future PHWRs


GHAVP 1&2


KAPS 3&4

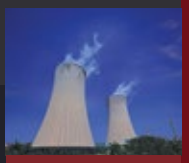

RAPP 7&8

700 MW


TAPS 3&4

540 MW


KGS 3&4


RAPS 3&4

220 MW


RAPS 1&2


MAPS 1&2


NAPS 1&2

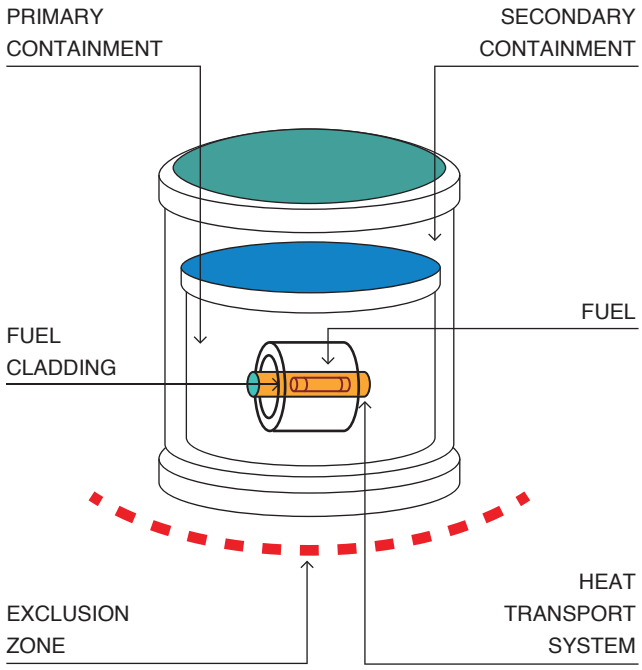

KAPS 1&2


KGS 1&2


RAPS 5&6

SAFETY OF NUCLEAR POWER PLANTS

Safety is given paramount importance in design, construction and operation of Nuclear Power Plants. To achieve highest safety, a "Defence-In-Depth" philosophy is followed, involving multiple barriers, diversity, redundancy, independence and fail-safe design of the safety related systems. Safety of nuclear power stations is further ensured through sound design, at par with international standards and codes, stringent quality assurance, approved operating procedures, in-service inspection and maintenance of safety systems, etc. Nuclear Power Plants are operated strictly in accordance to approved technical specifications and procedures by trained and licensed persons. Robust regulatory mechanism comprising multi-tier reviews are in place. There are periodic audits and reviews at station, corporate and regulatory authority level.



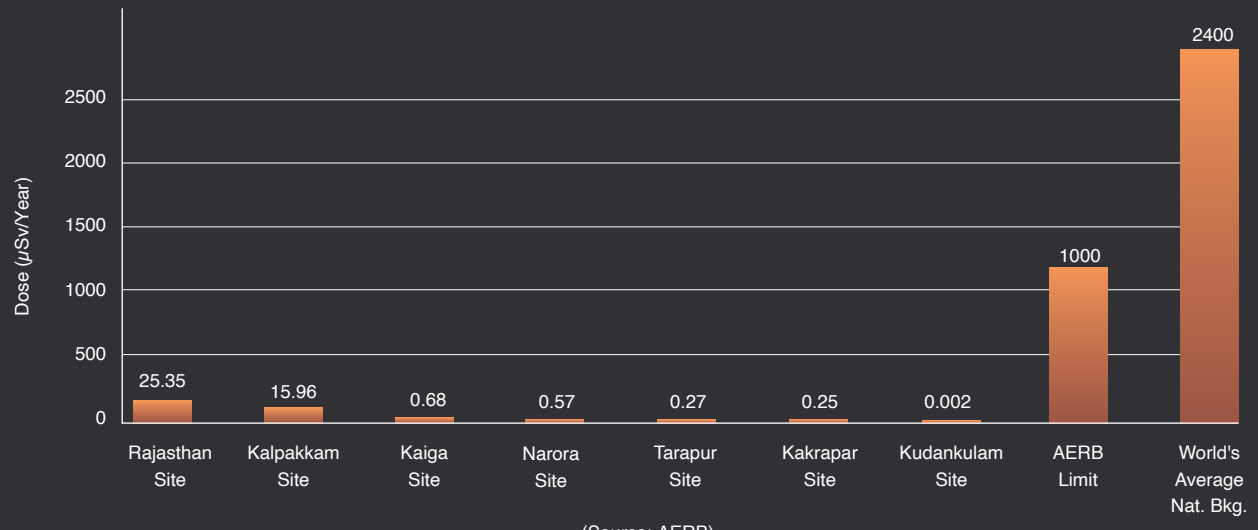
Not to scale

ENSURING ENVIRONMENTAL PROTECTION

NPCIL has laid down environmental policy and is committed to minimize environmental impact to As Low as Reasonably Achievable, reduce generation of wastes and conserve key resources. Protection of the plant personnel, the environment and the public is an important consideration in the design, construction and operation of the Nuclear Power Plants. The radiation sources are adequately shielded and monitored strictly in all phases of operation and maintenance activities as per approved procedures. An Environmental Survey Laboratory (ESL) is set up at each of the plant sites before the commissioning of the Nuclear Power Plants. These ESLs monitor environmental matrices like air, water, soil, crop, vegetation, fish, meat, food stuff etc., up to an area of 30-km radius from the plant for radioactivity. The background level of radiation is established for comparison after commissioning of the plants. The release of radioactivity to the environment from nuclear power stations is in very small quantities, and in any case, well within the limits stipulated by the Atomic Energy Regulatory Board (AERB).

In the 636 reactor year operation journey of Nuclear Power in the country, there has been no incidence of radioactivity release to the environment beyond the stipulated limits specified by the regulatory authority, i.e. AERB. This is testimony to the maturity in design, construction and operations of Nuclear Power Plants over five decades in the country.

Total effective dose (μSv/Year) received by a hypothetical person at the Exclusion Zone Boundary of NPP in the year 2022



(Source: AERB)

ISO-14001 AND IS-18001 CERTIFICATION

Indian nuclear power stations, namely, Narora, Kakrapar, Tarapur, Kalpakkam, Rajasthan, Kudankulam and Kaiga have been certified for ISO 14001 (Environment Management System) and IS-18001 (Occupational Health and Safety Management System). This certification is provided for:

1. Compliance with applicable environmental legislation and regulations along with a commitment for continual improvement.
2. Improved corporate commitment to environmental protection and conservation of resources.
3. Developing a systematic approach to management of operational health and safety.

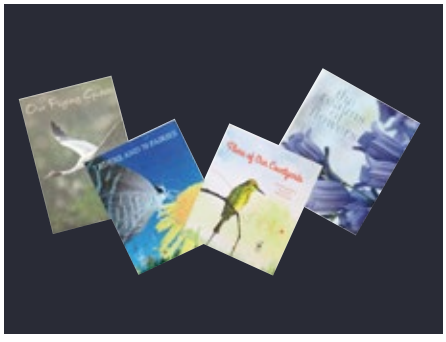
ENVIRONMENT STEWARDSHIP PROGRAMME (ESP)

Nuclear Power Corporation of India Limited has been carrying out Environment Stewardship Programme (ESP), a voluntary initiative, since 2006. The programme focuses on the scientific study of the biodiversity, particularly the avifauna, within and around the Exclusion Zones of Indian Nuclear Power Plants. This programme is for the improvement of habitat and conservation of nature involving professional agencies. Nuclear Power Plants use water for cooling purposes and, therefore, are located near water bodies- like rivers, lakes, reservoirs and sea. And, the exclusion zones that surround the Nuclear Power Plants are maintained undisturbed as there is no human habitation here. These conditions make Exclusion Zones a preferred choice for the birds. These lush green areas are home to a large number of birds and other forms of life. As a part of ESP, to provide safe habitats to many creatures of nature, NPCIL does habitats management and creation: Established butterfly gardens at three of its sites (Kakrapar in Gujarat, Tarapur in Maharastra and Kaiga in Karnataka) created turtle rearing centre at Narora in Uttar Pradesh to preserve the gangetic turtle species; and developed a pair of mudflats at Kudankulam in Tamil Nadu for resident and migratory water birds. Inspired by the presence of abundant nature in and around the Indian nuclear power plant sites, NPCIL has brought out a series of coffee-table books on ESP. They are: “Our Flying Guests”, "7 Edens and 70 Fairies", "The Realms of Flowers", "Fliers of Our Courtyards" and "100 Lives Around Us".

Besides, annual birds and butterflies studies, public awareness campaigns are carried out regularly under ESP. These activities not only help to sensitise members of public on environment but also help promote the fact that nuclear power is clean, green and safe.





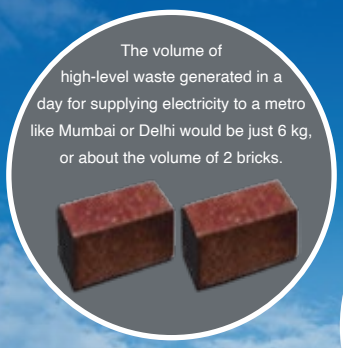



NUCLEAR WASTE MANAGEMENT

India adopts closed fuel cycle policy. Spent nuclear fuel is not a waste but it is a resource for obtaining fuel by reprocessing for reactors in next stage of the three stage nuclear power programme. Spent fuel is reprocessed for the extraction of Plutonium, Uranium and other useful isotopes. Very small quantity of High Level Waste is generated during reprocessing. This waste is immobilized by vitrification in glass matrix, encapsulated in stainless steel double walled canisters and stored under surveillance in specially designed vaults. During the process of generation of electricity, small quantities of low and intermediate level solid wastes are produced in nuclear power stations. After treatment, these wastes are concentrated and immobilized and stored under surveillance within the plant premises in earthen trenches, reinforced cement concrete trenches or tile-holes. Gaseous wastes comprising ventilation exhaust are filtered, monitored and released through a tall stack. Liquid wastes are treated, concentrated and immobilized in inert matrices and stored in special facilities under surveillance. The low level liquid waste is discharged after filtration treatment and dilution under monitoring. The radioactivity levels of gaseous and liquid wastes discharged are very low compared to the permissible stipulated limit specified by AERB.

The radioactivity level of stored waste inside the site premises reduces with time and by the end of the Nuclear Power Plant's life, it falls to a very low level.

Spent Fuel Storage Bay



Very Low Amount of High-Level Waste

High Integrity Containers for Storage of Radio Active Waste

Tile Holes

NUCLEAR POWER IS SAFE, CLEAN AND SUSTAINABLE

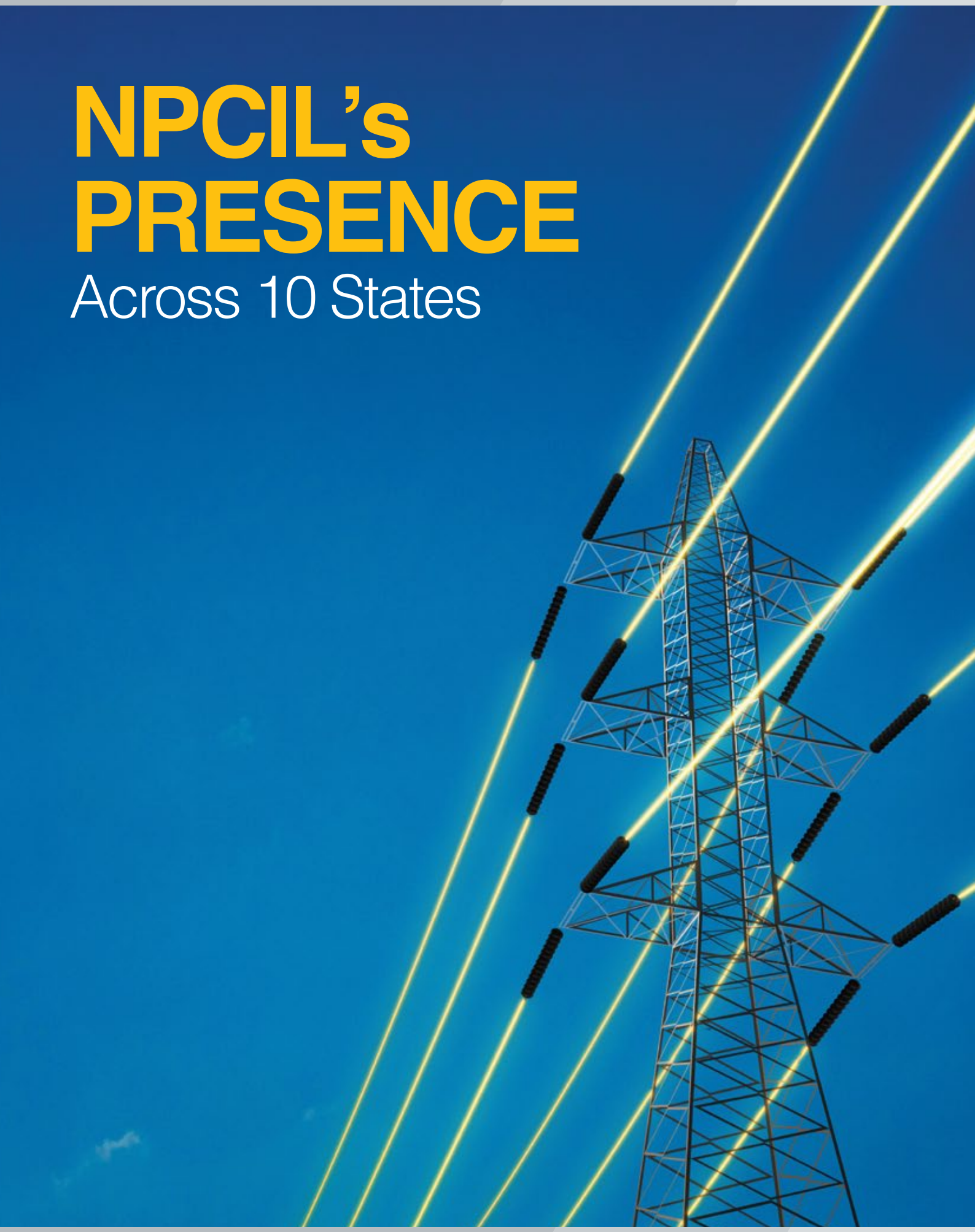
DETAILS OF REACTORS IN OPERATION (TOTAL INSTALLED CAPACITY: 8880 MW)				
Operating Reactors	Type of Reactor	Rated Capacity (MW)	Location	Date of Commercial Operation
TAPS - 1	BWR	160	Tarapur (Maharashtra)	28/10/1969
TAPS - 2	BWR	160		28/10/1969
TAPS - 3	PHWR	540		18/08/2006
TAPS - 4	PHWR	540		12/09/2005
RAPS - 1*	PHWR	100	Rawatbhata (Rajasthan)	16/12/1973
RAPS - 2	PHWR	200		01/04/1981
RAPS - 3	PHWR	220		01/06/2000
RAPS - 4	PHWR	220		23/12/2000
RAPS - 5	PHWR	220		04/02/2010
RAPS - 6	PHWR	220		31/03/2010
RAPS - 7	PHWR	700		15/04/2025
MAPS - 1	PHWR	220	Kalpakkam (Tamil Nadu)	27/01/1984
MAPS - 2	PHWR	220		21/03/1986
NAPS - 1	PHWR	220	Narora (Uttar Pradesh)	01/01/1991
NAPS - 2	PHWR	220		01/07/1992
KAPS - 1	PHWR	220	Kakrapar (Gujarat)	06/05/1993
KAPS - 2	PHWR	220		01/09/1995
KAPS - 3	PHWR	700		30/06/2023
KAPS - 4	PHWR	700		31/03/2024
KAIGA - 1	PHWR	220	Kaiga (Karnataka)	16/11/2000
KAIGA - 2	PHWR	220		16/03/2000
KAIGA - 3	PHWR	220		06/05/2007
KAIGA - 4	PHWR	220		20/01/2011
KKNPP - 1	LWR	1000	Kudankulam (Tamil Nadu)	31/12/2014
KKNPP - 2	LWR	1000		31/03/2017

*RAPS-1 (100 MW PHWR) owned by Department of Atomic Energy (DAE) and managed by NPCIL.

Safeguards	Operating Reactors	Installed Capacity (MW)
Reactors operating with domestic fuel	TAPS-3&4, MAPS-1&2, KAIGA-1-4	2400
Reactors under IAEA Safeguards (Reactors operating with imported fuel)	TAPS-1&2, RAPS-1-7*, KAPS-1&2, NAPS-1&2, KKNPP-1&2, KAPS-3&4	6480

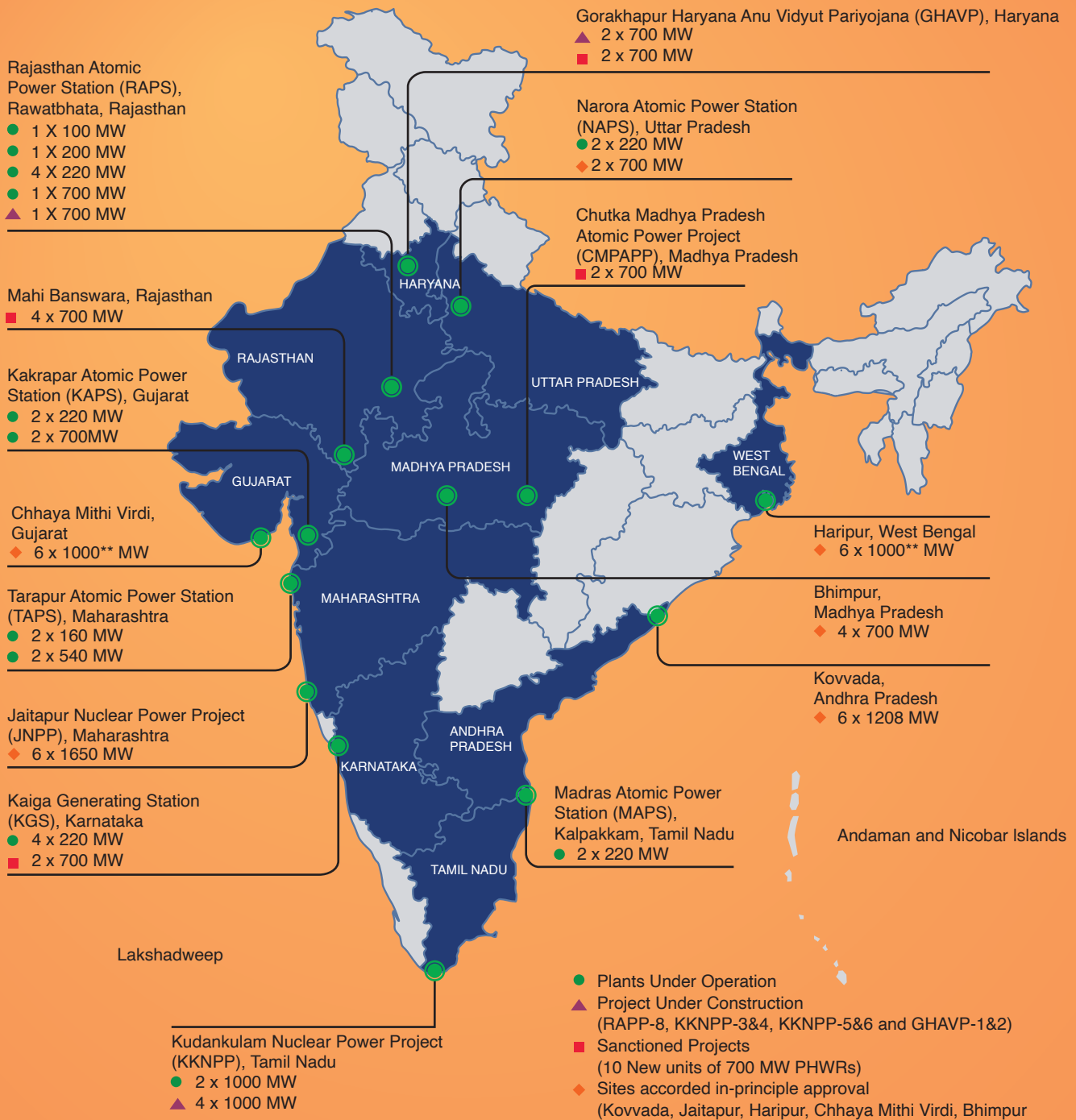
*RAPS-1 (100 MW PHWR) owned by Department of Atomic Energy (DAE), is also under IAEA Safeguards.

NPCIL's PRESENCE
Across 10 States



Nuclear Power Plants and Sites in India

Total installed capacity - **8880 MW**
Total capacity under construction - **6100 MW**



राष्ट्र की सेवा में परमाणु
एनपीसीआईएल
NPCIL
ATOMS IN THE SERVICE OF THE NATION

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड
Nuclear Power Corporation of India Limited

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड
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