GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
**RAJYA SABHA**
**UNSTARRED QUESTION NO-1124**
ANSWERED ON 05/12/2024

# KAKRAPAR ATOMIC POWER PROJECT 4

1124. SHRI AYODHYA RAMI REDDY ALLA

Will the PRIME MINISTER be pleased to state:-

(a) the paramount objective of the Kakrapar Atomic Power Project 4 (KAPP-4), and how it aligns with India's overarching energy strategy;

(b) in what ways does the KAPP-4 project aim to mitigate the trilemma of energy security, economic growth, and environmental sustainability;

(c) how the KAPP-4 project's utilization of pressurized heavy water reactors contributes to the enhancement of nuclear safety and efficiency; and

(d) the details of key performance indicators that will measure the success of the KAPP-4 project, and how they will be monitored and evaluated?

## ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

(a) & (b) KAPP-4 is the second unit of KAPP 3&4 (2X700 MW) project set up at Kakrapar, Gujarat. KAPP 3&4 are the first set of indigenous 700 MW Pressurised Heavy Water Reactors (PHWR) to be set up in the country. They have been designed, constructed and operated by NPCIL with equipment supplied by domestic industries and works executed by Indian contractors. It is the front runner of 14 more indigenous 700 MW PHWRs under implementation.

India follows an indigenous, sequential three-stage nuclear power programme to ensure long term energy security and optimum utilization of the country's nuclear resources. PHWRs form the first stage of the programme. Their unit size has been increased from 220 MW to 540 MW and further to 700 MW in KAPP 3&4. The indigenous 700 MW PHWR shall now be the mainstay of the nuclear power expansion programme of the country in the near and medium terms. Nuclear power being clean will also avoid carbon-di-oxide emissions, with KAPP 4 (700 MW) alone potentially avoiding about 4.5 million tons of CO2 equivalent emissions every year (at 85% PLF)

(c) The 700 MW PHWRs have advance safety features and are among the safest reactors in the world. These reactors also have provision for partial boiling in the Primary Heat Transport system and generate 700 MW using the same reactor core of a 540 MW PHWR.

(d) The Key Performance Indicators that will be monitored are the Plant Load Factor (PLF), Availability Factor (AF) and safety performance parameters. The PLF and AF are evaluated against those achieved by similar reactors in operation in the country and the world. The safety performance parameters are evaluated against the respective limits/values stipulated by the Atomic Energy Regulatory Board. KAPP Units 3&4 commenced commercial operation from June 30, 2023 and March 31, 2024 respectively and have since demonstrated good performance in terms of safety and operation.

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