

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 258/MP/2020**

**Coram:  
Shri P.K. Pujari, Chairperson  
Shri I.S. Jha, Member**

**Date of order: 20<sup>th</sup> March, 2020**

**In the matter of**

Petition seeking permission to continue withdrawal of start-up power from the Grid as per Deviation Settlement Mechanism (DSM) till first synchronization of KAPP-3 or 30.9.2020, whichever is earlier.

**And  
In the matter of**

Nuclear Power Corporation of India Limited (NPCIL)  
Nabhikiya Urja Bhavan/ Vikram Sarabhai Bhavan,  
Anushaktinagar, Mumbai  
Maharashtra – 400094

**.....Petitioner**

**Vs.**

Western Regional Load Dispatch Centre  
F-3, MIDC Area, Andher (East),  
Mumbai, Maharashtra- 400093

**.....Respondent**

**ORDER**

This Petition has been filed by the Petitioner, Nuclear Power Corporation of India Limited (hereinafter referred to as “Petitioner”), under Clause (7) of Regulation 8 of the Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium term Open access in inter-State transmission and related matters) Regulations, 2009 (hereinafter referred to as “Connectivity Regulations”) with the following prayers:

“(i) to permit drawl of start-up power from the grid under Deviation Settlement Mechanism (DSM) for KAPP-3 commissioning till synchronization of KAPP-3 or 30.9.2020 whichever is earlier; and

(ii) Pass any such order(s) as deemed fit by the Commission.”



2. Kakrapar Atomic Power Project 3 and 4 (hereinafter referred to as 'KAPP-3 and 4') of the Petitioner is located at Kakrapar, Surat District in the State of Gujarat and is being implemented in two stages consisting of Unit-I and Unit-II of 700 MW each. The project is first indigenous 700 MW Pressurised Heavy Water Reactor (PHWR). KAPP-3 started drawing start-up power from 22.3.2017.

3. The Commission vide order dated 21.6.2019 in Petition No.156/MP/2019 had granted permission for continuation of drawl of start-up power upto 31.3.2020 or date of first synchronization, whichever is earlier. The Petitioner has submitted that COD of KAPP-3 could not be achieved due to the following reasons:

“(a) In this Plant, various First of A Kind (FOAK) systems i.e. Passive Decay Heat Removal System and Containment Spray System, etc. have been provided for enhancement of safety features of the plant. As per the guidelines of Atomic Energy Regulatory Board, all FOAK systems have to be proven to meet their design intent by mock up and experiments. The results are further validated by computed code and analysis. The design of these systems is finalized after successful completion of experiments and verification of data of these experiments.

(b) Being the first 700 MW Pressurized Heavy Water Reactor (PHWR), the stringent requirements of quality assurance on the design, selection, qualification, operation and maintenance of critical equipments i.e. Diesel Generator (DG), Steam Generators (SGs) and reactor components, etc. are being incorporated first time. Therefore, manufacturing of critical equipments such as steam generators, diesel generators and reactor component, etc. and their pre-service inspection has added to the delay in supply of these equipments. Further, there are limited qualified vendors in India for manufacturing of nuclear grade reactor equipments and components.

(c) Nuclear reactors are being built with the latest technology and engineering knowhow. Numbers of new research and development activities are being conducted to establish design safety features. Operating experience of Nuclear Reactors around the world in design evolution is being incorporated in new reactor's safety features. New System, Structure & Component are being incorporated for establishing robustness in design, erection & operation based upon regulatory

recommendations subsequent to operating experience from other nuclear power plants.

(d) NPCIL has developed new technology i.e interleaving of feeders, primary containment liner and partial boiling in primary heat transport system, etc. to enhance the safety and efficiency of Nuclear Power Plants.”

4. The Petitioner has submitted the current status of works of the Project as under:

(a) Nuclear building construction work is over and integrated leak rate test of primary and secondary containment and primary containment proof test have been completed in May, 2019.

(c) Primary Heat Transport (PHT) system hot conditioning has been completed in the month of August, 2019.

(d) Reactor erection has been completed and testing of reactivity devices is in progress and would be completed shortly.

(e) During PHT system hot conditioning, the primary heat transport system was hot and pressurised with pressure at 100 kg/cm<sup>2</sup>. This activity is performed to maintain a uniform coating of corrosion resistant magnetite layer on PHT piping and also for performance test of various station auxiliaries.

(f) Instrumentation works of nuclear systems and common service systems have been completed. Computer based systems of soft controls of station auxiliaries have been commissioned. Computer based systems for operation of TG and auxiliaries and secondary cycle system erection is in progress.

(g) Moderator main system commissioning has been completed.

(h) Station auxiliary systems i.e. Fire Water, Service Water, Chilled Water System, Compressed Air Active process water system and Emergency Diesel Generator sets have been commissioned and are in service.

(i) Commissioning of condenser cooling water pumps is in progress. Initial fuel loading into the reactor is expected to be completed by March, 2020.

(j) Reactor will start sustained fission chain reaction in the second quarter of 2020 i.e attainment of criticality has been scheduled in May, 2020. After reactor criticality, four months would be required for reactor physics experiments, trial operation of TG system and first synchronisation with the grid. The first synchronisation of KAPP-3 is expected by 30.9.2020.

5. The Petition is admitted by circulation.

6. We have considered the prayer made by the Petitioner. The Fourth, Fifth and Sixth Provisos to Regulation 8 (7) of the Connectivity Regulations, as amended from time to time, provides as under:

"Provided that the Commission may in exceptional circumstances, allow extension of the period for inter-change of power beyond the period as prescribed in this clause, on an application made by the generating station at least two months in advance of completion of the prescribed period:

Provided further that the concerned Regional Load Despatch Centre while granting such permission shall keep the grid security in view.

Provided also that the infirm power so interchanged by the unit(s) of the generating plant shall be treated as deviation and the generator shall be paid/charged for such injection/drawal of infirm power in accordance with the provisions of the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2014, as amended from time to time or subsequent re-enactment thereof."

7. The Petitioner has submitted that being the first 700 MW PHWR, the stringent requirements of quality assurance on the design, selection, qualification, operation and maintenance of critical equipments are being incorporated first time. The Petitioner has submitted that new Research and Development activities are being conducted to establish design safety features. Operating experience of nuclear reactors around the world in design evolution is being incorporated in new reactors safety features. The Petitioner has submitted that in addition to the above reasons, due to introduction of new technology, implementation of enhanced safety features and stringent review by Regulators, etc., KAPP-3 could not be synchronized. Accordingly, the Petitioner has sought permission for drawl of start-up power from the grid till 31.9.2020 or till synchronization, whichever is earlier.

8. Taking into consideration the submissions made by the Petitioner, we allow extension of time for drawl of start-up power from the grid up to 31.9.2020 or first synchronization, whichever is earlier. We expect the Petitioner to make all efforts to ensure the synchronization of KAPP-3 of the project by this date.

9. With the above, the Petition No. 258/MP/2020 is disposed of.

**Sd/-**

**(I.S. Jha)  
Member**

**sd/-**

**(P.K. Pujari)  
Chairperson**

