CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 186/MP/2023

Coram:
Shri Jishnu Barua, Chairperson
Shri I.S.Jha, Member
Shri Arun Goyal, Member
Shri P.K.Singh, Member

Date of Order: 7th June, 2023

In the matter of

Petition seeking permission to continue interchange of infirm power including drawl of start-up power under Deviation Settlement Mechanism (DSM) beyond the prescribed period of six months from the date of first synchronisation i.e beyond 9.1.2023 till declaration of commercial operation date of KAPP-3 or up to 9.1.2024, whichever is earlier.

And
In the matter of

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

Vs.

Western Regional Load Dispatch Centre,
F-3, MIDC Area, Andhri (East),
Mumbai-400 094 **…Respondent**

ORDER

This Petition has been filed by the Petitioner, Nuclear Power Corporation of India Limited (NPCIL), 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 "the Connectivity Regulations") with the following prayers:

> *"(a) Permit inter-change of infirm power including drawl of start-up power under Deviation Settlement Mechanism (DSM) beyond 9.1.2023 till declaration of Commercial Operation Date of KAPP-3 or 9.1.2024, whichever is earlier.*
>
> *(b) Pass such order(s) as deemed fit by the Commission."*

2. Kakrapar Atomic Power Project 3 and Project 4 of the Petitioner are located at Kakrapar, Surat District in the State of Gujarat and are being implemented in two stages consisting of Unit-I and Unit-II of 700 MW each. The project is the first indigenous 700 MW Pressurised Heavy Water Reactor (PHWR).

3. The Commission in its order dated 16.12.2022 in Petition No. 346/MP/2022 had allowed the Petitioner to draw the start-up power and to inject infirm power into the grid for commissioning tests, including the full load test of Kakrapar Atomic Power Project 3 (in short 'KAPP-3') up to 9.7.2023. The Petitioner has submitted that KAPP-3 was first synchronized with the grid on 10.1.2021. However, it could not be declared under commercial operation due to the following reasons:

(a) In KAPP-3, 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 the Atomic Energy Regulatory Board (AERB), various experiments, namely, phase-C physics experiments, secondary cycle system performance tests, and TG full load rejection, etc. are required to be demonstrated successfully at lower power before raising to full power. This has added to the delay in completing full load testing. Since KAPP-3 employs partial boiling of the Primary Heat Transport (PHT) system, stage-wise clearance will be given for full power operation after a detailed review.

(b) KAPP-3 achieved the milestone of first synchronisation with the grid on 10.1.2021 and, thereafter, started injecting infirm power into the grid. Reactor power was raised in steps to 50% of full power. KAPP-3 was shut down on 28.4.2021 for implementing the essential design modifications.

(c) As the Plant design contains many new design features, resolution of issues which were observed during power operation up to 50% Full Power (FP) has necessitated analysis and in-depth review at several tiers of NPCIL and the regulatory body, namely AREB.

(d) After implementing the modifications and following reviews at several tiers of NPCIL and AREB, permission for trial run at 50% FP was granted by the AREB in July, 2022 to evaluate the effectiveness of the modifications carried out. After multi-tier reviews, adjustment, at 50% FP power levels, KAPP-3 TG was synchronized with the Western grid on 7.3.2023. Power was raised in steps up to 80% FP with each step increase requiring approval of the AERB.

(e) To augment excess reactivity in the KAPP-3 reactor and to carry out certain maintenance activities in shutdown accessible area, KAPP-3 was shut down on 15.5.2023.

(d) Several tests at full load are yet to be carried out after raising reactor power to 100% FP.

4. The Petitioner has submitted the current status of works and milestones for KAPP-3 as under:

(a) After completion of commissioning activities and obtaining regulatory clearance from the AERB, the reactor was made critical on 22.7.2020.

(b) First synchronization of KAPP-3 generator was done on 10.1.2021 and KAPP-3 had been injecting infirm power into the grid.

(c) Further raising of reactor power beyond 80% FP, up to 100% FP would be done in steps. After obtaining stage-wise clearance from the AERB, the balance testing, including full load testing, would be carried out after raising reactor power to 90% FP and 100% FP.

5. The Petitioner has submitted that due to reasons beyond its control, it could not declare commercial operation of KAPP-3. The Petitioner has requested permission be granted for the drawl of start-up power from the grid beyond 9.7.2023 till synchronization of KAPP-3 or 9.1.2024, whichever is earlier.

6. The Petition is admitted by circulation.

Analysis and Decision

7. The Petitioner has submitted that due to an increase in temperatures in certain areas of the reactor building, KAPP-3 was shut down on 28.4.2021 to implement certain essential design modifications. The Petitioner has submitted that KAPP-3 was further shutdown on 15.5.2023 to carry out certain maintenance activities in the shutdown accessible area and to augment excess reactivity in the KAPP-3 reactor. Therefore, the, commissioning and testing activities of KAPP-3 were delayed. Accordingly, the Petitioner has sought permission for the inter-change of infirm power, including the drawl of start-up power up to 9.1.2024 or actual date of commercial operation of KAPP-3, whichever is earlier.

8. We have considered the submissions of the Petitioner. The fourth, fifth, and sixth provisos to Regulation 8(7) of the Connectivity Regulations provide 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."*

9. We are of the view that the non-availability of start-up power or not allowing the injection of infirm power would hamper the progress of commissioning work, resulting in a further delay in the declaration of COD of KAPP-3. Accordingly, in the peculiar facts and circumstances, by way of an exceptional case, we hereby allow the Petitioner

to draw the start-up power and further to inject the infirm power into the grid for commissioning tests, including the full load test of KAPP-3 up to 9.1.2024 or the actual date of commercial operation, whichever is earlier. We expect the Petitioner to make all sincere efforts to ensure the synchronization of KAPP-3 of the project by this date. It is reiterated that the Petitioner shall approach RLDC for the necessary permission, which is required to be granted after considering grid security.

10. Accordingly, the Petition No.186/MP/2023 is disposed of in terms of paragraph 9 of this order. Let an extract copy of the order be provided to the RLDC for compliance.

Sd/-	**sd/-**	**sd/-**	**sd/-**
(P.K. Singh)	**(Arun Goyal)**	**(I.S. Jha)**	**(Jishnu Barua)**
Member	**Member**	**Member**	**Chairperson**