CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 49/MP/2017

Coram:
Shri Gireesh B.Pradhan, Chairperson
Shri A.K.Singhal, Member
Shri A.S.Bakshi, Member
Dr. M.K.Iyer, Member

Date of Order: 19th of April, 2017

In the matter of

Anticipated delay in the declaration of commercial Operation (COD) of Unit-2 of the 2x1000 MWs of Kudankulam Nuclear Power Project (KKNPP-2), Nuclear Power Corporation of India Ltd.

And
In the matter of

Seeking Commission`s permission to continue injection of infirm power in Southern Grid till declaration of COD or 31.5.2017, whichever is earlier.

And
In the matter of

Nuclear Power Corporation of India Ltd.
Nabhikiya Urja Bhawan,
Anushaktinagar, Mumbai-400 094 **...Petitioner**

Vs

1. The Member Secretary
   Southern Regional Power Committee,
   29, Race Course Cross Road, Bangalore-560 009

2. General Manager
   Power System Operation Corporation (POSOCO) SRLDC
   29, Race Course Road, Bangalore-560 009

3. Chief Executive Officer
   National Load Despatch Centre (POSOCO)

B-9, Qutub Institutional Areas, Katwaria Sarai,
New Delhi-110 016 ..**Respondents**

ORDER

This petition has been filed by the Petitioner, Nuclear Power Corporation of India Ltd. 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:

> *"(a) Permit injection of infirm power into the grid from KKNPP-2 till declaration of COD of KKNPP-2 or 31.5.2017, whichever is earlier;*
>
> *(b) Pass such order (s) as deemed fit by the Hon`ble Commission."*

2. Kudankulam Nuclear Power Project ('the project') of the Petitioner is located at Kudankulam, Tirunevelveli District in the State of Tamil Nadu and is being implemented in two stages consisting of Unit-I and Unit-II of 1000 MW each. The project is being set up with the technical cooperation of Russian Federation which is based on WER-1000 type of reactors. The first unit of the project has been declared commercial operation on 31.12.2015. The second unit of the project has been test synchronised on 29.8.2016 after obtaining consent from Atomic Energy Regulatory Board (AERB) and since then it has been injecting infirm power into the grid. The Petitioner has submitted that numerous commissioning tests are to be performed at various stages of

commissioning of the Unit-II to evaluate the system responses to various transients. The tests results are to be evaluated internally and submitted to AERB for review. The consent for proceeding to the next stage of commissioning is obtained from Regulatory Authorities which is repetitive process till AERB grants permission for continuous operation of the Unit-II at 100% power before declaration of COD.

3. The Petitioner has submitted that before declaration of COD of the Unit-II, commissioning activities of the project are divided into three main phases, namely Phases A, B and C. According to the Petitioner, initially, Phases A and B commissioning activities which mainly focus on individual equipment and system commissioning are completed. The Commissioning activities of Phase-C comprises of three stages, namely Phases C1, C2 and C3 focus on evaluation of system performance to various transients against acceptance criteria. The Petitioner has submitted that during each stage, tests are carried out on the reactor systems as well as turbine and feed water supply systems. The Petitioner has enumerated the test schedule of various phases as under:

S.No.	Activity	Start date	End date
1	Phase C1	19.8.2016	27.10.2016
2	Phase C2	11.11.2016	14.12.2016
3	Phase C3	13.1.2017	Expected to be completed by last week of May 2017

4. The Petitioner has submitted that tests of Phase A and Phase B of Unit-II of the project have been completed before synchronization. Subsequently, all

test of Phase C1 were carried out and completed on 27.10.2016. On 11.11.2016, clearance from AERB was obtained to carry out Phase C2 activities which were started on the same day. The Petitioner has submitted that the following transients and dynamic tests are conducted:

(i) Testing of reactor characteristics;

(ii) Testing of loss of power to the station;

(iii) Turbine trip test;

(iv) Test of turbine partial load changes; and

(v) Testing of tripping of one feed water pump.

5. The Petitioner has submitted that since number of tests involves electrical load connection or disconnection of the project from the grid, permission of SLRDC was required to be taken for conduct of tests. On number of times as per the request of SRLDC, tests involving load changes were postponed to accommodate the grid exigencies requirements. According to the Petitioner certain adjustments were required during testing which needed shutdown of the reactor to rectify and repeat the tests.

6. The Petitioner has submitted that the test result of Phase C 2 was submitted to AERB for review and seeking clearances to conduct next phase of commissioning activities i.e. Phase C3 tests. After satisfactory review, AERB accorded clearance on 13.1.2017 to conduct set of Phase C3 commissioning activities. The Petitioner has

submitted that major tests, namely testing of reactor characteristics, etc. were carried out during 90% FP stage. The Petitioner has submitted that after completion of 90% FP test, tests reports were submitted to AERB and permission was received from AERB to raise power beyond 90% FP upto 100% FP for conduct of various tests which are required to be carried out during Phase-C3 (100% FP) of commissioning.

7. The Petitioner has submitted that the following activities are scheduled to be completed before continuous power operation at 100% FP:

(a) Switching off 2 out of 4 Reactor Coolant Pumps with accelerated discharge

(b) Dynamic tests of power unit with one of Turbine Driven Feed Pump switched off and dynamic test of power unit with one of second stage Condensate Extraction Pump switched off;

(c) Net road rejection test and gross load rejection test;

(d) Testing of Automatic Power Controller and steam generator separation test;

(e) Dynamic test programme of power unit in the mode of reactor emergency protection actuation by manual push button from control room.

(f) Start of the reactor and reaching 100% FP.

8. The Petitioner has submitted that though it was estimated that all the tests would be completed by 28.2.2017, however, due to non-completion of activities/tests as enumerated at para **7** above, the operation of the Unit-II at 100% FP has been delayed and as a result the COD of the Unit-II could not be declared. The Petitioner has, therefore, submitted that it may take another three months to complete the above activities and testing program and the process of reviewing by AREB before granting permission for continuous operation at 100% FP. Considering any eventualities such as system behaviour and rectification of deficiencies, the Petitioner has sought permission for six months to inject infirm power into the grid for testing including full load testing till 31.5.2017 or COD, whichever is earlier.

9. We have considered the prayer of the Petitioner. Fourth Proviso to the Connectivity Regulations, as amended from time to time provides as under:

> *"Provided that the Commission may allow extension of the period of testing including full load testing, and consequent injection of infirm power by the unit, beyond six months, in exceptional circumstances on an application made by the generating company at least two months in advance of completion of six month period:*
>
> *Provided further that the concerned Regional Load Despatch Centre while granting such permission shall keep the grid security in view."*

10. The Petitioner has submitted that since all the tests were delayed, the COD of the Unit-II of the project could not be declared by 28.2.2017. The Petitioner has submitted that the testing and reviewing of test results by AERB, etc., would take about three more months from 28.2.2017 before declaring

COD of Unit-II. Taking into consideration the submissions of the Petitioner and the fact that successful testing of reactor, turbine-generator, feed water pump system and the control and protection system of different transients which are mandatory as per AREB before declaring COD of the project, the Petitioner is allowed to inject infirm power into the grid for the purpose of commissioning tests including full load test of Unit-II up to the date of commercial operation of Unit-II or till 31.5.2017, whichever is earlier. We expect the Petitioner to take all efforts to ensure the commercial operation of Unit-II of the project by this date.

11. With the above, the Petition No. 49/MP/2017 is disposed of.

Sd/-	**sd/-**	**sd/-**	**sd/-**
(Dr. M.K.Iyer)	**(A.S.Bakshi)**	**(A.K.Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Member**	**Chairperson**