CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

IA No.19/2012

in

Petition No.44/TL/2012

Coram: Dr. Pramod Deo, Chairperson
Shri S.Jayaraman, Member
Shri V.S.Verma, Member
Shri M.Deena Dayalan, Member

Date of Hearing: 31.5.2012
Date of order: 28.6.2012

In the matter of

Application for grant of Transmission License under Section 14 read with Section 15(1) of the Electricity Act, 2003 and CERC (Procedure, Terms and Conditions for grant of Transmission License and other related matters) Regulation, 2009.

And

In the matter of

In-principle approval for assignment of Transmission Licence in the name of new legal entity under Section 17(3) of the Electricity Act, 2003 upon grant of such licence

And

In the matter of

Adani Power Limited …**Petitioner**

Vs

National Load Despatch Centre, New Delhi
Power Grid Corporation of India Ltd, New Delhi
Northern Regional Load Despatch Centre, New Delhi
Western Regional Load Despatch Centre, Mumbai
Central Electricity Authority, New Delhi
Gujarat Electricity Transmission Corporation Limited, Vadodara
Haryana Vidyut Prasaran Nigam Ltd, Panchkula

….**Respondents**

Parties Present:

Shri Amit Kapur, Advocate for the petitioner
Miss Poonam Verma, Advocate for the petitioner
Shri Krishan S. Rani, Advocate for the petitioner
Shri RK Madan, APL
Shri V.K.Prasar, APL
Shri Malav Deliwala, APL
Shri J.D. Lanyalina, APL
Shri V.K. Agarwal, NLDC
Shri S.R. Narasimhan, NLDC
Ms. Joyti Prasad, POSOCO
Shri Awdhesh Kumar Yadav, CEA
Shri M.G.Ramachandran, Advocate, HPGCL & GETCO
Shri Apoorva Karol, Advocate, HPGCL
Shri Chirag Kher, Advocate, HPGCL
Shri U.K. AGarwal, HPGCL
Shri B.B. Mehta, SLDC, Gujarat
Shri S.B. Moudgui, HVPNL
Ms. Manju Gupta, PGCIL
Shri V. Thiagarajam, PGCIL

ORDER

The petitioner, Adani Power Ltd has filed the main petition under Section 14 and 15 of the Electricity Act, 2003 (the Act for grant of transmission licence for the dedicated transmission system of 400 kV D/C Mundra-Dehgam Transmission Line and ± 500 kV bipole Mundra-Mohindergarh HVDC Transmission line including associated 400 kV lines respectively. The petitioner has made the following prayers in the petition:

> "(a) Admit the present Application.
>
> (b) Grant Inter-state Transmission License to Adani Power Limited under Sections 14 read with Section 15(1) of the Electricity Act, 2003 and CERC (Procedure, Terms and Conditions for grant of Transmission License and other related matters) Regulations, 2009 for transmission system mentioned above;

(c) Grant in-principle approval for assignment of Transmission License U/S 17 (3) of the Electricity Act, 2003, upon grant of such license, in the name of new legal entity.

(d) Grant recovery of Transmission Charges as per CERC (Sharing of Transmission Charges and Losses) Regulations, 2010 as amended from time to time.

(e) Consider APL a deemed LTA customer for supply of power against the PPAs entered into with UHBVNL & DHBVNL for 712 MW each upon grant of transmission license i.e. assign priority for grant of LTA over others.

(f) Condone any inadvertent omissions/errors/shortcomings and permit APL to add/change/modify/alter this filing and make further submissions as may be required at a future date.

(g) Pass such other relief or further orders, as the Hon'ble Commission may deem fit and appropriate keeping in view the facts and circumstances of the case."

2. The petition was initially heard on 20.3.2012. During the course of the hearing, it transpired that the petitioner's dedicated transmission system for which licence has been sought was inter-connected with the ISTS resulting in probability of flow of power from other utilities through the dedicated transmission system when commissioned. In reply to our query regarding the authority for permitting the inter-connection, the representative of the petitioner clarified that initially the transmission system was developed as dedicated transmission system for carrying its own power from Mundra TPS. However, due to inter-connections with the transmission system of other utilities; the petitioner’s transmission system may carry the power of other utilities. The Commission after hearing the learned counsel and the representative of the petitioner directed the petitioner to file the following information on affidavit:

(a) Whether APL's transmission systems are being used as dedicated transmission lines or are being used to carry power of other utilities.

(b) If power flow from other utilities through APL's dedicated transmission system is taking place, by virtue of inter-connection of transmission systems, the authority for such-connection be clearly indicated with relevant documents;

(c) Adani Enterprises Limited is an inter-State trading licensee. The relationship between the applicant company and Adani Enterprises Limited be clearly explained including shareholding pattern of both companies; and

(d) The petitioner has not indicated any long-term transmission customer in para 2(iv) of the application. In terms of Regulation 7(4) of the Transmission Licence Regulations, the applicant for transmission licence is required to serve copy of the application on each of the long-term customers of the project. Accordingly, the petitioner shall implead the long-term customers of the transmission system and serve copies of the petitioner on them.

3. The petitioner filed its reply to the directions of the Commission by its affidavit dated 26.4.2012.

4. The petitioner filed I.A. No. 19/2012 vide affidavit dated 24.4.2012 seeking approval of the Commission for testing and operation of ± 500kV Mundra - Mohindergarh HVDC transmission system pending disposal of the main petition for grant of the transmission licence. The petitioner has submitted that it has constructed the ± 500kV Mundra - Mohindergarh HVDC transmission system after obtaining the required approvals and clearances from all concerned authorities. On completion of construction it has obtained the permission for charging the line

from Central Electricity Authority for each of the elements of the transmission system. The petitioner has submitted that, "no load testing" of both the convertors of Pole 1 and Pole 2 and HVDC line has been successfully carried out on 21.3.2012. The petitioner requested SLDC Gujarat and SLDC Haryana to grant permission for carrying out low load tests at minimum power of 125 MW. While permission was granted by SLDC Gujarat, SLDC Haryana forwarded the request to NRLDC which was in turn forwarded to NLDC, since the link is an inter-regional link. NLDC has proposed an Interim Procedure for power flow/testing on the HVDC system according to which bus sectionalizers between units 5& 6 (Stage 2) and units 7, 8 & 9 (Stage 3) should be kept open. However, in a meeting subsequently taken by Member (PS), Central Electricity Authority, there was a general agreement that due to technical reasons, namely, the reactive power requirement of the DC System, the HVDC Mundra - Mohindergarh line cannot be operated with the 400 kV bus sectionalizers at Mundra TPS between Stage 2 and Stage 3 being in open position. Accordingly, the petitioner has approached the Commission for approval for carrying out testing and operation of the HVDC lines with the bus sectionalizers in closed position. The petitioner has prayed for the following in the IA:

> "(a) Admit the present Application;
>
> (b) Expeditiously grant approval for carrying out testing and operation of ± 500 kv Mundra-Mohindergarh HVDC Transmission System with 400 kv bus sectionalizer in closed position pending disposal of Case No.44/TL/2012 for grant of transmission license;
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> (c) Implead HVPNL as a respondent thereby allowing amending Memo of parties in the Transmission License Application.
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> (d) Condone any inadvertent omissions/errors/shortcomings and permit APL to add/change/modify/alter this filing and make further submissions as may be required at a future date.

(e) Pass such other relief or further orders, as the Hon'ble Commission may deem fit and appropriate keeping in view the facts and circumstances of the case."

5. During the hearing of the IA on 26.4.2012, the representative of NLDC submitted that the transmission line could not be tested in isolation and for that purpose there is a technical requirement to close the bus sectionalizers. Considering the necessity and urgency for testing the transmission line, we had directed in the Record of Proceeding dated 26.4.2012 that the HVDC line should be tested in conformity with the technical requirements of Central Electricity Authority, Central Transmission Utility, and Regional Load Despatch Centre for dedicated transmission line. During the hearing of the petition on 3.5.2012, learned counsel for the petitioner referred to a letter dated 2.5.2012 from the OEM M/s Siemens clarifying the queries regarding the operation of the transmission lines and submitted that as per the fifth clarification, it is possible to operate the system with little power exchange with rest of the system. The said clarification reads as follows:

"The HVDC system controls permit exact power order setting and the same will not change during normal operation. However, it may be difficult for the generators to meet the generation precisely with HVDC power order. If the power order is set matching with the generation from units 7, 8 & 9, there will be no power exchange with the rest of the system through bus coupler for all practical purposes."

The representative of the petitioner submitted during the hearing that the HVDC transmission lines shall be operated subject to fulfillment of the following conditions:

(a) Scheduled flow of power over the HVDC corridor shall be for the quantum of open access granted and shall be ensured strictly as per Commission's Regulations;

(b) Power order on HVDC corridor shall be set as per injection schedule approved by concerned RLDC/POSOCO;

(c) In HVDC, control of power to be transmitted can be set and it will not change on its own, if it is set at 600 MW;

(d) Title of scheduled power through HVDC corridor will be in the name of Adani Power only;

(e) Unscheduled power cannot and will not flow through HVDC under normal condition.

6. We desired to know from the representative of the POSOCO whether the transmission line can operate as dedicated transmission line till the grant of licence to the petitioner. The representative of POSOCO clarified that the moment the breaker is kept in closed condition, the system operator cannot assure that the transmission line would operate in purely dedicated mode and there are chances that some current may flow through Stage 1 and Stage 2 and if the power order is controlled it is possible to operate the transmission line in dedicated mode. As regards the System Protection Schemes, the representative of the petitioner confirmed that System Protection Schemes have been provided in Units 8 & 9. The representative of POSOCO submitted that mock trial could be carried out to find out the existence and operational preparedness of the System Protection Schemes. We directed the POSOCO to carry out the mock trial of the System Protection Schemes during which the petitioner would be permitted to inject upto a

maximum of 600 MW, the quantum of open access granted and submit the report to the Commission. We had also directed the Central Electricity Authority and Central Transmission Utility on the status of the transmission lines and its connectivity with line diagrams. The petitioner was directed to submit an affidavit that the System Protection Schemes are in place; the petitioner shall maintain the power order throughout the mock trail and when the system is put into operation; any variation from the power order would be to the account of the petitioner; the petitioner shall abide by the provisions of the regulations and the directions of the concerned RLDC during mock trail and subsequently during operation.

7. The petitioner has filed the required information vide affidavit dated 29.5.2012. The petitioner has submitted as under:

(a) The petitioner has completed the works for extension of necessary Special Protection Scheme for remaining Generating Units i.e. Unit Nos. 8 and 9 and metering arrangements between Stage 2 and Stage 3 has been carried out and informed to CEA, POSOCO, CTU, Gujarat SLDC and HVPNL respectively. SPS has been inspected by GETCO and found to be in order. Metering arrangements have been inspected and sealed by Paschim Gujarat Bijli Company Ltd.

(b) The petitioner has consulted Siemens AG, the OEM, regarding operation of the HVDC system in islanded mode. Siemens AG in its letter dated 20.4.2012 has stated that for start up, bus sectionalizer has to be closed as HVDC transmission has not been designed to start in islanded mode which is a contingent mode of operation only for emergency cases for short period and practically not feasible

considering the stability, reliability and rating of the generating units. The petitioner has placed on record a copy of the letter dated 2.5.2012 from Siemens AG giving the detailed technical reasons for operating the units of Stage 2 and Stage 3 with bus sectionalizer in closed condition.

(c) The petitioner has provided all documents to PGCIL and after perusal of the documents, PGCIL has concluded that the HVDC system has been designed to operate in integration with AC system under normal operation.

(d) Central Electricity Authority in its letter dated 16.3.2012 has conveyed to the Commission that Dehgam-Mundra-Mohindergarh-Bhiwani corridor will not only act as parallel inter regional line but also increase the transfer capacity of the national grid.

(e) The petitioner has also confirmed about the compliance of the various requirements for operation of the transmission line in dedicated mode.

The representative of the petitioner prayed for allowing urgent operation of the transmission line in dedicated mode as the power is available and is bottled up.

8. Central Transmission Utility in its letter dated 28.5.2012 has filed a technical report on the status of the transmission lines of the petitioner and their connectivity with ISTS. CEA in its letter dated 29/30.5.2012 has concurred with the report of CTU. The gist of the report of CTU is as under:

(a) The petitioner's Mundra generation is connected to ISTS in Western Region through Mundra TPS-Sami-Dehgam 400 kV D/C line. The transmission system has been implemented by the petitioner as the dedicated transmission system for effecting 200 MW to Maharashtra. The transmission lines have been commissioned.

(b) The petitioner's Mundra generation is connected to Mohindergarh HVDC terminal through a dedicated HVDC line of 2500 MW capacity. Mohindergarh HVDC terminal station is planned to be connected to ISTS in Northern Regional Grid through Mohindergarh- Bhiwani (PG) 400 kV D/C line which is under implementation by the petitioner. A temporary connection through Mohindergarh HVDC terminal was provided with a earlier commissioning of LILO of Bhiwani (BBMB)-Bahadurgarh 400 kV line at Bhiwani and connecting directly with Mohindergarh-Bhiwani (PG) line of the petitioner by-passing Bhiwani (PG sub-station) till the commissioning of the said sub-station. The above temporary arrangement was carried out as per the decision taken in the Standing Committee of transmission planning and in RPC meetings.

(c) Since the Bhiwani sub-station of power grid is nearing completion and is required to be energized, power grid has terminated Mohindergarh (HVDC) – Bahadurgarh 400 kV bus without disturbing the power flow from the originally approved electrical connectivity to Mohindergarh HVDC.

(d) By end of May, 2012, LILO of Bhawana, Hisar 400 kV and LILO Bhiwani-BBMB-Bahadurgarh 400 kV D/C line shall be commissioned. Along with these, 400 kV interconnection at Bhiwani, 765/400 kV ICT at Bhiwani, Bhiwani (PG) 765 kV AC line, Moga 765 sub-station and 765/400 kV ICT at Moga shall be commissioned.

(e) The petitioner has to commission Mohindergarh Bhiwani (PG) 400 kV D/C line along with 400 kV bays at both ends. PGCIL is implementing two numbers of 400 kV bays at Bhiwani on consultancy basis and the Commissioning schedule for the 2 bays is August, 2012.

9. POSOCO has submitted its report vide its letter dated 28.5.2012. It has been submitted that the testing of the dedicated HVDC Mundra-Mohindergarh HVDC bipole was carried out from 5.5.2012 to 16.5.2012 and on 26.5.2012. The report has been made in two parts- Part A describes the report of testing and Part B of the report has indicated the technical and commercial issues with request for suitable directions.

10. In Part A of the POSOCO's report it has submitted that requests for different set of tests on the dedicated Mundra-Mohindergargh HVDC bipole were received from the petitioner and approved by NLDC from time to time as under:

S. No.	Details of testing request from M/s APL	NLDC approval details
1	Request dated 4th May 2012 Pole-1 with minimum power order 125 MW	Message dated 4th May 2012
2	Request dated 7th May 2012 Pole-1 with medium power order of 375 MW	Message dated 8th May 2012
3	Request dated 10th May 2012 Ple-2 with low power order of 125 MW	Message dated 10th May 2012
4	Request dated 14th May 2012 Pole-2 with medium power order of 375 MW	Message dated 14th May 2012
5	Request dated 24th and 25th May 2012 Mock trail of 600 MW power flow on Pole-1	Message dated 25th and 26th May 2012

11. POSOCO has submitted that the tests were facilitated in consultation with WRLDC, NRLDC, Gujarat SLDC and Haryana SLDC. Security of the power system during testing of the dedicated HVDC link from 5th to 16th May 2012 and 26th May 2012 was ensured through the following steps:

(a) The total generation at APL Mundra (Stage-I + Stage II + Stage III) was maintained at the same level with and without the HVDC link and considering the 400 kV AC lines evacuating power to Gujarat is of the order of 2200-2400 MW ex-bus. Thus for testing of HVDC lines, no extra generation at Mundra was carried out.

(b) A System Protection Scheme (SPS) already exists at APL Mundra which automatically trips pre-selected units in case of any contingency at APL Mundra leading to line overloading. The efficacy of this SPS got already tested on 28th April 2012 when the 400 kV Mundra-Sami Ckt 2 line tripped at 1337 hours leading to the loading on the 400 kV Mundra-Versana line crossing 750 MW. SPS acted and tripped unit-4 (330 MW). So unit-4 tripping through SPS was actually tested.

(c) For a contingency leading to a higher 400 kV line loading at Mundra, one of the 660 MW unit is selected for tripping in the existing SPS. Unit-9 under APL Stage-III was selected for this purpose. The conditions for SPS action viz. line loading was artificially simulated at 1459 hours on 4th May 2012 and checked whether the SPS trip signal for unit-9 was being sent or not after isolating the trip relay. The event logger records were furnished by M/s APL. This was the mock testing of the SPS functioning for tripping 660 MW unit.

(d) The records in respect of Ser No. (b) and (c) also form part of the NLDC approval dated 4th May 2012 for testing. It is stated that these records only give a measure of confidence to the system operator that a SPS which would protect the system reasonably well on most occasions is in place. It however cannot be a substitute for transmission system adequacy and/or reliability of the overall system including the protective systems and only provides a means to load the system at a higher level than that without SPS, to ensure economy interchange of power.

(e) Subsequently M/s APL has confirmed that a runback scheme at Mundra has also been commissioned. This was tested during the mock trial on 26th May 2012 at 1922 hours by artificially simulating the HVDC pole block/trip and extending the trip signal to unit 8 recorded.

12. POSOCO has concluded that testing has been facilitated in line with the directions of the Commission and no adverse impact on the grid has been observed in all these tests.

13. Part-B of the report deals with issues in relation to facilitation of regular operation of the dedicated high capacity +/- 500 kV Mundra- Mohindergarh HVDC. POSOCO has listed out certain technical and commercial issues and has sought directions of the Commission in this regard. The issues are as under:-

Technical Issues:

(a) **Bipole mode of operation:** The testing of the HVDC system done between 5th to 16th May 2012 and 26th May 2012 was essentially on each pole one by one in metallic return mode. Bipole mode testing has not been done so far. APL needs to confirm the completion of electrode station at Mohindergarh and the capability to operate in bipole mode at the earliest so that even in case of a single pole outage,

the other pole is able to carry upto 1250 MW and there is no adverse effect on the system. CTU has already stated in its response dated 1st May 2012 to the Commission that for the committed capacity of 1766 MW (1424 MW PPA + 342 MW LTA) on the HVDC link, the system is not adequate as per the Indian Electricity Grid Code (IEGC) in the event of outage of one pole. In case dedicated transmission assets are converted to ISTS, then additional strengthening may be required as backup in case of one pole outage.

(b) **Connectivity to the inter State transmission system (ISTS) and HVPNL Haryana system from Mohindergarh (APL**) :At present, the connectivity arrangement to ISTS at Mohindergarh APL are temporary in nature and needs to be finalised at the earliest in order to have adequate AC system at Mohindergarh APL. The substation at Dhanonda also needs to be completed by Haryana at the earliest in order to have onward connectivity and to draw its share as per the Power Purchase Agreement (PPA) from 1st August 2012. It is also important that for reliability of supply, minimum two 400 kV outlets are ensured at Mohindergarh (APL) at all times. Even after all four 400 kV lines from Mohindergarh being in service, load ability of the HVDC lines would depend upon the load/generation balance in Haryana/NR area.

(c) **System protection scheme (SPS) and runback scheme at Mundra and Mohindergarh:** SLDC Gujarat had raised certain technical and commercial issues on the setting of runback scheme. As far as load shedding scheme in areas of Haryana is concerned, no details have been received from HVPNL in identifying the loads to be shed in Haryana in case of tripping of HVDC Mundra –

Mohindergarh HVDC bipole. Hence reliable and redundant SPS at APL Mundra and Mohindergarh ends needs to be finalised at the earliest. While the SPS and run-back schemes at APL Mundra are already in place, the settings for tripping need to be well coordinated at the RPC level as per section 5.2(o) of the Indian Electricity Grid Code (IEGC). As SPS not operating is a credible contingency, the reliability and redundancy aspect is important so that chances of SPS not operating is minimum.

(d) **Spare capacity available on HVDC Mundra-Mohindergarh bipole, transfer capability of network:** MOP's Removal of Difficulty Order, 2005 dated 8th June, 2005 in respect of dedicated transmission line and MOP letter dated 31st July, 2009 granting approval to M/s APL HVDC line for providing non discriminatory Open access to the extent of transmission margins available imply that in regard to operation of the above transmission line in real time, directions of concerned RLDC/SLDC shall be followed and the spare capacity on the HVDC bipole would be made available to other users in a non-discriminatory manner. Suitable direction in regard to utilisation of spare capacity on HVDC bipole by the third party users and the manner of levying transmission charges and losses and the loss apportionment in case of use of the dedicated links in case of contingency needs to be specified.

(e) Real time data and communication facilities between HVDC terminals at Mundra and Mohindergarh on one hand and SLDCs/WRLDC/NRLDC on the other: POSOCO report indicates the missing real time data at NRLDC and WRLDC. This needs to be taken up immediately by M/s APL in consultation with

CTU, SLDCs, NRLDC and WRLDC. Dual communication channels must be provided, wherever not available, to enhance reliability of the real time data at the control centres. Hence M/s APL must ensure availability of all real time analog and status related data related to AC system (including filter banks) and HVDC system in co-ordination with CTU and SLDCs/RLDCs. Dedicated speech communication channels from Mundra and Mohindergarh to SLDCs/RLDCs/NLDC must also be provided. Further, considering the importance of the station, it is desirable that dual reporting Phasor Measurement Units (PMUs) alongwith compatible communication system be installed by M/s APL at Mundra and Mohindergarh ends over the next three months so that synchrophasor data is made available to NLDC/RLDCs/SLDCs for better visualisation and security monitoring and control.

Commercial issues:

(a) Implication of the dedicated nature of the transmission line from Mundra to Mohindergarh: In the ROP of the hearing on 3rd May, 2012 it is stated that dedicated nature of the HVDC bipole implies that it can be used only for APL Stage 3 power station, hence Commission's direction are required in this regard for third party usage if necessary.

(b) Control area jurisdiction of the different APL stages for the purpose of scheduling metering and accounting: Different SLDCs like Gujarat and Haryana had opinion difference with M/s APL in regard to control area. APL wants that whole station need to be considered as one station and controlled by WRLDC, whereas SLDC Gujarat wants the jurisdiction of Stage I & I to be with them and

SLDC Haryana wants the jurisdiction of Stage-III to be with them. This issue also need to resolved for facilitating energy interchange in a dispute free manner.

(c) Location of APL stage 3 power station in term of bid area of the power exchange: In terms of bid areas of the Power Exchange, it needs to be ascertained that where the APL Stage 3 power station would lie, in bid area W2 or in bid area N1 as this has implication in case of congestion**.**

14. During the hearing of the petition on 31.5.2012, learned counsel for Gujarat Energy Transmission Corporation Limited (GETCO) expressed concern regarding the flow of power from Units 7,8 &9 to Gujarat system in case of tripping of HVDC line, which may cause damage to Gujarat power system. The representative of POSOCO clarified that as per the arrangement of Special Protection Scheme (SPS) put in place for HVDC line, the moment HVDC line trips, corresponding generation would also trip and there would not be any flow of extra power into Gujarat System on account of tripping of HVDC line.

15. We have considered the submissions of the petitioner, CTU, CEA, NLDC, the leaned counsel for GETCO and the representative of HVPNL. We have also considered the report submitted by NLDC and the various technical and commercial issues raised therein.

16. The petitioner approached POSOCO for loading/testing of the HVDC lines by its letters dated 21.3.2012 and 22.3.2012. POSOCO/NLDC in its letter dated 22.3.2012 has asked the petitioner as part of the interim procedure to open the 400 kV bus sectionalizer between Stage 2 and Stage 3 considering the dedicated nature of HVDC bipole and

system security. In a meeting taken by Member (PS), Central Electricity Authority on 3.4.2012, it was concluded that HVDC Mundra-Mohindergarh bipole cannot be operated without the 400 kV bus sectionalizer breaker at Mundra between Stage 2 and Stage 3 being in closed position. It is against this background that the petitioner has approached the Commission through the IA for approval for testing and operation of the 500 kV Mundra-Mohindergarh HVDC transmission system with 400 kV bus sectionalizer in a closed position.

17. We are all along of the view that since the transmission line has been constructed as a dedicated line, it should be used in dedicated mode till the time the petitioner is granted licence for inter-State transmission of electricity. For operation of the transmission line in dedicated mode, the petitioner does not require permission of the Commission. However, it is on record that the transmission line at the other end is connected to Stage 2 which is connected to the transmission network of Gujarat System, thus making it part of the ISTS without the transmission line having the status of inter-State transmission system. The representative of CTU during the hearing of the petition on 31.5.2012 (as recorded in the Record of Proceeding of the same date) has clarified the status of the dedicated transmission lines as under:

> "10. The Commission asked the representative of the CTU to confirm whether the HVDC line of the petitioner was approved as a dedicated transmission system. The representative of CTU clarified that when the petitioner first approached CTU for Long Term Access for 200 MW to Maharashtra, it did not have any plan for putting up additional LTA to the Northern Region. So the dedicated line of Mundra-Dehgam was planned at that time for Unit No.1 to 6 and there was no proposal for HVDC line to NR. Subsequently, the petitioner approached the CTU for LTA to NR with separate Units 7, 8, 9 and the dedicated HVDC line for NR. At the stage of grant of LTA, there was no interconnection proposed between these two stages and separate dedicated transmission lines along with separate units were planned for NR and WR. Now, at the stage of operation, the petitioner is saying that the HVDC line to NR is not designed for isolated operations and in support it has submitted the report from the OEM i.e. M/s Siemens that it cannot be operated without connecting the two systems of WR and NR."

The representative of the Central Electricity Authority also clarified the position of the dedicated transmission line (as recorded in the Record of Proceeding for the hearing on 31.5.2012) as under:

> "12. The representative of the Central Electricity Authority submitted that the dedicated nature of the HVDC line can be maintained by controlling power flow through this line. He further submitted that at planning stage, the issues of bus-sectionalizer etc. were not raised and have been raised at the operation stage only. He clarified that the dedicated system is designed by the project developer and the criteria taken by the project developer do not concern CEA unless it is referred to CEA as part of the integrated planning system where the criteria/issues are taken into consideration."

The petitioner has also placed on record a letter dated 2.5.2012 from Siemens AG, the OEM regarding operation of Mundra Stage III generating units in islanded mode with Mundra-Mohindergarh HVDC transmission system. It has been mentioned in the said letter that the system is designed for considering the bus coupler between Stage 2 and Stage 3 as closed. In case a HVDC system which is directly connected to the generation bus, then the system must be specified and designed accordingly from the very beginning. The above submissions of the CTU and CEA and the letter of Siemens AG suggest that the HVDC line could have been designed for islanded mode of operation to satisfy the requirements of a dedicated transmission line. Even though the petitioner has planned the HVDC line as a dedicated transmission line and obtained necessary permissions from the Central Government for execution of the same, the petitioner has not got the transmission line designed to be operated in a dedicated mode. Hence difficulties have arisen for operation of the transmission line as dedicated line for Stage 3 and the petitioner has sought permission to operate the transmission line with the bus sectionalizer breaker between Stage 3 and Stage 2 closed. As the problem has arisen mainly due to interconnection, NLDC in consultation with Central Electricity

Authority may examine and submit what steps could be carried out now so that the status of the transmission lines remain as per the approval.

18. After hearing all parties, we had directed POSOCO through the Record of Proceedings for the hearing on 3.5.2012 to carry out mock trial of the System Operation Scheme installed on the transmission line to assess whether the dedicated nature of the line is retained with the help of the system protection scheme. POSOCO has carried out the mock trial from 5.5.2012 to 16.5.2012 and 26.5.2012. During the testing, the working of SPS has been checked both for the AC line overloading and HVDC tripping. POSOCO has concluded that testing and mock trials were satisfactory and no adverse impact on the grid was observed. Therefore, from the POSOCO's report, it emerges that with the System Protection Schemes in place, the transmission line can be operated in a dedicated mode with the bus sectionalizer closed between Stage 2 and Stage 3. The petitioner in Para 4(g) of its affidavit dated 29.5.2012 has confirmed the following to ensure functioning of the dedicated nature of the HVDC system:

(i) Scheduled flow of power from stage 3 unit/units over HVDC corridor for the quantum of open access granted will be ensured strictly, in line with Commission's Regulations.

(ii) Power order on HVDC corridor shall be set as approved by concerned RLDCs and it shall be equal to scheduled power from Stage-III only.

(iii) Only minor variations over the scheduled power flow between Stage 3 and Stage 2 shall take place limiting to the usual variations in the generation of the generating units. All variation shall be on account of the petitioner and shall be paid in accordance with Regulations.

(iv) Power from other sources (Except stage-III) shall not be scheduled through the dedicated HVDC corridor. Petitioner has confirmed installation of protective relays (reverse power relay) across the bus coupler between stage 2 and stage 3 to prevent unintended power flow from unit No. 1 to 6 and from western region to stage 3. If power from other sources flow through HVDC line, it will trip.

(v) In case of outage of HVDC pole, stage 3 generating unit/units, generating closest to the power order on HVDC shall be tripped by Special Protection Scheme.

(vi) Even with "Sectionalizer Breaker Closed", dedicated nature of HVDC will be maintained during its operation as mentioned above and IEGC Section 5.2 by strictly following directions contained in this order.

(vii) Petitioner shall comply with the instructions of POSCO for the operation of dedicated HVDC system as well as provisions of IEGC all the time.

The petitioner shall remain bound by the above commitments throughout the period of operation of the HVDC line as dedicated transmission line. Concerned RLDCs are directed to ensure that the dedicated nature of the transmission line is maintained in terms of the confirmation given above and the provisions of the Grid Code.

19. POSOCO has highlighted certain technical and commercial issues related to the operation of the transmission system The commercial issues mainly pertain to the issue of direction in regard to third party usage of the dedicated transmission line, control area jurisdiction of the generating stations of the petitioner for the purpose of scheduling metering and accounting as per the grid

code, and location of the Stage 3 of power station of the petitioner in terms of bid areas of the power exchange. We have considered the issues. As regards the third party usage, this cannot be allowed on a dedicated transmission line which is meant for point to point connection. A condition in the section 68 approval for allowing third party usage cannot override the mandate of the Act with regard to dedicated transmission line. As regards the control area jurisdiction, the same has to be decided in accordance with the provisions of the Regulation 6.4 of the Grid Code. As regards the location of Stage 3 of the generating station in terms of the bid area of the power exchange, NLDC may take up the issue separately with the Commission for our consideration.

20. The technical issues mainly pertain to the completion of the electrode station and capability to operate the bipole mode of the operation at Mohindergarh, finalization and implementation of the connectivity arrangements to ISTS as Mohindergarh to have adequate AC system, the requirement for reliable and redundant SPS at APL Mundra- Mohindergarh, utilization of the spare capacity by other users in non-discriminatory manner and the need for real time analog and statistically data pertaining to AC system and HVDC system in coordination with CTU and SLDC/RLDC. We direct the petitioner to sort out the technical issues raised in the NLDC's report in consultation with CTU, CEA, NLDC and concerned RLDCs. However, NLDC is directed to coordinate with the concerned agencies and find out acceptable solutions with regard to system safety and security. It is made clear that if the operation of the power system is affected due to non-compliance of any of the technical requirements by the petitioner, the petitioner

shall be responsible for the same including any financial liability accruing therefrom.

21. The petitioner has prayed in the IA for impleadment of Haryana Vidyut Prasaran Nigam Ltd as respondent by amending the memo of parties in the main petition. The prayer is allowed. It is however observed that the petitioner has not impleaded the long term customers of the transmission line on the ground that the HVDC lines have been executed as dedicated transmission line and till the transmission licence is granted, there is no long term customer of these systems. We are unable to agree with the petitioner. Under Regulation 6(c) of the Transmission Licence Regulations, a generating company intending to use its dedicated transmission system as ISTS is eligible for applying for transmission licence and is required to follow the same procedure as is required for any other applicant for transmission licence. The Transmission Licence Regulations require the applicant to serve copies of the applications on the Long Term Customers. This statutory requirement cannot be dispensed with for the petitioner. Since the transmission lines are passing through Western and Northern Regions, we direct the petitioner to implead the beneficiaries in these two regions. The main petition shall be listed for hearing after compliance with this requirement.

22. IA is disposed of in terms of the above.

sd/-	sd/-	sd/-	sd/-
(M Deena Dayalan)	(VS Verma)	(S Jayaraman)	(Dr Pramod Deo)
Member	Member	Member	Chairperson