

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 44/TL/2012

Coram:

Dr. Pramod Deo, Chairperson

Shri V.S. Verma, Member

Shri M Deena Dayalan

Date of Hearing: 16.05.2013

Date of Order: 08.06.2013

In the matter of

Application for grant of transmission licence under Section 14 read with Section 15 (1) (a) of the Electricity Act, 2003 and Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of transmission licence and other related matters) Regulations, 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

1. National Load Despatch Centre, New Delhi
2. Power Grid Corporation of India Ltd., Gurgaon
3. Northern Regional Load Despatch Centre, New Delhi
4. Western Regional Load Despatch Centre, Mumbai
5. Central Electricity Authority, New Delhi
6. Gujarat Electricity Transmission Corporation Limited, Vadodara
7. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
8. Gujarat Urja Vikas Nigam Ltd., Vadodara
9. Maharashtra State Electricity Distribution Co. Ltd., Mumbai
10. Madhya Pradesh Power Management Company Ltd., Jabalpur
11. M.P. Audygik Kendra Vikas Nigam Ltd
12. Chhattisgarh State Power Distribution Company Ltd
13. Goa State Electricity Department
14. Daman and Diu Electricity Department
15. Electricity Deptt., Administration of Dadra Nagar Haveli
16. Heavy Water Project, Deptt of Atomic Energy
17. Jindal Power Ltd.
18. Torrent Power Ltd.

19. PTC India Ltd.
20. Haryana Power Purchase Centre
21. Rajasthan Power Procurement Centre
22. Jodhpur Vidyut Vitran Nigam Ltd.
23. Jaipur Vidyut Vitran Nigam Ltd.
24. Ajmer Vidyut Vitran Nigam Ltd.
25. BSES Yamuna Power Ltd.
26. BSES Rajdhani Power Ltd.
27. Tata Power Delhi Distribution Ltd.
28. New Delhi Municipal Council
29. Uttarakhand Power Corporation Ltd.
30. Uttar Pradesh Power Corporation Ltd.
31. North Central Railway, Uttar Pradesh
32. Punjab State Power Corporation Ltd.
33. Power Development Deptt, J & K
34. Himachal Pradesh State Electricity Board
35. Electricity Deptt., UT Chandigarh
36. Northern Regional Power Committee
37. Western Regional Power Committee
38. Kanpur Electricity Supply Company Ltd.
39. Rajasthan Rajya Vidyut Prasaran Nigam Ltd
40. Delhi Transco Ltd.

Respondents

Parties Present:

1. Shri Amit Kapur, Advocate, APL
2. Ms. Poonam Verma, Advocate, APL
3. Shri Jatin Jalundhwala, APL
4. Shri Jignesh, APL
5. Shri Sameer, APL
6. Shri M.G.Ramchandran, Advocate, GUVNL and Haryana
7. Shri P.J.Jani, GUVNL
8. Shri U.K.Agarwal, UBHVNL
9. Miss Joyti Prasad, NLDC
10. Shri S.R.Narasimhan, NLDC
11. Shri Y.K.Sehgal, CTU
12. Shri Mukesh Khanna
13. Ms Ankita Singh

Per: Dr Pramod Deo, Chairperson & Shri V S Verma, Member

ORDER

The petitioner, Adani Power Limited, a company incorporated under the Companies Act, 1956 and engaged in the business of generation and transmission of electricity at various locations in the country, has made this application under

Sections 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 \pm 500 kV bipole Mundra-Mohindergarh HVDC Transmission line including associated 400 kV lines. The petitioner has made the following prayers:

- "(a) Admit the present application;*
- (b) Grant inter-State transmission line to Adani Power Limited under Sections 14 and 15 (1) of the Electricity Act, 2003 and CERC (Procedure, Terms and Conditions for grant of Transmission licence 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 is deemed LTA customer for supply of power against the PPAs entered into with UHBVNL and 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/shortcoming 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. Before we proceed to deal with the application of the petitioner, it is necessary to mention that during the past two years the Commission has heard a number of cases regarding dedicated transmission lines and the issues related to their scheduling, operation and sharing of charges including the petitions filed for seeking inter-State transmission license. It has become imperative to take a comprehensive

view in this regard in order to obviate ambiguity and uncertainty faced by the project developers. It is our experience that even after continuous engagement with all statutory agencies during the development of the project, some issues regarding scheduling and energy accounting still remain unresolved which requires regulatory insight to resolve the issues. Similarly during the last four years, various regulatory reforms were initiated in power transmission with a view to promote investment in the power sector so that on the transmission infrastructure side no bottleneck either at connectivity level or at access level is experienced, and simultaneously transmission charges are allocated based on usage. Accordingly, the Connectivity Regulations, Sharing Regulations and Regulatory Approval Regulations have been formulated. Therefore, while dealing with the application of the petitioner for transmission licence, these broad aspects have been kept in view.

3. The brief facts of the case are that the petitioner has set up a generating station, Mundra Thermal Power Station (hereinafter "Mundra TPS"), with a total capacity of 4620 MW in the Special Economic Zone at Mundra in the State of Gujarat. The generating station has four phases, namely, Phases I & II comprising Unit Nos. 1 to 4 (4x330 MW), Phase III comprising Unit Nos. 5 and 6 (2x660 MW) and Phase IV comprising Unit Nos.7 to 9 (3x660 MW). The petitioner has entered into two PPAs dated 2.2.2007 and 6.2.2007 for supply of 2X1000 MW power to Gujarat Urja Vikas Nigam Limited (GUVNL) each from Phase I &II and from Phase III and PPA dated 7.8.2008 with Uttar Haryana Bijli Vidyut Nigam Ltd (UHBVNL) and Dakshin Haryana Bijli Vidyut Nigam Ltd (DHBVNL) for supply of 1424 MW power from Phase IV of the generating station through Case 1 bidding route. The petitioner has been selling/intends to sell the balance merchant capacity through long term, medium term

and short term open access. For evacuation of power to GUVNL under the PPAs, Gujarat Energy Transmission Corporation Ltd (GETCO) has established the transmission system at 400 kV and 220 kV voltage level and is in the process of implementation of the balance system connecting Mundra TPS to various load centres in the State of Gujarat. However for evacuation of power under power purchase agreements with UHBVNL and DHBVNL, the petitioner has implemented the dedicated transmission system of ± 500 kV Mundra - Mohindergarh HVDC bi-pole transmission line including associated 400 kV transmission lines.

3. The petitioner submitted an application dated 27.4.2007 for approval of long-term access for injection of 200 MW power at Dehgam sub-station of PGCIL for supply to Maharashtra. Long-term access was approved at 9th meeting of the Standing Committee on Transmission System Planning of Western Region held on 30.7.2007. For availing long-term access, the petitioner was required to construct the dedicated transmission line from Mundra TPS to Dehgam. Approval was communicated to the petitioner by PGCIL under letter dated 12.1.2009. Accordingly, the petitioner constructed 400 kV Mundra–Sami-Dehgam D/C transmission line which is said to have been energised on 8.6.2009.

4. The petitioner submitted an application dated 1.10.2008 for long-term access for supply of 342 MW power to Punjab and Rajasthan in Northern Region. Long-term access was approved at 27th meeting of the Standing Committee on Transmission System Planning of Northern Region held on 30.5.2009. Accordingly, the petitioner was granted long-term access by PGCIL vide letter dated 17.7.2009 with connectivity at Bhiwani sub-station of PGCIL through Mundra - Mohindergarh HVDC bi-pole transmission line, already under construction. For availing connectivity, the

petitioner was required to implement and maintain 400 kV transmission line from Mohindergarh HVDC terminal to Bhiwani. Therefore, the petitioner has established the dedicated 400 kV Mohindergarh - Bhiwani transmission line.

5. The petitioner has thus constructed the following transmission lines for evacuation of power from Mundra TPS which are being hereafter collectively referred to as “the dedicated transmission system” –

- (a) 400 kV Mundra - Sami - Dehgam D/C transmission line,
- (b) ± 500 kV HVDC Mundra - Mohindergarh HVDC bi-pole transmission line,
- (c) 400 kV Mohindergarh - Bhiwani transmission line.

6. The petitioner has stated that there has been an inadvertent flow of power from other sources as well on Mundra-Dehgam D/C transmission line. The petitioner has submitted that Mundra–Mohindergarh HVDC bi-pole transmission line is designed for 2500 MW capacity and has surplus capacity after catering for 1424 MW power to UHBVNL/DHBVNL under the PPAs and another 342 MW in Northern Region for which it has been granted long-term access. The petitioner has further submitted that the dedicated transmission system laid by it creates Dehgam – Mundra – Mohindergarh - Bhiwani corridor which can be utilized for inter-regional transfer of power to the extent of available surplus capacity. It has been stated that a meeting was convened by Power System Operation Corporation Ltd (POSOCO) on 9.9.2011 to discuss various aspects of Mundra–Mohindergarh HVDC bi-pole transmission line and its integrated grid operation. The petitioner has filed the gist of discussions of the meeting which reveal, *inter alia*, the following deliberations:

(a) The capacity of Mundra – Mohindergarh HVDC bi-pole transmission line should be optimally utilised, and further deliberations would be needed to arrive at *modus operandi* of utilization of the available spare capacity and treatment of transmission charges and losses.

(b) POSOCO observed that Mundra–Mohindergarh HVDC bi-pole transmission line would be operating in parallel with existing inter-regional line between Western and Northern Regions. In case of tripping of single pole or bi-pole, the antecedent power flow on the transmission line would rush through the parallel AC network leading to a constraint in the network.

(c) Power order on Mundra - Mohindergarh HVDC bi-pole transmission line would have implication on the calculations of total transfer capability (TTC)/available transfer capability (ATC) of Western Region–Northern Region corridor.

(d) Any change in power order on Mundra-Mohindergarh HVDC bi-pole transmission line in real time operation could cause/relieve congestion elsewhere. It was felt that for security of the power system as well as for market operation, Mundra-Mohindergarh HVDC bi-pole transmission line should be taken into account for TTC/ATC calculations.

7. The petitioner has submitted that from the above deliberation, it can be inferred that the dedicated transmission system built by the petitioner should be made a part of integrated all India grid. The petitioner has further submitted that the dedicated transmission lines are connected with multiple grids; inter-State

transmission system (ISTS), Gujarat intra-State transmission system (Gujarat STS) and Haryana intra-State transmission system (Haryana STS), and as such are integral part of the meshed network of ISTS. It is therefore difficult to control the flow of power on these lines from other sources making it impossible to operate them in isolation. According to the petitioner, the dedicated transmission lines lose the dedicated character. Accordingly, the petitioner has made this application to seek transmission licence for the dedicated transmission lines along with associated bays, though it has also made some other prayers as extracted above. The details of the different elements of the transmission system for which licence has been sought are as under:

Transmission Lines				
Srl. No.	Name (end-point locations)	Voltage Class (kV)	Length(km)	Type (S/C or D/C)
1.	Mundra-Mohindergarh	+/- 500 kV	990	HVDC bipole
2.	Electrode line at Mundra Station	33 kV	32	
3.	Mohindergarh – Dhanonda	400 kV	5	D/C
4.	Mohindergarh – Bhiwani	400 kV	50	D/C
5.	Electrode line at Mohindergarh Station, Mohindergarh	33 kV	185	
6.	Mundra – Sami	400 kV	282	D/C
7.	Sami – Dehgam	400 kV	152	D/C

Sub-Station					
Srl. No.	Name (location)	Voltage Level(s) (kV)	Transformer (Nos. and MVA capacity)	Reactive/capacitive compensation (device with MVAR capacity)	No. of bays
1.	HVDC Terminal Station at Mundra TPS				
1.1	AC Yard	400 kV		AC sub filter – (8X120 VAR + 3X150 MVAR capacitors)	21 (Twenty one)
1.2	DC Yard	+/- 500 kV DC	2X1494MVA Converter Transformer (&X498 MVA, 1-ph including		11 (Eleven)

			1 spare unit)		
1.3	Electrode Station				-
2.	Mundra TPS Switchyard	400 kV	2X315 MVA, 400/220 kV ICT	Bus Reactor : 3 X 42 MVAR	21 (Twenty one)
3.	Sami Switching Station 400 kV	400kV	-	Bus Reactor : 1 X 50 MVAR Line Reactor : 2 X 50 MVAR FSC : 38% series compensation	10 (Ten)
4.	HVDC Terminal Station at Mohindergarh, Haryana				
4.1	AC Yard	400 kV		AC Sub Filters (8X120 MVAR + 5X150 MVAR capacitors)	34 (Thirty Four)
4.2	DC Yard	+/- 500 kV DC	2X1494MVA Converter Transformer (7X498 MVA, 1-ph including 1 spare unit)		11 (Eleven)
4.3	Electrode Station				-
5	OPGW Repeater Station at Radhanpur (Gujarat)				
6	OPGW Repeater Station at Sikar (Rajasthan)				
7	OPGW Repeater Station at Pali (Rajasthan)				
8	Bhiwani (PG) Substation	400 kV			4 (Four)
9	Dehgam, (PG) Substation	400 kV			4 (Four)

8. The construction, operation and maintenance of the transmission lines and sub-stations etc is covered under the main objects of the petitioner as noted from the following extracts of the Memorandum of Association of the petitioner company:

"3. To establish, operate and maintain generating stations, accumulation, tie lines, substations, workshops, transmission lines and to lay down cables, wires."

9. The petitioner has submitted that under clause (c) of Regulation 6 of the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for

Grant of Transmission Licence and other related matters) Regulations, 2009 (the transmission licence regulations), a generating company which has established a dedicated transmission line and intends to use such line as the main transmission line and as part of the inter-State transmission system is eligible to seek transmission licence. The petitioner has submitted that it has already established the dedicated transmission lines which form part and parcel of ISTS as defined under sub-section (36) of Section 2 of the Act as they transmit electricity from the territory of the State of Gujarat to the territory of the State of Haryana, between the States of Gujarat and Haryana electricity is also transmitted across the territory of an intervening State i.e. Rajasthan and conveyance of electricity within the States of Gujarat and Haryana is incidental to inter-State transmission of electricity.

10. Accordingly, the petitioner has stated that it is eligible to seek transmission licence as it fulfils the conditions laid down under clause (c) of Regulation 6 of the transmission licence regulations.

12. According to the petitioner, after the transmission licence is granted for operation and maintenance of the dedicated transmission lines, these lines shall become a part of 'Basic Network' as defined under the Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2009 (Sharing Regulations) and the petitioner shall become entitled to claim transmission charges under these regulations.

12. The petitioner has published the public notices of its application in Times of India, Indian Express, Kutchh Mitra, Haribhoomi and Rajasthan Patrika on 29.2.2012 in accordance with sub-section (2) of Section 15 of the Electricity act, 2003 read with clause (7) of Regulation 7 of the transmission licence regulations. It has been stated

that these newspapers have circulation in the States of Gujarat, Rajasthan, Haryana and Delhi. The petitioner vide its affidavit dated 13.3.2012 has placed on record the original newspaper cuttings evidencing publication of notices of its application. No suggestions or objections have been received in response to the public notices.

13. The petitioner has served a copy of the application on the Central Transmission Utility (CTU) as required under sub-section (3) of Section 15 of the Act. CTU has submitted its comments and recommendations on the application vide its letter dated 1.5.2012. The substantive part of the comments of CTU is extracted hereunder:

“6. The capacity of dedicated Mundra – Mohindergarh HVDC bipole has been committed for 1766 MW (1424 MW PPA + 342 MWA LTA). As per clause 3.5.a (i) of IEGC, as a general rule, the ISTS shall be capable of withstanding and be secured against contingency of outage of one pole of HVDC Bipole line, without necessitating load shedding or rescheduling of generation during steady state operation. The system planned by APL for transfer of power to Northern Region i.e. ± 500 kV, 2500 MW Mundra (WR) – Mohindergarh (NR) HVDC bipole, does not have adequate redundancy to transfer 1766 MW from Mundra generation to Mohindergarh while meeting with the contingency criteria of outage of one pole of HVDC bipole as mentioned in Grid Code.

7. In case dedicated Assets of APL are converted into ISTS, additional transmission strengthening may be required to provide back up in case of outage of one pole, for reliable transfer of LTA power which has already been approved for Northern Region. Till the time strengthening is not available some constraints may be there for reliable transfer of power.”

14. CEA in its letter dated 16.3.2012 sent in response to the petition has stated that the transmission system for Mundra TPS has evolved in stages and the final picture of the transmission system could not have been conceived in advance. The extracts from CEA’s letter dated 16.3.2012 are reproduced as under:

“The Mundra–Mohindergarh HVDC system is designed for 2500 MW and has surplus capacity even after considering long-term PPAs with Haryana

totalling to 1424 MW. Since HVDC bi-pole shall be operating with Mundra bus connected with the western regional system on one end and with CTU and Haryana system of northern region on the other end, this can be utilized for inter regional transfer of power between WR and NR.

Ministry of Power, while granting permission in July, 2009 for laying of over head lines under section 68 of the Electricity Act, 2003, had put a condition to provide non-discriminatory open access to other licensee/other licensee/other generators on the Mundra-Mohindergarh HVDC line to the extent of available transmission margins. However, the condition can be complied only if the dedicated asset is converted into a licensed asset.

Dehgam–Mundra–Mohindergarh–Bhilwani corridor developed as a dedicated transmission system by APL will act as a parallel inter regional link and will have an important role to play in the national grid if it is converted from a dedicated asset to a licensed interstates asset.

As the dedicated system evolved in stages, it has so happened that dedicated assets in question would in practice be forming part of the meshed inter-state transmission system. It has already been pointed out by POSOCO that power order of the high capacity Mundra–Mohindergarh bi-pole would have an implication on the calculation of total transfer capability and available transfer capability of the WR-NR corridor. if the dedicated assets of APL are converted into licensed assets it would result in better optimization and utilization of the transmission assets and increase in the transfer capability of the national grid. Once the dedicated assets are converted into licensed assets further power system studies could be carried out and additional transmission links could be planned, if necessary, in order to increase the transfer capability between NR and WR through Mundra – Mohindergarh HVDC bipole.”

15. Replies to the petition have been filed by GUVNL, UHBVNL/DHBVNL, Punjab State Power Corporation Limited (PSPCL), Maharashtra State Distribution Company Ltd.(MSEDCL) and Ajmer Vidyut Vitran Nigam Ltd (AVVNL). The substance of the submissions made by these respondents is summarised as under:

(a) The dedicated transmission lines have been set up by the petitioner as a part of Mundra TPS towards fulfilment of its obligation of supply of power under PPAs and therefore, the petitioner cannot be granted transmission licence for these lines.

(b) The planning, design, capacity and location of Mundra-Mohindergarh HVDC bi-pole transmission line was not examined, analysed or approved by CEA/ CTU/ NREB / WREB.

(c) No load flow studies were conducted to ensure that the operation of Mundra-Mohindergarh HVDC bi-pole transmission line which would get status of ISTS after grant of transmission licence would be trouble-free.

(d) The dedicated transmission lines have not been built by following the competitive bidding route and accordingly cannot be included in basic network for recovery of PoC Charges.

(e) Manifestation of intension to use a dedicated transmission line as main transmission line and part of ISTS is a necessary condition as mandated under clause (c) of Regulation 6 of the transmission licence regulations for getting the transmission licence, but the petitioner did not have any such intention when it constructed the dedicated transmission lines.

(f) There is no reliability in the network even for quantum of power supplied under the PPAs. Additional system strengthening to cover up present 'n-1' deficiency would put additional burden.

(g) The present beneficiaries of Mundra TPS cannot be forced to bear any direct and indirect impact arising out of conversion of the dedicated transmission lines to licensed transmission lines.

(h) The charges for associated transmission system need to be borne only by identified beneficiaries of the generating station unless it is established that

the dedicated transmission lines are capable of carrying power meant for other beneficiaries and they have consented to share the charges.

(i) Grant of transmission licence shall not *ipso facto* entitle the petitioner to claim the transmission charges under PoC charges scheme until its usage as ISTS is established.

(g) Grant of transmission licence to the petitioner would create a precedent which others may be tempted to follow, giving rise to further difficulties.

16. After perusal of the submissions of the parties and the material on record including CTU's comments and CEA's letter dated 16.3.2012, the Commission by its order dated 18.1.2013 sought the following clarifications from CEA and CTU:

(a) Whether the CEA and CTU were involved/consulted at the planning stage of Mundra-Mohindergarh HVDC bi-pole transmission line and if so, what were the recommendations of CEA and CTU with regard to utilization of the subject HVDC line?

(b) Whether Mundra-Mohindergarh HVDC bi-pole transmission line can be operated as a dedicated transmission line without any system security problem?

(c) What is the optimum quantum of electricity which can be transmitted on the subject transmission line at any point of time by retaining its dedicated character?

(d) If Mundra–Mohindergarh HVDC bi-pole transmission line is granted transmission licence, whether it would require further system

strengthening from grid security consideration and whether it would result in additional transmission charge on the designated ISTS customers?

17. In response, CEA in its letter dated 28.2.2013 has submitted as under:

(a) Mundra-Mohindergarh HVDC bi-pole transmission line and associated transmission scheme were discussed and agreed during the 26th and 27th meetings of the Standing Committee of Power System Planning of Northern Region held on 13.10.2008 and 30.5.2009 respectively. The Committee concurred the HVDC link from Mundra TPS to Mohindergarh proposed by the petitioner and subsequent extension of the line to Dhanonda HVPNL sub-station and Bhiwani PGCIL sub-station through two separate 400 kV AC lines. The power to be delivered at Dhanonda(Haryana) and Bhiwani (Haryana) is of the order of 1424 MW and 342 MW respectively. Ministry of Power under its sanction for laying of overhead transmission lines under Section 68 of the Act placed a condition that the petitioner would allow open access to other generating stations in case of availability of transmission capacity.

(b) Mundra-Mohindergarh HVDC bi-pole transmission line has been built as a dedicated transmission line. Therefore, the line can continue to function as dedicated transmission line without any system security problem.

(c) 1250 MW can be transferred through Mundra-Mohindergarh HVDC bi-pole transmission line considering n-1 security criteria.

(d) Even if Mundra-Mohindergarh HVDC bi-pole transmission line is granted transmission licence, from grid security considerations, this line would

be allowed to carry 1250 MW by the system operator unless parallel AC path of requisite capacity is created between Western and Northern Regions so as to cater to n-1 criteria which would result in creation of additional transmission system and consequently additional transmission charges for designated inter-State customers.

18. CTU in its affidavit dated 25.2.2013 has submitted as under:

(a) The matter was never referred to CTU at the time of planning. However, during the 26th meeting of the Standing Committee on Power System Planning of Northern Region, this agenda point was raised by HVPNL for injection of 1442 MW at Mohindergarh through HVDC bi-pole. It was proposed that the dedicated line with capacity of 2500 MW directly shall be connected to Mohindergarh.

(b) Mundra-Mohindergarh HVDC bi-pole transmission line can be operated as a dedicated transmission line. However, quantum of power flow shall be governed by grid security considerations.

(c) Mundra-Mohindergarh HVDC bi-pole transmission line should have been self-sufficient to cater to n-1 contingency. It can carry 1250 MW to cater to n-1 contingency. In the present scenario, if it is allowed to carry more than 1250 MW, in case of n-1 contingency balance, power would follow through AC system which will deplete the margin in AC system and may affect power evacuation of ISGS projects in Western Region.

(d) In the recent meetings chaired by Chairperson, CEA, on 23.1.2013 and 18.2.2013, it was decided that power flow on Mundra - Mohindergarh HVDC bi-pole transmission line would be 1500 MW.

(e) If Mundra-Mohindergarh HVDC bi-pole transmission line is integrated into the grid and allowed to carry according to its capacity, additional line shall be required to cater desired level of security, which can be determined by detailed study for a particular timeframe. However, as the transmission line was approved and is being operated as a dedicated line and transferring power from Mundra TPS, it should remain as a dedicated transmission line. The effect on transmission charges of designated ISTS customers would depend upon amount of power the system would carry and the additional system strengthening required and the capital cost of the system.

19. In response, the petitioner vide its affidavit dated 20.3.2013 has submitted that CEA and CTU were consulted at the planning stage and Standing Committee has not only approved LTA for 342 MW but took all the steps from the beginning for coordinated system planning necessary for evacuation of more than 1766 MW from Mundra TPS and accordingly, recommendations regarding the line capacity, system configuration, connectivity with grid, system safety and reliability etc. were made. The petitioner has relied upon Regulation 3.4 of IEGC, Regulation 9 of the Central Electricity Regulatory Commission (Open Access in Inter-state Transmission) Regulations, 2004, sub-section (4) of Section 3 of the Act and National Electricity Plan in support of its contention.

Analysis and Decision

20. We have heard learned counsel for the petitioner and learned counsel/representatives of the respondents. We have very carefully considered the pleadings of the parties and the documents available on record. Before we consider the petitioner's main prayer for grant of transmission licence, we deem it necessary to advert to certain preliminary issues arising during the course of the hearings.

21. During the hearing on 31.5.2012, learned counsel for GETCO expressed concern regarding the flow of power to Gujarat system in case of tripping of Mundra–Mohindergarh HVDC bi-pole transmission line, as this could cause damage to Gujarat system. Learned counsel for GETCO further submitted that there should be automatic control system to stop flow of power to Gujarat system in such an eventuality. The representative of POSOCO clarified that as per the arrangement of Special Protection Schemes available on Mundra–Mohindergarh HVDC bi-pole transmission line, in case of its tripping, corresponding generation at Mundra TPS would trip too and there would not be any flow of extra power into Gujarat system on account of tripping of the transmission line. In view of the clarification by the representative of POSOCO, the issue raised on behalf of GETCO does not survive for any further consideration.

22. At the hearings, the question of eligibility of the petitioner for grant of transmission licence in the face of Section 41 of the Act emerged. It was pointed out that Section 41 of the Act puts an embargo on a transmission licensee to enter into the business of trading. The issue raised was that the petitioner could not be granted transmission licence since its parent company, Adani Enterprises Limited (AEL), was already granted the trading licence. In this connection, reliance was placed upon the judgment of the Appellate Tribunal dated 29.4.2009 in Appeal No 182/2008

(Maharashtra State Electricity Power Trading Corporation Pvt. Ltd Vs Central Electricity Regulatory Commission). The Appellate Tribunal in its judgment dated 24.9.2009 upheld the order of this Commission whereby this Commission had rejected the application of Maharashtra State Electricity Power Trading Corporation Pvt. Ltd (MSEPTCL) for grant of trading license on the ground that MSEDCL Holding Company Ltd was the holding company of MSEPTCL as also of Maharashtra State Electricity Transmission Corporation Ltd (MSETCL), a transmission licensee and also the State Transmission Utility which operates the State Load Despatch Centre, Maharashtra.

23. The petitioner filed detailed submissions on the issue. It has been conceded that shareholding of the petitioner as a promoter, in the company, as on 31.3.2012 was 78.32%. The petitioner, however, has submitted that there is no bar under the Act when trading and transmission businesses are undertaken by two separate companies, maybe of the same group. It has been submitted that in case the Parliament intended to exclude the subsidiaries of the trading licensee from the regulated transmission business, it would have expressly stated so in Section 41 or at least by necessary intendment. While explaining the non-applicability of the judgment of the Appellate Tribunal dated 24.9.2009 *ibid*, it has been argued that the petitioner is neither the State Transmission Utility nor is operating the State Load Despatch Centre and hence is not in the position to give any preferential treatment to trading business of its parent/holding company, AEL. The petitioner has further submitted that it has no role in planning, coordination, despatch or regulation of transmission, inter-State or intra-State. As such, the petitioner has urged that there should not be any apprehension that AEL (the trading company) would draw any

undue advantage of the petitioner's status as a transmission licensee, more so when all the procedures for grant of open access stipulated by the Central/ State Commissions are already in place and it is not possible for the trading licensee to interfere, directly or indirectly, in the processes to be followed by the nodal agency.

24. We have considered the rival contentions on this issue. Section 41 of the Act provides that a transmission licensee cannot enter into any contract or otherwise engage in the business of trading in electricity. The question that arises for our consideration is whether the petitioner, in case it is granted transmission licence, would be entering into contract or otherwise engaging in the business of trading in electricity by virtue of the fact that its parent/holding company is engaged in the business of trading in electricity. In our considered view, the answer cannot be in the affirmative. The petitioner and its parent/holding company are two separate and distinct legal entities. In the facts of the present case there is no warrant to hold them as single entity. The objective of Section 41 of the Act is to avert a situation of conflict of commercial interest between the transmission licensee and the trading licensee in the matter of grant of open access. Even if the petitioner is ultimately granted the transmission licence there will be no possibility of it favouring its parent/holding company in the matter of grant or denial of open access for the purpose of trading in electricity because load despatch functions are entrusted to other statutory bodies. The case of MSEPTCL (supra) is clearly distinguishable. In that case, MSETCL which is entrusted with the statutory function of State Transmission Utility and operates the State Load Despatch Centre, and MSEPTCL, which applied for trading licence were found to be subsidiary companies of MSEB Holding Company Ltd. MSEPTCL was refused trading licence by this Commission

since the possibility of MSETCL favouring MSEPTCL under the influence of the holding company could not be ruled out. In view of the discussion, the bar of Section 41 of the Act does not come in the way of petitioner being considered for grant of transmission licence.

25. At the hearing on 8.11.2012, CTU was directed to explain as to why at the time of granting long-term access for 342 MW in Northern Region to the petitioner, it was not examined that inter-State transmission line could not be built as a dedicated transmission line. The relevant part of the reply submitted by CTU in its affidavit dated 20.12.2012 is as under:

“..... Long term Access was processed in consultation with CEA and other stake holders. The proposal was discussed in Standing Committee of CEA. Considering Mohindergarh as point of source and Bhiwani nearest ISTS grid point, Mohindergarh-Bhiwani was considered and as it was of dedicated nature transmission line was to be constructed by M/s Adani Power. Under normal condition power shall flow from Mohindergarh to Bhiwani (POWERGRID).”

26. It is noted that the petitioner's application for long-term access for 200 MW in Western Region with connectivity at Dehgam was approved by the Standing Committee on Transmission System Planning of Western Region at its 9th meeting. In accordance with the approval, the petitioner was required to construct Mundra-Dehgam transmission line as dedicated transmission line. While approving long-term access, the Standing Committee overlooked the likelihood of power flow across ISTS and Gujarat STS networks in Western Region on account intertwined nature of the network at Dehgam.

27. Similarly, due care has not been taken while approving long-term access for 342 MW in the Northern Region. According to CEA, dedicated transmission line is designed by the project developer and the criteria considered by the project developer do not concern CEA unless the matter is specifically referred to CEA as part of the integrated planning system where the criteria/issues are looked into. We are not satisfied with the explanation of CEA or CTU. It is clear from minutes of 26th and 27th meeting of Standing Committee on Transmission System Planning of Northern Region that CEA and CTU both actively participated in the approval process of long-term access for 342 MW power. The Committee in its 26th meeting concurred in the HVDC link from Mundra TPS to Mohindergarh by the petitioner and subsequent extension of the line to Dhanonda HVPNL sub-station and Bhiwani PGCIL substation through two separate 400 kV AC lines. The petitioner was granted open access for 342 MW power in the 27th meeting whereat the Committee approved implementation of Mohindergarh HVDC Terminal–Mohindergarh HVPNL 400 kV D/C (Quad conductor) and Mohindergarh HVDC Terminal–Bhiwani (new) 400 kV D/C – by Adani Power. In our view, whenever an application for long-term access is considered, CEA and CTU have an obligation to ensure technical feasibility, system safety and security and above all, the applicable statutory framework. On receipt of any application for LTA, it is mandatory for CEA and CTU to carry out proper system study and suggest required system augmentation/modification. All the stakeholders, CEA and CTU not excluded, have to ensure proper compliance with the provisions of the statutory provisions.

28. We hope and trust that all aspects shall be duly examined by CEA and CTU in future while examining applications for long-term access.

29. Now we come to merits of the petitioner's prayer for grant of transmission licence for the dedicated transmission lines.

30. The Commission has specified the transmission licence regulations by virtue of powers under Section 178 of the Act. Regulation 6 of the transmission licence regulations prescribes eligibility for grant of transmission licence as under:

“(6) No Person shall be eligible for grant of licence unless he is:

(a) selected through the process under the guidelines for competitive bidding; or

(b) a state owned or controlled company identified as a project developer on or before 5.1.2011; or

(c) a generating company which has established the dedicated transmission line, and intends to use such dedicated transmission line as the main transmission line and part of the inter-State transmission system.”

31. By virtue of clause (c) of Regulation 6, a generating company is eligible for grant of transmission licence if the following conditions are satisfied, namely –

(a) It has established the dedicated transmission line.

(b) It intends to use such dedicated transmission line as main transmission line and as part of ISTS.

32. In terms of clause (c) of Regulation 6 of the transmission licence regulations, it is not necessary that a generating company should have the intention to use the dedicated transmission line as ISTS from the very beginning. The generating company can approach the Commission for grant of transmission licence at any

subsequent stage after transmission line is established, on complying with the conditions of the Act and the transmission licence regulations.

33. Undoubtedly, the petitioner is a generating company and has established the dedicated transmission lines. By filing the present application, the petitioner has shown its intention to use the dedicated transmission lines as the main transmission lines. The question that is left for examination is whether the dedicated transmission lines can be considered and used as part of ISTS. In our view, there are a number of circumstances which support the claim of the petitioner that the dedicated transmission lines are functioning as part of ISTS.

34. The approvals of long-term access granted to the petitioner for development of the dedicated transmission lines with multiple grid connectivity points is one such circumstance. These approvals clearly indicate that since the beginning, intent of CEA and CTU was to operate the dedicated transmission lines as ISTS. It is clear that although these lines were treated as dedicated transmission lines, all aspects of these lines like type of conductor, possibility of line outage and further open access through these lines were discussed in the meetings for grant of open access. The criteria considered were in no way different from the criteria applied for construction of inter-State transmission lines. It has come on record that by virtue of connectivity of Mundra–Dehgam transmission line at Dehgam sub-station of PGCIL, power of other entities is flowing on this line, though inadvertently. This fact too shows that this transmission line does not remain a dedicated transmission line as defined in section 2(16) of the Act.

35. During the course of the proceedings, the petitioner has placed on record the copies of the approvals dated 12.3.2009 and 31.7.2009 granted to the petitioner by

Ministry of Power, Government of India under Section 68 of the Act for laying of Mundra–Mohindergarh HVDC bi-pole transmission line and Mohindergarh–Bhiwani transmission line. In terms of the approvals, the petitioner is obligated to permit flow of power from other utilities on these transmission lines. In this regard, the approvals contain the following specific conditions, namely –

“The above approval is subject to the following conditions:-

- (i) M/s Adani Power agree to provide run back system on their generation to avoid loading of other line in case of outage of the single pole/bi-pole of Mundra-Mohindergarh HVDC line.*
- (ii) M/s Adani Power would provide non-discriminatory open access to other licensee/generator at the HVDC line to the extent of available transmission margins.”*

36. From these approvals, it emerges that open access is to be provided on the Mundra–Mohindergarh HVDC bi-pole transmission line and Mohindergarh–Bhiwani transmission line to the extent of available transmission margin. If open access is to be provided on a transmission line, such line has to be a licensed line and part of ISTS, otherwise owner of the dedicated transmission line cannot be asked to grant open access.

37. During the hearing on 3.5.2012, CEA and CTU were directed to submit reports, with line diagrams, on the status of the dedicated transmission lines and their connectivity. CTU under its letter dated 28.5.2012 has filed the technical report on the status of the dedicated transmission lines of the petitioner and their connectivity with the grid. CEA in its letter dated 29/30.5.2012 has concurred with the report of CTU. A perusal of the report and line diagrams submitted by CTU reveals multiple connections at each end of the dedicated transmission lines, making them inextricably enmeshed with ISTS, Gujarat STS and Haryana STS. In the light of the

submission of CTU, we have considered the nature of the following transmission assets for which transmission licence has been sought:

- (a) A.C Transmission System in Gujarat in Western Region comprising APL-Mundra -Sami- Dehgam 400 kV System.
- (b) AC Transmission system in Haryana i.e. 400 kV Mohindergarh–Bhiwani System
- (c) HVDC System between APL Mundra-Mohindergarh in Haryana.

(A) A.C Transmission System in Gujarat, Western Region which comprises of APL-Mundra -Sami- Dehgam 400 kV System.

38. CTU in its submission dated 28.5.2012 has given the details of connectivity as under:

“Connectivity with Western Region ISTS: M/s APL's Mundra generation is connected to ISTS in Western Region through following Transmission lines:

- (i) Mundra TPS - Sami - Dehgam 400kV D/c line:

Mundra TPS switchyard and Sami switching stations is owned and implemented by M/s APL. Dehgam is an existing substation of POWERGRID which is further connected to ISTS network in Gujarat, Maharashtra and M.P. and STU network in Gujarat. Further, FSC at Sami has been provided by M/s APL. The above transmission system has been implemented by M/s APL as dedicated transmission system for effecting Long Term Access of 200 MW to Maharashtra. The above transmission lines have already been commissioned. A line diagram of connectivity to ISTS in Western region is shown in **Figure-1**.

From the diagram it is evident that at CTU bus of Dehgam 400 kV bus, there are three transmission systems i.e.

- (i) 400 kV Mudra Sami-Dehgam line of APL

(i) GETCO Lines: Ranchodpur-Dehgam line, Soja-Dehgam Line, Wankobari Dehgam Line

(ii) CTU lines : 400 kV Nagda Dehgam Line, Pirana- Dehgam Line and Gandhar Dhhgam line with injection of Torent Sugan

(iii) Connectivity with Gujarat System:

From APL Mundra, 400 kV APL Mundra-Zerda lines are being constructed by GETCO.

Also there are various 400 kV and 220 kV lines constructed by APL. These include 400 kV Mundra-Varsana , 400 kV Varsana-Hadala , 220 kV- Varsana-Morbi and 220 kV Mundra-Nanikhakar .

It is important to note that at present APL-Mundra to Zerda line are yet to be commissioned, so Gujarat Power is also being wheeled through Mundra-Dehgam line.”

39. From the above submission, it is evident that as the AC systems in Gujarat are connected with GETCO system at Mundra and further at Dehgam with CTU system, it becomes part of a meshed network. In an inter-regional network, the flow on transmission line between Mundra-Sami-Dehgam, due to absence of 400 kV Mundra-Zerda line, would depend on how much power can be evacuated through the GETCO system, that is through Mundra-Nanikhakar, Mundra-Varsana and Mundra-Hadala line. There would be incidental flows on Mundra-Dehgam line and the quantum would also depend on load generation in the area. As APL has been granted 200 MW LTA for Western Region at Dehgam by CTU, whenever this power is scheduled, the power that flows would not be exactly equal in quantum to the scheduled power. At Dehgam point, power is coming from other sources like Torrent

Power also. The load generation balance in the area would dictate how much power will flow and in which direction. These incidental flows will change the losses in the particular lines and it will not be possible to segregate the flows on a real time basis. Due to this multiple connectivity at Dehgam, the flow on 400 kV Mundra-Sami-Dehgam transmission line cannot not be attributed to Mundra TPS only. Thus, its character changes from being a dedicated transmission line to a main transmission line and it becomes part of ISTS.

(B) AC Transmission system in Haryana i.e 400 kV Mohindergarh –Bhiwani System

40. CTU in its submission dated 28.5.12 has given the details of APL Mundra in the Northern Region:

- 1. M/s APL's Mundra generation is connected to Mohindergarh HVDC terminal, located in Haryana, 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) 400kV D/c. Mohindergarh-Bhiwani 400 kV D/c line is under implementation by M/s APL as their dedicated network. A line diagram showing the final arrangement is shown in **Figure-2 (a)**.*
- 2. A temporary connectivity to Mohindergarh HVDC terminal was provided with the earlier commissioning of LILO of Bhiwani (BBMB)-Bahadurgarh 400 kV line at Bhiwani and connecting it directly with Mohindergarh-Bhiwani (PG) line of APL bypassing Bhiwani (PG) substation till the commissioning of Bhiwani (PG) substation. The above temporary arrangement was carried out as per the decision taken in Standing Committee of Transmission Planning & NRPC meetings. A line diagram showing interim arrangement is shown In **Figure-2 (b)**.*
- 3. Construction of Bhiwani substation is nearing completion and various elements of Bhiwani substation are under commissioning. As Bhiwani*

substation had no juice from any side and was required to be energized, POWERGRID terminated Mohindergarh (HVDC)-Bahadurgarh feeder on Bhiwani (PG) 400kV bus without disturbing the power flow from the originally approved electrical connectivity to Mohindergarh (HVDC) as approved by the Standing Committee. Electrically it is the same scheme as was agreed in the Standing Committee Meeting.

- 4. By end of May'2012, the LILO of Bawana - Hissar 400 kV and LILO Bhiwani (BBMB)- Bahadurgarh 400 kV D/c line at Bhiwani (POWERGRID) as per final arrangement shall be commissioned by POWERGRID. Along with these 4 nos. of 400 kV interconnections at Bhiwani (PG), 765/400 kV ICT at Bhiwani, Bhiwani (PG)-Moga 765 kV S/c line, Moga 765 kV substation & 765/400 kV ICT at Moga shall be commissioned.*
- 5. M/s APL has to commission Mohindergarh-Bhiwani (PG) 400kV D/c alongwith 400kV bays at both ends. It is also to be mentioned that POWERGRID is implementing 2 nos. of 400 kV bays at Bhiwani (PG) on consultancy for M/s APL. Award for executing these bays was placed by M/s APL to Areva T&D India Limited. As per the Service Order Amendment dated 18/05/2011 issued by M/s APL to Areva T&D India Limited the commissioning schedule for the two bays is August 2012*

41. From the above, it emerges that after Mundra-Mohindergarh HVDC line, the petitioner's system in Haryana is connected with CTU system at Bhiwani and further from 400 kV Bhiwani, it is connected to various points like BBMB Bhiwani, CTU Hissar, Bawana and Bahadurgarh. 400 kV Bhiwani is connected to 765 kV Bhiwani where three other 765 kV lines from Meerut, Jhatikara and Moga are terminating. Bhiwani and Dhanonda are connected to Daulatabad which are further connected with Jhajjar generating station through Jhajjar-Daultabad line which also connects with CLP, another generator CLP of Haryana. From the above connectivity, it

emerges that on the Mohindergarh-Bhiwani transmission line of the petitioner, not only power of APL would flow, but based on system conditions and voltages at surrounding CTU and State nodes, power which may not be attributed to a single source would flow which shall affect the transmission losses on these lines. The dynamic changes in AC network would result in incidental flows in APL lines due to load generation balance in the area and in real time it is not possible to predict either quantum or direction of these flows. These incidental flows affect the line losses in these transmission lines and in accordance with the definition of Inter-State transmission system in Section 2(36)(ii) of the Act, these lines would qualify as inter-State transmission lines.

42. Let us now consider as to how the character of the transmission lines is changing from dedicated transmission line to Main transmission line. In accordance with the minutes of 26th Standing committee Meeting of Power System Planning of NR held on 13th October, 2008, the following decision was taken:

- i. For the power over and above the power to be supplied to Haryana, connectivity with CTU network through LILO of one circuit of Bhiwadi-Moga 400kV D/C line should be provided. This LILO should be one the circuit other than the one which would be LILoed at Mohindergarh (Danonda) HVPNL. For tying-up connectivity and open access to CTU network, Adani Power would need to seek open access and PGCIL may process their application for approved as per the above arrangements.*
- ii. The Committee concurred the HVDC link from Mundra TPS to Mohendergarh by Adani Power Ltd. and subsequent extension of the line to Dhanonda HVPNL substation and Bhiwani PGCIL substation through two separate 400 kV AC lines.*

Thus from 2008, it was clear that more power over and above the power to be supplied to Haryana was envisaged to flow through Mundra- Mohindergarh HVDC line and from that point onward, two connectivity - one to the State system and another to CTU system - were provided. Though the petitioner was allowed to construct the transmission line as a dedicated transmission line, both CTU and CEA being the planning bodies failed to clarify that by providing connectivity to two different system as noted above, how the dedicated nature of these lines could be maintained. Dedicated nature of the transmission line as provided in section 2(16) of the Act relates to point to point connection and not connection from one point to multiple points. If from Mohindergarh, power is going to Dhanonda and from there, it is further going to Haryana Discoms, then it can be understood that this is a dedicated transmission line. However, by providing second circuit at Mohindergarh to Bhiwani, two parallel paths have been provided to the flow of electricity. Also Mohindergh-Bhiwani transmission line is provided for access to CTU system for onward power transfer to probable customers like Rajasthan and Punjab. At Mohindargah, two 400 kV circuits -one of Mohindargarh-Dhandoha (5 km) and another of Mohindargah-Bhiwani (50 km) would provide different resistance to the flow of power and it can be seen easily that power flow would not be as per scheduled power and actual flows would be quite different. Hence the relationship provided by term “dedicated transmission lines” between generator and its load is lost by actual flow of power. These lines have become part of a meshed network whereas power flows as per the law of physics. Regulation 6(c) of transmission licence regulations provides that the generating company “intends to use the transmission line as main transmission line and as part of ISTS”. In this case, use of the petitioner’s dedicated transmission lines as main transmission lines comes from

two factors, namely, incidental flows from other sources on these lines and the fact that the petitioner intends to provide these lines for open access.

43. In the 28th Meeting of the Standing Committee on Transmission Planning, the following were decided:

“Members also noted the following dedicated transmission lines of Adani power and Interconnecting system for Mohindergarh HVDC terminal sub-station of Adani Power and concurred to the proposed connectivity with the regional system:

- i. Adani power would establish 2500 MW HVDC bi-pole line from Mundra to Mohindergarh with necessary facilities.*
- ii. Mohindergarh terminal would be connected to HVPLNL's Mohindergarh substation through 400 kV D/C line. For delivery of power to HVPNL. Mohindergarh (Adani HVDC) – Mohindergarh (Dhanonda) HVPLNL 400 kV D/C line has been proposed. For delivery of 1424 MW of power, this line should be **with triple moose conductors** so that outage of one circuit could be met.*
- iii. For the power over and above the power to be supplied to Haryana, connectivity with CTU network through LILO of one circuit of Bhiwadi-Moga 400kV D/C line should be provided. This LILO should be on the circuit other than the one which would be LILoed at Mohindergarh (Danonda) HVPNL. For tying-up connectivity and open access to CTU network. Adani Power would need to seek open access and PGCIL may process their application for approval as per the above arrangements.”*

The issue was further discussed in 27th Meeting of the Standing Committee on Transmission Planning in which following issues were decided:

“The Committee approved the following revised transmission system:

- Mohindergarh HVDC Terminal – Mohindergarh HVPNL 400kV D/C (**Quad conductor**) – by Adani Power.
- Mohindergarh HVDC Terminal – Bhiwani (new) 400 kV D/C – by Adani Power.
- Mohindergarh HVPNL – Jhajjar Stage II (2x660 MW) 400kV D/C – by HYPNL

The above issue was also discussed during the Long term Open Access meeting held on the same day immediately after the 27th SCM wherein APL representative stated that the commissioning schedule of HVDC station was April, 2011 and the connectivity was required by that time. As Bhiwani 765/400 kV was a new substation suitable arrangement for providing connectivity ahead of commissioning of Bhiwani substation would be required.

Powergrid stated that investment approval & award of Bhiwani S/S in process and it would take around 3 years for the new S/S. Member (PS) stated that Bhiwani (new) S/S of Powergrid is also to be connected through LILO of Bahadurgarh- Hissar 400kV line. It was suggested that Powergrid should take up the works on their LILO line on priority so as to provide connectivity to Mohindergarh – Bhiwani line of APL directly by connecting to the LILO line. With this arrangement, M/s Adani would get reliable connectivity to the grid for safe operation of their HVDC line in the event of outage of Mohindergarh-Mohindergarh (HVDC) line. Subsequently, when Powergrid's Bhiwani substation was completed, the arrangement as per the planned system may be implemented.

APL representative stated that the basic requirement of APL was to get connectivity with CTU grid in NR so as to facilitate sale of balance power in short-term / medium term arrangements. However, as long term open access was the only available route for obtaining connectivity, they have applied for long-term open access. Powergrid stated that LTOA to APL may be granted for 342 MW in equal proportion to Rajasthan and Punjab.

APL further stated that CERC had circulated draft regulation in which provision for connectivity independent of long term open access had been

proposed and APL would review quantum of long term open access. However, as the time frame for implementation of connectivity was to match with the target of April, 2011, the connectivity may be approved so that works could be taken up for implementation by the required time. He further stated that APL was also to participate in future case 1 bids of Punjab and in case successful, they would like to extend the Mohindergarh – Bhiwani line to suitable location in Punjab from where power could be delivered directly into Punjab Grid while retaining the activity with CTU network at Bhiwani. APL representative stated that extending their Mohindergarh – Bhiwani line to Punjab and directly injecting into PSEB network would be a cost effective solution. Member (PS) stated that the above proposal could be considered at an appropriate stage.

PSEB stated that purchase of power was not envisaged at this stage and in future when they invite bids the wards would depend on merit of bids.

Powergrid clarified that based on new regulation M/s APL would need to apply for connectivity and efforts would be made to match the connectivity with the commissioning schedule of HVDC terminal.”

44. It is clear from the above that although these lines were conceived and executed as dedicated transmission lines, all aspects of these lines like type of conductor, possibility of line outage and open access through these lines were discussed and decided in these meetings. It is also important to consider that in case of Haryana scheduling less than its contracted power of 1424 MW at different points of time depending on its load generation balance, these two circuits can be used for power transfer from WR to NR and margins for open access can be optimally utilized by the system operator.

(C) HVDC System between APL Mundra and Mohindergarh in Haryana.

45. As regards the HVDC Transmission Line from APL Mundra to Mohindergarh, due to technical characteristic of HVDC operation, it is possible to control exactly the amount and direction of power flow so that there is no issue of incidental flow. The petitioner's claim for its optimum capacity utilization has been examined hereafter.

46. The first issue is whether the spare capacity of this line can be used for Open Access. In this regard, the petitioner has submitted the copy of Ministry of Power (MOP) approval under section 68 of the Act for laying of 2500 MW (+-500kV) HVDC Mundra-Mohindergarh transmission line issued vide letter No. 11/4/07/PG dated 12/03/2009. The above approval is subject to the following condition:-

- i. M/s Adani Power agree to provide run back system on their generation to avoid loading of other line in case of outage of the single pole/bi-pole of Mundra-Mohindergarh HVDC line.*
- ii. M/s Adani Power would provide non-discriminatory open access to their licensee/generator at the HVDC line to the extent of available transmission margins.*

This approval was further modified by Ministry of Power vide their letter dated 31.7.2009 to include the 400kV double circuit Mohindergarh (HVDC)–Bhiwani (Powergrid) transmission line. Further, while granting approval on 31.8.2009 under Section 164 of the Act, Ministry of Power, Government of India has laid down the following condition:

“(iii) The applicant shall have to follow Regulation/course of the appropriate Commission regarding transmission, O&M Open Access etc.”

Since inception, it was clear that open access was to be provided on this line to the extent of available transmission margin. If open access is to be provided on this line,

the transmission line needs to be an ISTS line as the petitioner cannot transmit electricity without obtaining a licence. The issue of optimum utilisation of the transmission line was discussed in the meeting convened by CEA on 9.9.2012 wherein the following were discussed:

“It was agreed that the high capacity HVDC Bipole from Mundra to Mohindergarh should be optimally utilized.

POSOCO suggested that operating of HVDC system as a separate control area could also be explored and discussed.

*It was agreed that further deliberations would be required between all concerned agencies in order to arrive at the operational modalities of the HVDC Bipole link between Mundra and Mohindergarh **in parallel with the inter-regional links between Western Region and Northern Region.**”*

Further, CEA in its opinion dated 16.3.2012 has stated the following with regard to utilisation of the asset of the petitioner for inter-regional transfer of power:

“The Mundra – Mohindergarh HVDC system is designed for 2500 MW and has surplus capacity even after considering long-term PPAs with Haryana totaling to 1424 MW. Since HVDC bi-pole shall be operating with Mundra bus connected with the western regional system on one end and with CTU and Haryana system of northern region on the other end, this can be utilized for inter regional transfer of power between WR and NR.

The Ministry of Power, while granting permission in July, 2009 for laying of overhead lines under section 68 of the Electricity Act, 2003, had put a condition to provide non-discriminatory open access to other licensee/ other licensee/other generators on the Mundra-Mohindergarh HVDC line to the extent of available transmission margins. However, the condition can be complied only if the dedicated asset is converted into a licensed asset.

Dehgam – Mundra – Mohindergarh – Bhilwani corridor developed as a dedicated transmission system by APL will act as a parallel inter regional link and will have an important role to play in the national grid if it is converted from a dedicated asset to a licensed inter state asset.

As the dedicated system evolved in stages, it has so happened that dedicated assets in question would in practice be forming part of the meshed inter-state transmission system. It has already been pointed out by POSOCO that power order of the high capacity Mundra – Mohindergarh bi-pole would have an implication on the calculation of total transfer capability and available transfer

capability of the WR-NR corridor. if the dedicated assets of APL are converted into licensed assets it would result in better optimization and utilization of the transmission assets and increase in the transfer capability of the national grid. Once the dedicated assets are converted into licensed assets further power system studies could be carried out and additional transmission links could be planned, if necessary, in order to increase the transfer capability between NR and WR through Mundra – Mohindergarh HVDC bipole.”

Further, POSOCO in its submission dated 23.07.2012 has submitted the following with regard to the optimal utilisation of the transmission assets.

“As can be inferred from the order para nos. 18 and 19 (Commission's order dated 28.06.2012) the spare capacity of the HVDC link would not be used by the system operator till the grant of transmission license by the Commission so as to maintain 'dedicated status'. This, however, might result in sub-optimal operation of the system. Even if the system operator increases the power flow on HVDC in case of any contingency, there would be power flow from State – II to State – III and the reverse power relay at Mundra would trip the HVDC link and further endanger the system unless arrangements for temporarily bypassing the reverse relay in real time is available.

In accordance with Ministry of Power approval dated 31.8.2009, the petitioner is required to provide third party access on this link. If third party open access is to be provided then it is necessary that a license is required to be taken.”

Based on above discussion, it clearly emerges that the CEA, and POSOCO are of the view that the transmission assets of the petitioner can be used as ISTS for optimum utilisation of transmission capacity.

47. In this regard it is important to note that conductor configuration of this HVDC link was decided after detailed deliberation in the Standing Committee on Transmission Planning Northern Region. When APL requested for 342 MW LTA in NR for Punjab and Rajasthan, the capacity of this HVDC line was considered. Earlier it was planned on triple moose conductor and was later changed to quad conductor. As the conductor configuration of this line was for power transfer to users other than Haryana, it lost its character of dedicated line i.e. point to point transfer of power

from APL to Haryana and became the main transmission Line. Similar picture is emerging in Western Region where Mundra–Sami-Dehgam transmission line was constructed by the petitioner to facilitate transfer of 200 MW transfer to Maharashtra. Though these lines were constructed as dedicated transmission lines, on account of multiple connectivity with CTU and STU connection points, its character has changed from dedicated line to main transmission line. Therefore, the request of the petitioner needs to be considered both from the angles of optimized usage of transmission assets and for facilitating open access from Western Region to Northern Region

48. CTU in its comments dated 1.5.2012 in the present petition seems to have opposed grant of transmission licence to the petitioner. CTU has stated that Mundra–Mohindergarh HVDC bi-pole transmission line does not have adequate redundancy to transfer already committed 1766 MW from Mundra TPS to Mohindergarh while meeting with the n-1 contingency criteria of outage as laid down under IEGC. CTU has stated that in case the dedicated transmission lines are converted to ISTS, additional system strengthening may be required to provide backup in case of outage of one pole, for reliable transfer of long-term power already approved for Northern Region and that till the time strengthening is not available, some constraints may be faced for reliable transfer of power.

49. We have examined the matter in the light of the replies received. We have already concluded that CEA and CTU as coordinator and member respectively of the Standing Committees on Power System Planning were actively involved in grant of open access to the petitioner in Western Region as well as Northern Region. CEA and CTU had made suggestions regarding design of Mundra–Mohindergarh HVDC

bi-pole transmission line. CEA and CTU have opined that the dedicated transmission lines can continue to be operated in “dedicated” mode without any security risk. That is true. However, the question is of optimum utilisation of available surplus capacity of Mundra–Mohindergarh HVDC bi-pole transmission line. This matter was raised and discussed at the meeting convened by POSOCO on 9.9.2011. It was agreed in the said meeting that the surplus capacity should be optimally utilised. However, no final decision was taken since it was felt that further deliberations would be needed to arrive at *modus operandi* of utilization of the available spare capacity and treatment of transmission charges and losses. POSOCO in its submission dated 23.7.2012 before the Commission also contended that because of the dedicated nature of the transmission line, it is not being utilized optimally. CEA in its letter dated 16.3.2012 has in the first instance recommended utilization of this transmission line for inter-regional transfer of power between Western and Northern Regions. Integrated grid operation enables optimum utilisation of the dedicated transmission lines. The spare capacity of Mundra-Mohindergarh HVDC bi-pole transmission line cannot be used till the grant of transmission licence. This, however, results in sub-optimal operation of the transmission line. It may be pointed out that Ministry of Power while granting approval under Section 68 of the Act laid down two conditions. The First condition was that the open access shall be provided on this line in case spare capacity is available. This condition was also aimed to ensure optimum utilization of the capacity. The other condition was that the petitioner had to provide run back system on its generation to avoid loading of other lines in case of outage of the single pole/bi-pole of Mundra-Mohindergarh HVDC bi-pole transmission line. It follows that as conceived by Ministry of Power, Mundra–Mohindergarh transmission line was to be connected to other transmission line(s)

and may affect loading of other line(s) in case of single pole or bi-pole outage, so solution in form of run back system was to be provided by the petitioner. These two conditions show that from the very beginning it was clear that this transmission line will be part and parcel of ISTS. It may be mentioned that when the petitioner was granted long-term access, no additional system strengthening was planned.

50. On all these considerations, the petitioner's case for conversion of the dedicated transmission lines into licensed lines has been made out.

51. The next issue is regarding the capacity of Mundra–Mohindergarh HVDC bi-pole transmission line to carry load over and above 1766 MW. Both CEA and CTU have now opined that the transmission line is presently capable of carrying 1250 MW power to cater to n-1 contingency and if it is allowed to carry more than 1250 MW, in case of n-1 contingency, balance power would follow through AC system which will deplete the margin in AC system and may affect power evacuation of ISGS projects in Western Region. During the hearing on 8.11.2012, the representative of POSOCO also submitted that parallel AC and DC systems should be created to meet n-1 criteria.

52. We have considered this aspect. Each of the two HVDC lines is capable of carrying 1250 MW power, totalling 2500 MW. Also, HVDC has inherent margin for 30 minutes and two hour overload. Considering this, normal transfer capacity is 2500 MW and considering overload capability of 1.1 pu in bipolar and 1.2 pu in monopolar, total carrying capacity of 2750 MW in bipolar mode and 1500 MW in monopolar mode is arrived at. Against this, the total capacity presently committed is 1766 MW. Therefore, any system strengthening to cater to additional load is not considered necessary. The operational experience of Talcher–Kolar HVDC line with special

protection scheme also suggests the same. CTU in its response dated 21.12.2012 has submitted with regard to Talcher-Kolar HVDC line as under:

"In case of Talcher Kolar HVDC bipole link requisite transmission system to take care of n-1 is not available the same was not agreed by SR constituents."

Hence, if for power transfer on an an ISTS system, an HVDC line can be planned without a parallel AC network, the same principle can be applied here. Although availability of parallel AC network certainly increases the reliability of system operation, it must be decided by all stakeholders whether the required investment in a parallel AC network are required and if it is found justified on the basis of cost benefit analysis, they may agree for the same and then only, they will be liable to pay the corresponding transmission charges. At present, the system can work with SPS and other protection systems in place and as the most affected party is the generating company, which is ready to back down its generation in case of any line outage, the system needs to be utilized optimally. As the automatic system to decrease generation through generator runback in case of outage of pole is operational, the utilization of this HVDC system may be allowed to optimum level. After outage of one pole, second pole would take over the load and the load can be reduced gradually. The insistence on n-1 criteria for Mundra-Mohindergarh HVDC line and treating it differently from Talcher–Kolar HVDC System is not in the interest of economic and efficient operation of the power system. If n-1 criteria is to be applied and development of parallel AC network is to be insisted, then the expressed intention of POSOCO as pointed out in its response dated 23.7.2012 cannot be fructified. Any additional power availability for NR and WR constituents through optimum utilization of these transmission assets would be beneficial. While the

power transfer to Haryana under existing PPAs would get priority and shall be treated as deemed LTA, balance available capacity can be utilized as inter regional capacity. This balance capacity can be utilized by system operator for providing non discriminatory open access and in addition to power of the generating stations of the Petitioner, power from other generating stations can also be scheduled once licence for the transmission lines is granted. CEA in its opinion dated 16.3.2012 has expressed view that for optimum utilization, the lines can be converted into ISTS.

53. The concerns expressed by CEA and CTU are regarding grid security in case of n-1 contingency. System Protection Scheme has already been installed by the petitioner. During one of the hearings, POSOCO was directed to carry out the mock trial of the System Protection Scheme in place for Mundra–Mohindergarh HVDC bi-pole transmission line for permitting the petitioner to inject upto a maximum of 600 MW power. POSOCO carried out the mock testing during the period from 5.5.2012 to 16.5.2012 and on 26.5.2012 and has submitted the report under its letter dated 28.5.2012. POSOCO has submitted that the results were satisfactory As may be gathered from the following extract:

"M/S APL has confirmed that a run back scheme at Mundra has also been commissioned . This was tested during the mock test on 26th May,2012 at 1922 hrs by artificially simulating the HVDC pole block/trip and extending the signal to uniot 8 recorded.

It would thus observed that the testing has been facilitated in line with the directions of the Honourable Commission. No adverse impact on the grid has been observed in all these tests."

Though POSOCO in its report has raised certain technical and commercial issues to facilitate operation and implementation of various regulations of the Commission in a dispute-free manner, POSOCO has not pointed out any security-related issue.

54. System Protection Schemes required for grid security have to be put in place irrespective of whether the transmission line is operated in a “dedicated” mode or as main transmission line. System Protection Scheme for backing down of generation and shedding of loads at both ends of the dedicated transmission lines would be needed. System Protection Scheme to mitigate the contingency due to tripping of Mundra-Mohindergarh HVDC bi-pole transmission line has been agreed to by the constituents of the Northern Region. System Protection Scheme for backing down generation at Mundra and for load-shedding of 300 MW in Haryana (Dhanonda) has already been implemented and the balance part of the System Protection Scheme is under implementation. In future, depending on the assessment of the system operator, additional system protection, if any, may be required to be implemented.

55. Creation of parallel AC network to meet the n-1 criteria would require the concurrence of the NR and WR constituents and it will take several years to implement after approval of the constituents. In view of the above, insistence on availability of parallel A.C transmission network at this stage is not warranted.

56. The dedicated transmission lines constructed by the petitioner are inter-regional in nature. These lines cannot be left un-regulated. Therefore, the Commission feels it imperative to step in to regulate these transmission lines so as to ensure compliance of the regulatory framework in the overall interest of the grid.

57. CTU has stated that the requirement of system augmentation after grant of transmission licence depends on a detailed study for a particular timeframe. CEA has stated that parallel AC path needs to be created between Western and Northern Regions. We are inclined to accept CTU’s view that a detailed system study is required to further assess the requirement of system augmentation. At the same

time, one has to bear in mind that from the capacity of associated transmission system of Mundra TPS, there is enough capacity to take care of n-1 contingency as already deliberated.

58. The respondents have raised the issue of competitiveness of the capital cost of the dedicated transmission lines constructed by the petitioner. The petitioner has stated that the work packages were assigned based on the competitive bidding. While it is true that the dedicated transmission lines were not set up by following the competitive bidding guidelines issued by the Central Government, yet it needs to be borne in mind that since the dedicated transmission lines were built by the petitioner for its own use, it must have ensured competitiveness of the cost. However, in case the petitioner is ultimately granted transmission licence and the dedicated transmission lines are considered as part of basic network, the Commission shall invariably carry out the prudence check of the capital cost and the respondents shall be associated with the entire process. The concerns, if any, of the respondents in the matter shall be duly taken care of by the Commission and addressed at the appropriate stage.

59. The respondents have urged that only the beneficiaries of Mundra TPS should be made to bear the transmission charges after grant of licence. We are not inclined to accept the plea. The transmission charges for the regional transmission network shall be shared by all concerned in accordance with the Commission's regulations in vogue at the relevant time. It is also stated that on grant of

transmission licence, the petitioner shall also bear the transmission charges for long-term access for the quantum of power to be dispatched.

60. One specific concern of Haryana is regarding levy of transmission charges. The petitioner has already accepted that its delivery point for the contracted power is STU, Haryana and it will bear all the open access charges for the power to be delivered up to the delivery point. Therefore, once the dedicated transmission lines are converted into licensed lines, the petitioner shall be treated as a long-term customer for the quantum to be supplied under PPAs with UHBVNL/DHBVNL. It is made clear that the petitioner shall have the obligation to supply power to UHBVNL/DHBVNL in accordance with the terms and conditions of PPAs, without any extra burden on them for the mere fact that the petitioner has been granted transmission licence for Mundra–Mohindergarh HVDC bi-pole transmission line. Therefore, under the circumstances, the question of any additional liability, direct or indirect, on UHBVNL/DHBVNL cannot arise.

61. In the light of the above discussion, we are *prima facie* satisfied that the petitioner fulfils the conditions for grant of transmission licence for the dedicated transmission lines and the associated bays. Accordingly, we direct that a notice of our proposal to grant transmission licence to the petitioner be published in two daily newspapers inviting suggestion/objections from the public in terms of sub-section (5) of Section 15 of the Act.

62. The petitioner has submitted that it intends to integrate its entire transmission business which is proposed to be entrusted to a new company to be incorporated to

ensure maintenance of separate accounts for the regulated transmission business leading to better regulatory compliance. Accordingly, the petitioner at prayer (c) has sought in-principle approval under sub-section (3) of Section 17 of the Act for assignment of the transmission licence when granted in favour of the new company. The consideration of the prayer at this stage is premature. The petitioner's request for grant of transmission licence is still under consideration and the proposed company is yet to be incorporated. Therefore, the prayer at (c) is not being considered at this stage. The prayers at (d) and (e) shall be considered at the time of disposal of the petition¹. The prayers at (f) and (g) are unspecific and no orders need be passed on them.

63. The matter shall be listed for hearing on 18.7.2013.

sd/-
(V. S. Verma)
Member

sd/-
(Dr. Pramod Deo)
Chairperson

¹ Vide corrigendum dated 8.6.2013.

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 44/TL/2012

**Dr Pramod Deo, Chairperson
Shri VS Verma, Member
Shri M. Deena Dayalan, Member**

Date of Hearing: 16.05.2013

Date of Order: 14.06.2013

In the matter of

Application for grant of transmission licence under Section 14 read with Section 15 (1) of the Electricity Act, 2003 and Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of transmission licence and other related matters) Regulations, 2009

And in the matter of

Adani Power Limited

Petitioner

Vs

1. National Load Despatch Centre, New Delhi
2. Power Grid Corporation of India Ltd., Gurgaon
3. Northern Regional Load Despatch Centre, New Delhi
4. Western Regional Load Despatch Centre, Mumbai
5. Central Electricity Authority, New Delhi
6. Gujarat Electricity Transmission Corporation Limited, Vadodara
7. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
8. Gujarat Urja Vikas Nigam Ltd., Vadodara
9. Maharashtra State Electricity Distribution Co. Ltd., Mumbai
10. Madhya Pradesh Power Management Company Ltd., Jabalpur
11. M.P. Audyogik Kendra Vikas Nigam Ltd
12. Chhattisgarh State Power Distribution Company Ltd
13. Goa State Electricity Department
14. Daman and Diu Electricity Department
15. Electricity Deptt., Administration of Dadra Nagar Haveli
16. Heavy Water Project, Deptt of Atomic Energy
17. Jindal Power Ltd.
18. Torrent Power Ltd.
19. PTC India Ltd.
20. Haryana Power Purchase Centre
21. Rajasthan Power Procurement Centre
22. Jodhpur Vidyut Vitran Nigam Ltd.
23. Jaipur Vidyut Vitran Nigam Ltd.
24. Ajmer Vidyut Vitran Nigam Ltd.
25. BSES Yamuna Power Ltd.

26. BSES Rajdhani Power Ltd.
27. Tata Power Delhi Distribution Ltd.
28. New Delhi Municipal Council
29. Uttarakhand Power Corporation Ltd.
30. Uttar Pradesh Power Corporation Ltd.
31. North Central Railway, Uttar Pradesh
32. Punjab State Power Corporation Ltd.
33. Power Development Deptt, J & K
34. Himachal Pradesh State Electricity Board
35. Electricity Deptt., UT Chandigarh
36. Northern Regional Power Committee
37. Western Regional Power Committee
38. Kanpur Electricity Supply Company Ltd.
39. Rajasthan Rajya Vidyut Prasaran Nigam Ltd
40. Delhi Transco Ltd.

Respondents

Parties Present:

1. Shri Amit Kapur, Advocate, APL
2. Ms. Poonam Verma, Advocate, APL
3. Shri Jatin Jalundhwala, APL
4. Shri Jignesh, APL
5. Shri Sameer, APL
6. Shri M.G.Ramchandran, Advocate, GUVNL and Haryana
7. Shri P.J.Jani, GUVNL
8. Shri U.K.Agarwal, UHBVNL
9. Ms Joyti Prasad, NLDC
10. Shri S.R.Narasimhan, NLDC
11. Shri Y.K.Sehgal, CTU
12. Shri Mukesh Khanna
13. Ms Ankita Singh

Per: Shri M Deena Dayalan, Member

ORDER

I have the privilege of going through the order of learned Members of the Commission, Dr Pramod Deo, Chairperson and Shri V S Verma, Member proposing to grant transmission licence to Adani Power Limited for its dedicated transmission assets associated with Mundra Thermal Power Station. I respectfully disagree with the said order and I am recording my views in the succeeding paragraphs.

2. For brevity I am briefly recapitulating the facts as brought out in the order of other members (order part 1). My decision that follows is based on the facts and submissions made by the petitioner, respondents, CEA and CTU.

3. The petitioner has implemented Mundra Thermal Power Station (hereinafter “Mundra TPS”) with a total installed capacity of 4620 MW in the Special Economic Zone at Mundra in the State of Gujarat in four phases as under:

Name of the Phase	Installed Capacity (in MW)	Arrangement for sale of power	Power evacuation systems
Phase I & II (Units 1 to 4)	1320(4x330)	PPA with GUVNL for 2000 MW	1.GETCO system for supply to GUVNL
Phase III (Unit No. 5 & 6)	1320(2x660)	LTA for 200 MW for supply to Maharashtra	2. 400 kV Mundra–Sami-Dehgam D/C transmission line (Dedicated Transmission Line)
Phase IV (Unit Nos.6,7 & 8)	1980 (3x660)	PPAs with UHBVNL &DHVNL for 1424 MW LTA for 342 MW for supply to Punjab & Rajasthan	1. ±500 kV Mundra - Mohindergarh HVDC bi-pole 2. 400 kV Mohindergarh - Bhiwani transmission line (Dedicated Transmission line)
Total	4620 MW	3766 MW	

4. The petitioner has approached the Commission for grant of transmission licence under sections 14 & 15 of the Electricity Act, 2003 (“2003 Act”) and Regulation 6(c) of the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Transmission licence and other related matters) Regulations, 2009 (hereinafter “Transmission Licence Regulations”) for grant of transmission licence for the dedicated transmission lines and sub-stations mentioned as under:

Transmission Lines					
Srl. No.	Name (end-point locations)	Voltage Class (kV)	Length(km)	Type (S/C or D/C)	
1.	Mundra-Mohindergarh	+/- 500 kV	990	HVDC bi-pole	
2.	Electrode line at Mundra Station	33 kV	32		
3.	Mohindergarh – Dhanonda	400 kV	5	D/C	
4.	Mohindergarh – Bhiwani	400 kV	50	D/C	
5.	Electrode line at Mohindergarh Station, Mohindergarh	33 kV	185		
6.	Mundra – Sami	400 kV	282	D/C	
7.	Sami – Dehgam	400 kV	152	D/C	
Sub-Station					
Srl. No.	Name (location)	Voltage Level(s (kV)	Transformer (Nos. and MVA capacity)	Reactive/capacitive compensation (device with MVAR capacity)	No. of bays
1.	HVDC Terminal Station at Mundra TPS				
1.1	AC Yard	400 kV		AC sub filter – (8X120 VAR + 3X150 MVAR capacitors)	21 (Twenty one)
1.2	DC Yard	+/- 500 kV DC	2X1494MVA Converter Transformer (&X498 MVA, 1-ph including 1 spare unit)		11 (Eleven)
1.3	Electrode Station				-
2.	Mundra TPS Switchyard	400 kV	2X315 MVA, 400/220 kV ICT	Bus Reactor : 3 X 42 MVAR	21 (Twenty one)
3.	Sami Switching Station 400 kV	400kV	-	Bus Reactor : 1 X 50 MVAR Line Reactor : 2 X 50 MVAR FSC : 38% series compensation	10 (Ten)
4.	HVDC Terminal Station at Mohindergarh, Haryana				
4.1	AC Yard	400 kV		AC Sub Filters (8X120 MVAR + 5X150 MVAR capacitors)	34 (Thirty Four)
4.2	DC Yard	+/- 500 kV DC	2X1494MVA Converter Transformer (7X498 MVA, 1-ph including 1 spare unit)		11 (Eleven)
4.3	Electrode Station				-

5	OPGW Repeater Station at Radhanpur (Gujarat)				
6	OPGW Repeater Station at Sikar (Rajasthan)				
7	OPGW Repeater Station at Pali (Rajasthan)				
8	Bhiwani (PG) Substation	400 kV			4 (Four)
9	Dehgam, (PG) Substation	400 kV			4 (Four)

A network diagram is annexed as **Appendix I** to this order.

5. The petitioner has made the following prayers in the petition:

- "(a) Admit the present application;
- (b) Grant inter-State transmission licence to Adani Power Limited under Sections 14 and 15 (1) of the Electricity Act, 2003 and CERC (Procedure, Terms and Conditions for grant of Transmission licence 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 is deemed LTA customer for supply of power against the PPAs entered into with UHBVNL and 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/shortcoming 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."

6. Replies to the petition have been filed by Gujarat Urja Vikas Nigam Limited (GUVNL), Uttar Haryana Bidyut Vitaran Nigam Limited & Dakshin Haryana Bidyut Vitaran Nigam Limited (UHBVNL and DHBVNL), Maharashtra State Electricity Distribution Company Limited (MSEDCL) and Rajasthan Discoms. The submissions of the respondents are discussed as under:

(a) Submissions of GUVNL dated 25.9.2012:

- (i) GUVNL has submitted that it entered into PPAs with Adani for supply of 2000 MW power from units 1 to 6 of the project. The evacuation of this power is being done at the bus bar of the generating station through the use of transmission system developed by Gujarat.
- (ii) The 400 KV Mundra-Sami-Dehgam Line was constructed by Adani as a dedicated transmission line in order to get connectivity with the CTU network for evacuation of its merchant share in power from the Mundra Power Station. Similarly, the +/- 500KV Bi-pole Mundra–Mohindergarh HVDC Transmission Line has been developed as a dedicated transmission line primarily for evacuation and supply of power to the Haryana Utilities at the Delivery Point (i.e. Mohindergarh) from units 7,8 & 9 of Mundra TPS. **Further these transmission lines have been developed as dedicated transmission lines without the need to apply for a transmission license and without undergoing competitive bidding process as recommended by Government of India.**
- (iii) Any such attempt on the part of Adani to get its above lines re-designated from dedicated transmission system into an Inter-State Transmission System of a licensee would adversely affect the beneficiaries in the region

in terms of the PoC Charges payable indirectly through the charges to be levied by Powergrid for the above system, and will be totally unjust and inequitable. Adani will thus be taking advantage of the position causing loss and prejudice to the consumers in the State of Gujarat.

(iv) GUVNL has referred to Regulation 6(c) of Transmission License Regulation which reads as under:

“(c) a generating company which has established the dedicated transmission line, and intends to use such dedicated transmission line as the main transmission line and part of the inter-State transmission system”.

GUVNL has submitted that the import of the words "intends to use such dedicated transmission line as the main transmission line and part of inter-state transmission system" in Regulation 6(c) is important. The intention of Adani in constructing the Mundra–Sami-Dehgam transmission line for connectivity and Mundra-Mohindergarh HVDC lines was clearly to use these lines as a radial line for evacuation of power from Units 7, 8 and 9 of the Power Project at Mundra for delivery of the same at Mohindergarh to the Haryana Utilities.

(v) GUVNL has submitted that that the grant of transmission license for Mundra–Dehgam and Mundra–Mohindergarh Lines to Adani would amount to converting a dedicated transmission line to an Inter-State Transmission Line, when the line is essentially and primarily for the purpose of evacuation of power from the Mundra Project and delivery of such power to the Haryana Utilities. Any attempt at this stage by Adani to consider the above lines as transmission lines and being entitled to POC

Charges would amount to transferring the cost of generation to the POC Charges.

- (vi) GUVNL has submitted that even if the Transmission Licence is granted to Adani by the Commission, it may be clarified that the proposed transmission systems' assets shall be owned, operated and maintained by Adani only at its own expenses as the same is the infrastructure created by Adani for connectivity and/or for evacuation of power from the generating station for transfer and delivery of power to its beneficiaries at its cost and expense. The Commission needs to adjust the equities by passing orders to the effect that proposed transmission charges and transmission losses for utilization of transmission assets by Adani are not payable by GUVNL.

(b) Submissions of Haryana (UHBVNL and DHBVNL) dated 21.9.2012:

- (i) Two Power Purchase Agreements dated 7.8.2008 have been entered into by Adani with the Haryana Utilities for generation and sale of 1424 MW on the terms and conditions contained in the said Power Purchase Agreements. These Agreements were pursuant to a competitive bidding held by the Haryana Utilities for procurement of power for maintaining the supply of power to the consumers in the State of Haryana. Adani was selected as a successful bidder based on the tariff quoted by Adani for delivery of power at Dhanonda (Mohindergarh), namely, for injection of power in the State Grid Network of Haryana, which avoids the use of any Inter-State Transmission System or otherwise any transmission line or

system of any other person or licensee. Accordingly, the competitive bid was clearly based on the fact that there would be no direct or indirect associated transmission costs or losses for the purpose of purchase of power from Adani by the Haryana Utilities, and ensuring reliability of transmission system as per the Grid Code for delivery of power to the state utilities at the delivery point i.e. Dhanonda (Mohindergarh).

(ii) The +/- 500 KV Bi-pole Mundra–Mohindergarh HVDC Transmission Line from units 7,8 & 9 of Mundra TPS to Mohindergarh has a total capacity of carrying 2500 MW, if both the poles are under regular operation and are fully available, i.e. each pole capable of evacuating and carrying 1250 MW. If one of the poles is backed down or otherwise not in operation for any reason including scheduled maintenance, forced outages etc, the capacity that could be evacuated from the other pole would be only 1250 MW. Even considering some overload capacity in case of outage of one pole, there is no extra transmission capacity left in the planned dedicated transmission system of Adani after delivery of 1424 MW at Dhanonda (Mohindergarh) for supply to the Haryana Utilities.

(iii) Haryana emphasises that HVDC Bi-pole from Mundra to Mohindergarh would not meet the contingency outage planning criteria of IEGC since when one pole is out, the other pole having capacity of 1250 MW shall not be able to carry even 1424 MW of power without load shedding or rescheduling of power. As any such consideration for giving ISTS licence to Adani for the referred dedicated network should only be made after ensuring delivery of committed power at Dhanonda (Mohindergarh), meeting the reliability requirement as per IEGC as mentioned above.

(iv) The consideration for setting up the dedicated line while quoting tariff under the competitive bidding process of Haryana utilities was suitable and beneficial proposition at relevant time to Adani on the premise of avoidance cost towards transmission charges of Western Region, Northern Region & WR-NR Inter-regional link and transmission losses of Western Region & Northern Region under the then prevailing Postage Stamp Transmission Pricing in order to edge out other competing bidders, which has now undergone change under the present Point of Connection Charge methodology. Such changed scenario merely arising on account of change in Regulation by the Central Commission impacting the transmission charges cannot be allowed for changing the character of dedicated transmission line to ISTS. Since, the pan-caking of transmission charges & Losses as was applicable at the time of bidding is now having no relevance against the current load flow based method probably culminating in to filing of the present petition, the petitioner cannot be allowed to take advantage of the same.

(v) Any such attempt on the part of Adani to get its above lines converted from dedicated transmission line into an Inter State Transmission System would adversely affect the interest of the Haryana Utilities because of the following:

(a) Jeopardizing the present priority for delivery of 1424 MW contracted capacity from Mundra to Dhanonda (Mohindergarh) through dedicated network.

(b) If in future date some additional transmission capacity is created to cover up the present deficiency as per "N-1" reliability criteria in the

Mundra–Dhanonda link, the additional transmission charges and losses of such an additional transmission capacity would be burdened on Haryana Discom and of other States as well. This burden can be avoided, if the present status of dedicated transmission lines continues. The proposed petition of converting dedicated transmission lines to ISTS would cause loss and prejudice to the consumers in the State of Haryana

In this connection, UHBVNL and DHBVNL have relied upon the letter No. APL/PT/10042008 dated 10.4.2008 written by Adani Enterprises Ltd to the Financial Commissioner and the Principal Secretary (Power), Govt. of Haryana vide their letter which is extracted as under:

"Adani Power Ltd., looking to the huge investments in Transmission sector, has engaged services of a number of experts and based on their studies keeping in view the requirement of transmission plan during the 11th Five Year Plan details of which are available in Ministry of Power, CEA and Powergrid, it has found that there will be an increase of 7/8 paise and 8/9 paise per unit due to augmentation/addition of transmission system for Northern Region and for Western Region respectively. Besides this, even 2/3 paise per unit are expected to increase on account of transmission losses.

As such there has to be additional financial impact of 17/18 paise per unit even by 2012 (the completion schedule of Power Project) for HPGCL in case of acceptance of power from the bidders using CTU network. The annual financial implication may be to the tune of Rs.200 Crore per year only for 1424 MW for which APL has been qualified.

- The transmission charges and the losses have to increase further every year with the addition of any transmission network by Powergrid in Northern region which again has to be borne by the Power Utilities including HPGCL about which HPGCL is well aware.
- This is the position for the bidders supplying power to HPGCL by using CTU Network. However, Adani Power Ltd. has submitted its bid based on dedicated line emanating from Mundra Power Station and being terminated at CTU/HPGCL 400/220 kV substation in the state of Haryana. Its quoted prices include the transmission charges and the losses for the entire term of contracted period of 25 years with zero escalation on transmission charges and the losses. In fact our quoted prices are firm for

the contracted period. As such HPGCL shall not be required to pay any extra charges on account of transmission throughout the term of contract agreement.

In view of the above submissions and as HPGCL has to bear substantial recurring financial expenditure by using CTU Network we are of the view that our proposal of supplying power through dedicated line needs due consideration. We shall feel obliged if the concerned officials are advised suitably in the matter. We shall be pleased in case the figures of transmission charges/losses given above are got verified from the Central Electricity Authority to ascertain the factual position."

(c) **Submissions of MSEDCL:** MSEDCL in its reply dated 31.1.2013 has submitted as under:

"4. If at all the Hon'ble Commission grants Transmission License to Adani Power, it may be clarified by the Hon'ble Commission that the proposed transmission systems/assets shall be owned, operated and maintained by Adani only, at its own expenses as the infrastructure is created by Adani for connectivity and/or evacuation of power from generation station for transfer and delivery of power to its beneficiary at its cost and expense. The Hon'ble Commission needs to adjust the equities by the passing orders to the effect that proposed transmission assets by Adani are not/will not be payable by MSEDCL."

(d) Rajasthan Discoms in their reply have submitted that the consent of other entities who may be asked to pay the additional transmission charge under POC methodology should be taken and it will not be reasonable to ask the DICs to pay the additional transmission charges without availing any benefit.

(e) PSPCL in its reply dated 6.12.2012 has submitted as under:

"7. The pooling of transmission charges of the HVDC line which would result if the line is given ISTS status would result in the pooled charges being loaded on the beneficiaries under the PoC system. There is every possibility that PSPCL/Punjab would have to pay high PoC charges on account of the pooling of this line. Such a loading of the transmission charges for a system which was never agreed to by Punjab is not in order and should not be allowed."

7. The petitioner in its rejoinder dated 25.10.2012 to the reply of Haryana Discoms has submitted as under:

(i) DHBVNL and UHBVNL will not have to bear any direct or indirect cost on account of power supply upto the agreed delivery point viz. Dhanonda substation of Haryana STU.

(ii) It is correct that the Petitioner has implemented the lines as a Dedicated Transmission System. However, in view of the present situation wherein availability of surplus capacity on this system and the addition of reliability & stability to the grid on operating the system as a part of ISTS, **the Petitioner has approached this Commission for grant of Transmission Licence and only subsequent to grant of transmission licence can the transmission lines be used for wheeling of ISTS power and consequently be able to claim any PoC charges on the same.**

(iii) The petitioner has submitted that its system has adequate transmission capacity available for evacuation of contracted capacity as per the terms and condition of the PPA even under single pole outage scenario. It is also pertinent to note that planning of associated transmission network for Mundra Plant has been done on a consolidated basis taking into account all generating units and associated lines. Accordingly, sufficient redundancy has been built into the associated transmission lines for any outage.

(iv) **The petitioner has clarified that the dedicated HVDC system was planned for dual purpose of evacuation of contracted capacity under**

PPAs with DHBVNL and UHBVNL and surplus power from merchant capacity of the plant to potential beneficiaries in NR as intimated to HPGCL prior to execution of PPA. Also, taking cognizance of the same, on application for grant of LTA of 342 MW in NR, CTU has granted the same at Bhiwani (PG) SS considering development of dedicated HVDC System of APL.

(v) Further in order to maintain this system as a dedicated system, Petitioner has had to install Special Protection Schemes, Reverse power flow relays and has been subjected to other restrictions imposed by system operator. These operational constraints have resulted in numerous tripping of the system depriving Haryana of its share of power from Mundra TPS.

(vi) It is submitted that the Petitioner is eligible in terms of regulation 6(c) of the Transmission Licence Regulations being "a generating company which has established the dedicated transmission line and intends to use such dedicated transmission line as the main transmission line and part of the inter-state transmission system."

(vii) The petitioner has submitted that subsequent to the grant of transmission license, APL will have to pay the excess charges under PoC for the capacity of Mundra except 2000 MW of GUVNL. The PoC charges for the system decrease over the time due to repayment of loan and depreciation.

(viii) The project cost of HVDC bi-pole is much less than the benchmark cost of PGCIL projects. The surplus capacity available to the system beneficiaries after grant of transmission licence will contribute in lowering overall transmission tariff in terms of lower 'Per MW Capital Cost' of the system.

(ix) The petitioner has submitted that it planned the dedicated transmission lines taking into consideration the then prevailing circumstances to supply power to Haryana under PPA for 1424 MW. APL had two options: one to avail long term open access; two to construct dedicated line. LTA route would have taken longer time and this would have surpassed the SCOD under PPA by more than 1 year causing huge financial loss to the petitioner. Also, Ministry of Power issued guidelines mandating competitive bidding for development of transmission facilities in April 2006. However, transmission project was awarded on competitive basis only in June 2010 owing to maturity in the market. Further, it was optional to develop transmission facility through competitive bidding till January 2011.

8. In the light of the submission of the petitioner and the respondents as noted hereinabove, the case of the petitioner for grant of transmission licence needs to be considered. I have dealt with the matter under the following heads:

(a) **Legal provisions** regarding grant of transmission licence to dedicated transmission lines.

(b) **Technical considerations:** Whether spare capacity is available in the dedicated transmission lines for being used as ISTS by others and whether any system strengthening is required for its being used as ISTS keeping in mind all the conditions prescribed in the Grid Code.

(c) **Commercial considerations:** The cost implications and commercial issues affecting the long-term transmission customers in terms of transmission charges under the PoC regime.

Legal Provisions

9. Section 12 of the 2003 Act provides that no person shall transmit electricity unless he is authorised by a licence under section 14 or exempt from section 13. Section 14 of the 2003 Act provides that the Appropriate Commission may on an application grant licence to a person to transmit electricity as a transmission licensee. Section 15 deals with the procedure for grant of licence. This Commission has notified the Transmission Licence Regulations for grant of transmission licence for inter-State transmission of electricity. Inter-State Transmission System (ISTS) has been defined in section 2(36) of the 2003 Act as under:

“(36) “inter-State transmission system” includes -

(i) any system for the conveyance of electricity by means of main transmission line from the territory of one State to another State;

(ii) the conveyance of electricity across the territory of an intervening State as well as conveyance within the State which is incidental to such inter- State transmission of electricity;

(iii) the transmission of electricity within the territory of a State on a system built, owned, operated, maintained or controlled by a Central Transmission Utility.”

Thus, conveyance of electricity from the territory of one State to the territory of another State by means of main transmission line is inter-State transmission of

electricity. Further, conveyance of electricity across the territory of another State and within the State which is incidental to the inter-State transmission of electricity is included in the inter-State transmission system.

10. Dedicated transmission line has been defined in section 2(16) of the 2003 Act as under:

"(16) "Dedicated Transmission Lines" means any electric supply-line for point to point transmission which are required for the purpose of connecting electric lines or electric plants of a captive generating plant referred to in section 9 or generating station referred to in section 10 to any transmission lines or sub-stations or generating stations or the load centre, as the case may be;"

Thus a dedicated transmission line is meant for point to point connection from the electric lines or electric plant of a generating station to any transmission lines or sub-stations or generating stations or load centre. In certain circumstances, the dedicated transmission lines can be used as ISTS if the conditions in Regulation 6(c) of the Transmission Licence Regulations are satisfied, subject to grant of transmission licence by the Commission. Regulation 6 provides as under:

"6. Eligibility for Grant of licence

No person shall be eligible for grant of licence unless it is-

- (a) Selected through the process under the guidelines for competitive bidding, or
- (b) A state owned or controlled company identified as a project developer on or before 5.1.2011, or
- (c) **a generating company which has established the dedicated transmission line, and intends to use such dedicated transmission line as the main transmission line and part of the inter-State transmission system:"**

11. Thus as per the above definition, a generating company is eligible to apply for licence

- (i) if it has established a dedicated transmission lines and
- (ii) it intends to use such lines as the main transmission line and as part of ISTS.

The petitioner intends to use the dedicated transmission line as the main transmission line and part of ISTS. Mere intention of the petitioner for using the line as inter-State transmission line is not enough. It must be established based on the technical considerations that the network configuration of the line is such that it can function only as inter-State transmission line. Moreover, the proposal should be commercially viable and the conversion of the dedicated transmission lines into a licensed line for being used as the ISTS should be in the interest of the long term transmission customers.

Technical Consideration

12. 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.

13. CEA in its letter dated 16.3.2012 sent in response to the petition has submitted the following with regard to the dedicated transmission assets of the petitioner:

“The Mundra – Mohindergarh HVDC system is designed for 2500 MW and has surplus capacity even after considering long-term PPAs with Haryana totalling to 1424 MW. Since HVDC bi-pole shall be operating with Mundra bus connected with the western regional system on one end and with CTU and Haryana system of northern region on the other end, this can be utilized for inter regional transfer of power between WR and NR.

Ministry of Power, while granting permission in July, 2009 for laying of over head lines under section 68 of the Electricity Act, 2003, had put a condition to provide non-discriminatory open access to other licensee/ other licensees/other generators on the Mundra-Mohindergarh HVDC line to the extent of available transmission margins. However, the condition can be complied only if the dedicated asset is converted into a licensed asset.

Dehgam–Mundra–Mohindergarh–Bhiwani corridor developed as a dedicated transmission system by APL will act as a parallel inter regional link and will have an important role to play in the national grid if it is converted from a dedicated asset to a licensed inter State asset.

As the dedicated system evolved in stages, it has so happened that dedicated assets in question would in practice be forming part of the meshed inter-state transmission system. It has already been pointed out by POSOCO that power order of the high capacity Mundra – Mohindergarh bi-pole would have an implication on the calculation of total transfer capability and available transfer capability of the WR-NR corridor. If the dedicated assets of APL are converted into licensed assets it would result in better optimization and utilization of the transmission assets and increase in the transfer capability of the national grid. Once the dedicated assets are converted into licensed assets further power system studies could be carried out and additional transmission links could be planned, if necessary, in order to increase the transfer capability between NR and WR through Mundra–Mohindergarh HVDC bi-pole.”

14. The Commission after hearing the petitioner on 20.3.2012 and perusing the records available had 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

15. The petitioner filed its reply to the directions of the Commission by its affidavit dated 26.4.2012. The petitioner also filed I.A. No. 19/2012 vide affidavit dated 24.4.2012 seeking approval of the Commission for testing and operation of \pm 500kV Mundra-Mohindergarh HVDC transmission system pending disposal of the main petition for grant of the transmission licence with the following prayers:

- "(a) Admit the present Application;
- (b) Expeditiously grant approval for carrying out testing and operation of \pm 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;
- (c) Implead HVPNL as a respondent thereby allowing amending Memo of parties in the Transmission License Application.
- (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."

16. During the hearing of the IA No.19/2012 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 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 read 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."

17. The Commission wanted to know from the representative of the POSOCO whether the transmission line could be operated 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 had 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. The Commission 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. The Commission 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.

18. The petitioner confirmed vide affidavit dated 29.5.2012 that it had complied with the various requirements for the operation of the transmission line in dedicated mode.

19. The petitioner has served a copy of the application on the Central Transmission Utility (CTU) as required under sub-section (3) of Section 15 of the Act. CTU has submitted its comments and recommendations on the application vide its letter dated 1.5.2012. The substantive part of the comments of CTU is extracted hereunder:

"5. APL has applied for Long term open access in Western and Northern Region from their project to the CTU. The details of long term open access granted to APL are as follows:-

- a) In Western Region, APL had applied for LTA of 200 MW with Maharashtra as beneficiary and point of injection as Dehgam Substation vide their application dated 27.04.2007. After discussion with WR constituents and CEA, LTA of 200 MW was granted to APL through Mundra TPS – Dehgam 400 kV D/c line via Sami switching station. Here it may be submitted that Mundra TPS – Dehgam S/s 400 kV line was identified as dedicated line to be implemented by APL.
- b) APL vide their application dated 1.10.08 applied for LTA of 342 MW in Northern Region with Punjab and Rajasthan as target beneficiaries. It was specified in the application that power from 400 kV Mundra TPS shall be transferred to Northern Region through +/-500 kV, 2500 MW Mundra-Mohindergarh HVDC bi-pole which shall also carry 1424 MW power to be supplied to Haryana. The application was discussed with CEA and NR constituents. Accordingly, LTA of 342 MW was granted to APL with connectivity of Mohindergarh HVDC station of APL to Bhiwani S/s of POWERGRID through a 400 kV D/c line for delivery of power to Punjab and Rajasthan. This Mohindergarh (APL) – Bhiwani 400 kV D/c line was identified as dedicated transmission system of APL.

6. The capacity of dedicated Mundra – Mohindergarh HVDC bi-pole has been committed for 1766 MW (1424 MW PPA + 342 MWA LTA). As per clause 3.5.a (i) of IEGC, as a general rule, the ISTS shall be capable of withstanding and be secured against contingency of outage of one pole of HVDC Bi-pole line, without necessitating load shedding or rescheduling of generation during steady state operation. The system planned by APL for transfer of power to Northern Region i.e. ±500 kV, 2500 MW Mundra (WR) – Mohindergarh (NR) HVDC bi-pole, does not have adequate redundancy to transfer 1766 MW from Mundra generation to Mohindergarh while meeting with the contingency criteria of outage of one pole of HVDC bi-pole as mentioned in Grid Code.

7. In case dedicated Assets of APL are converted into ISTS, additional transmission strengthening may be required to provide back up in case of outage of one pole, for reliable transfer of LTA power which has already been approved for Northern Region. Till the time strengthening is not available some constraints may be there for reliable transfer of power.”

20. The CTU also submitted its technical report dated 28.5.2012 concurred by CEA in its letter dated 30.5.2012. This was considered by the Commission. The gist of the report of CTU is summarized 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 transfer of 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 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.

21. NLDC in its submission dated 28.5.2012 while intimating that the testing of the dedicated HVDC Mundra-Mohindergarh bi-pole was carried out from 5.5.2012 to 16.5.2012 also submitted a two part report. In part A, NLDC informed that in compliance of the directions of the Commission testing was done and no adverse impact on the grid has been observed in all the tests. In part B of the report, important technical issues and commercial 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. POSOCO had highlighted the following technical issues:

(a) **Bi-pole 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. Bi-pole 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 bi-pole 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, loadability 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 bi-pole. 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 are minimum.

(d) Spare capacity available on HVDC Mundra-Mohindergarh bi-pole, 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 bi-pole would be made available to other users in a non-discriminatory manner. Suitable direction in regard to utilisation of spare capacity on HVDC bi-pole by the third party users and the manner of levying transmission charges and losses and the loss apportionment 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 are made available to NLDC/RLDCs/SLDCs for better visualisation and security monitoring and control.

22. POSOCO has highlighted the following 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 bi-pole 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 needs to be considered as one station and controlled by WRLDC, whereas SLDC Gujarat wants the jurisdiction of Stage I & II 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 III power station would lie, in bid area W2 or in bid area N1 as this has implication in case of congestion.

23. After perusal of the submissions of the parties and the material on record including CTU's comments and CEA's letter dated 16.3.2012, the Commission by its order dated 18.1.2013 sought the following clarifications from CEA and CTU:

(a) Whether the CEA and CTU were involved/consulted at the planning stage of Mundra - Mohindergarh HVDC bi-pole transmission line and if so, what were the recommendations of CEA and CTU with regard to utilization of the subject HVDC line?

(b) Whether Mundra-Mohindergarh HVDC bi-pole transmission line can be operated as a dedicated transmission line without any system security problem?

(c) What is the optimum quantum of electricity which can be transmitted on the subject transmission line at any point of time by retaining its dedicated character?

(d) If Mundra–Mohindergarh HVDC bi-pole transmission line is granted transmission licence, whether it would require further system strengthening from grid security consideration and whether it would result in additional transmission charge on the designated ISTS customers?

24. CTU in its affidavit dated 25.2.2013 has submitted as under:

(a) The matter was never referred to CTU at the time of planning. However, during the 26th meeting of the Standing Committee on Power System Planning of Northern Region, this agenda point was raised by HVPNL for injection of 1442 MW at Mohindergarh through HVDC bi-pole. It was proposed that the dedicated line with capacity of 2500 MW directly shall be connected to Mohindergarh.

(b) Mundra-Mohindergarh HVDC bi-pole transmission line can be operated as a dedicated transmission line. However, quantum of power flow shall be governed by grid security considerations.

(c) When the subject transmission line was proposed, it was a dedicated transmission system and directly connected to Mohindergarh in Haryana. As such, at the time of planning as it was a dedicated transmission line, margin for N-1 criteria in AC system was never requested nor kept. Hence, the transmission line can carry 1250 MW and cater to N-1 contingency. In the present scenario, if it is allowed to carry more than 1250 MW, in case of N-1 contingency, balance power would flow through AC system which will deplete the margin in AC system and may affect power evacuation of ISGS projects in Western Region. In the recent meetings chaired by Chairperson, CEA, on 23.1.2013 and 18.2.2013, it was decided that power flow on Mundra-Mohindergarh HVDC bi-pole transmission line would be 1250 MW.

(d) If Mundra-Mohindergarh HVDC bi-pole transmission line is integrated into the grid and allowed to carry according to its capacity, additional line shall be required to cater to desired level of security, which can be determined by

detailed study for a particular timeframe. However, as the transmission line was approved and being operated as a dedicated line and is transferring power from Mundra TPS, it should remain as a dedicated line. The effect on transmission charges of designated ISTS customers would depend upon amount of power the system would carry and additional system strengthening required and the capital cost of the system.

25. In response, CEA in its letter dated 28.2.2013 has submitted as under:

(a) Mundra-Mohindergarh HVDC bi-pole transmission line and associated transmission scheme were discussed and agreed during the 26th and 27th meetings of the Standing Committee of Power System Planning of Northern Region held on 13.10.2008 and 30.5.2009 respectively. The Committee concurred the HVDC link from Mundra TPS to Mohindergarh by the petitioner and subsequent extension of the line to Dhanonda HVPNL sub-station and Bhiwani PGCIL sub-station through two separate 400 kV AC lines. The power to be delivered at Dhanonda (Haryana) and Bhiwani (Haryana) is of the order of 1424 MW and 342 MW respectively. Ministry of Power under its sanction for laying of overhead transmission lines under Section 68 of the Act placed a condition that the petitioner would allow open access to other generating stations in case of availability of transmission capacity.

(b) Mundra-Mohindergarh HVDC bi-pole transmission line has been built as a dedicated transmission line under section 10 of the 2003 Act. Therefore, the line can continue to function as dedicated transmission line without any system security problem.

(c) 1250 MW can be transferred through Mundra-Mohindergarh HVDC bi-pole transmission line considering N-1 security criteria.

(d) Even if Mundra-Mohindergarh HVDC bi-pole transmission line is granted transmission licence, from grid security considerations, this line would be allowed to carry 1250 MW by the system operator unless parallel AC path of requisite capacity is created between Western and Northern Regions so as to cater to N-1 criteria which would result in creation of additional transmission system and consequently additional transmission charges for designated inter-State customers.

26. It has thus emerged from the above that the transmission systems of the petitioner were planned and executed as dedicated transmission lines. Though, CEA in its letter dated 16.3.2012 had recommended that Dehgam–Mundra–Mohindergarh–Bhiwani corridor developed as dedicated transmission system by the petitioner would act as a parallel Inter Regional link and will have an important role to play in National grid, if it is converted from a dedicated asset to a licensed inter-State asset, in its subsequent letter dated 28.2.2013, it has been recommended that the Mundra-Mohindergarh HVDC line can continue to function as dedicated transmission line without any system security problem. It has been further stated that if Mundra–Mohindergarh HVDC line is granted transmission licence from grid security consideration, this line could be allowed to carry 1250 MW by the system operator, unless parallel AC path of requisite capacity is created between WR and NR, so as to cater to N-1 criteria, which would result in creation of additional transmission system and consequent additional transmission charges for the DICs. CTU has

submitted that if the transmission line is integrated into the grid and allowed to carry according to the capacity of HVDC line, then additional line may be required to cater to desired level of security, which can be determined by detailed study.

27. From the above, it emerges that Adani planned 2500 MW HVDC bi-pole line from Mundra (Adani) to Mohindergarh (Haryana) as a part of dedicated transmission system to transfer 1424 MW power to the State of Haryana. In addition, the petitioner has also taken long term open access of 342 MW from Mohindergarh HVDC terminal onwards to ISTS system. It means that the petitioner needs to transfer about 1800 MW power (including losses) from Mundra TPS to Mohindergarh. As any transmission system needs to have N-1 reliability criteria in case of outage of one pole, the remaining poles including the overload capacity shall not be in a position to transfer more than 1500 MW power. The balance power needs to be transferred over parallel Western Region and Northern Region transmission schemes. In view of above, there is no transmission margin available in the Mundra-Mohindergarhi 2500 MW HVDC bi-pole for transferring any additional power.

28. CEA has stated that parallel AC path needs to be created between Western and Northern Regions while agreeing with the CTU's view that a detailed system study is required to further assess the requirement of system augmentation.

CONCLUSION

29. I have considered all the facts placed before me by the petitioner and the respondents which have been brought out in the foregoing paragraphs. I am also

aware of the fact that there are serious bottlenecks in the transmission corridor and lack of private sector investments in the transmission sector. As mentioned in para 2 of order Part I of my colleagues, I also take this fact into consideration while coming to a conclusion on this petition.

(a) Since 400 kV Mundra-Sami-Dehgam transmission line, 400 kV Mohindergarh-Dhanonda Transmission Line and 400 kV Mohindergarh-Bhiwani Transmission line are actually carrying the power of others due to incidental flow as brought out in the order Part I, I am inclined to agree for grant of transmission licence for these lines subject to the condition that the petitioner shall tie up with long term transmission customers for sharing the charges of the transmission line.

(b) In so far as Mundra-Mohindergarh HVDC bi-pole line is concerned, I am of the view that it is too premature to consider granting licence at this stage for the reasons given hereunder:

(i) As per the CEA's response, in view of grid security considerations, this line would be allowed to carry only 1250 MW by system operator unless parallel AC path of requisite capacity is created between Western and Northern Regions so as to cater to n-1 criteria which would result in creation of additional transmission system and consequently additional transmission charges for designated inter-State Customers. The HVDC system is a costly one and was built by the petitioner for his own use and has its cost embedded in the bid quoted to Haryana Power Utilities for supply of 1424 MW.

- (ii) CTU has also stated that Mundra-Mohindergarh HVDC bi-pole transmission line can be operated as a dedicated transmission line and is self sufficient to cater to **n-1** contingency. It can carry 1250 MW to cater to **n-1** contingency. In present scenario, if it is allowed to carry more than 1250 MW, in case of **n-1** contingency balance, power would follow through AC system which will deplete the margin in AC system and may affect power evacuation of ISGS projects in Western Region.
- (iii) Adani Power planned 2500 MW HVDC bi-pole line from Mundra to Mohindergarh, Haryana as a part of dedicated transmission system to transfer 1424 MW power to the State Haryana. In addition, the petitioner has also taken a long term open access of 342 MW from Mohindergarh HVDC terminal onward to ISTS system. It means that the petitioner needs to transfer about 1800 MW power including losses from Mundra Generating Bus to Mohindergarh. As any transmission system needs to have **n-1** reliability criteria in case of outage of one pole, the remaining pole including the overload capacity shall not be in a position to transfer more than 1500 MW power. The balance power needs to be transferred over parallel Western and Northern Region transmission scheme. Therefore, no transmission margin would be available in the 2500 MW bi-pole for transferring any additional power.
- c) I would give priority and credence to the opinion of the technical experts in the area namely, CEA, CTU and POSOCO. The Grid Code should be followed meticulously so as to avoid any major tripping. I am

of the view that we should wait for the systems to stabilise and CEA, CTU and POSOCO should take steps for taking up the power system studies and plan additional transmission links if necessary in order to increase the transfer capability between NR and WR through Mundra-Mohindergarh HVDC bi-pole. This would result in better optimisation and utilisation of the transmission assets and increase the transfer capability of the National Grid.

- d) The commercial and technical concerns expressed by POSOCO/NLDC need to be addressed while considering the case of the petitioner for grant of licence.
- e) Grant of transmission licence depends on detailed study for a particular time frame. CEA has stated that parallel AC path needs to be created between Western and Northern Regions and while agreeing with the CTU's view that a detailed system study is required to further assess the requirement of system augmentation. We should issue directions in this regard and ask the petitioner to come back at the appropriate time for grant of licence after meeting all the technical requirements.
- f) The total dedicated transmission system for which license has been sought is a huge project involving 990 Kms of HVDC and 706 Kms of DC lines with large capital expenditure incurred by the petitioner in construction. The whole construction has been taken up without following the international competitive bidding route as per policy of the Government of India. The cost considerations would be an issue for the Commission at the time of granting licence.

- g) The petitioner should come up with the long term beneficiaries for the transmission line utilization including the HVDC bi-pole with the concurrence of the already existing DICs of Northern and Western Regions.

30. In view of the above, the petitioner's prayer as quoted at para 5(b) of this order is partially allowed to the extent of grant of transmission licence for 400 kV Mundra-Sami-Dehgam transmission line, and 400 kV Mohindergarh-Dhanonda Transmission Line and 400 kV Mohindergarh-Bhiwani Transmission line and associated substations. The prayer of the petitioner at para 5(c) for in-principle approval under sub-section (3) of Section 17 of the Act for assignment of the transmission licence is premature and cannot be considered at this stage. The prayers at para 5(d) and (e) shall be considered at the time of disposal of the petition in respect of the transmission lines which have been proposed to be granted licence. No order needs to be passed on prayers at para 5(f) and (g) as they pertain to procedural aspects during the proceedings.

31. The petition is disposed of accordingly.

sd/-
(M Deena Dayalan)
Member

APPENDIX –I Para 4 of the Part II order

