

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

1. Dr. Pramod Deo, Chairperson
2. Shri R.Krishnamoorthy, Member
3. Shri S.Jayaraman, Member
4. Shri V.S.Verma, Member

**Petition No.104/2008**

**In the matter of**

Approval of incentive based on availability of transmission system for the year 2007-08 for Southern Region.

**And in the matter of**

Power Grid Corporation of India Limited, Gurgaon

**..Petitioner**

Vs

1. Karnataka Power Transmission Corporation Ltd., Bangalore
2. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
3. Kerala State Electricity Board, Thiruvananthapuram
4. Tamil Nadu Electricity Board, Chennai
5. Electricity Department, Govt. of Pondicherry, Pondicherry
6. Electricity Department, Govt. of Goa, Panaji

**Respondents**

**The following were present:**

1. Shri U.K.Tyagi, PGCIL
2. Shri V.V.Sharma, PGCIL
3. Shri A.K.Nagpal, PGCIL
4. Shri M.M.Mondal, PGCIL
5. Shri B.C.Pant, PGCIL
6. Shri R.Prasad, PGCIL
7. Shri Mohd. Mohsin, PGCIL

**ORDER  
(DATE OF HEARING: 21.5.2009)**

The petitioner seeks approval for incentive for the year 2007-08 for the transmission system in Southern Region, in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 (hereinafter referred to as "the regulations").

2. Regulation 51 of the regulations provides that:

51. Target Availability for recovery of full transmission charges:

(1) AC System: 98%

(2) HVDC bio-pole links and HVDC back-to-back stations: 95%

3. In terms of Note 1 below Regulation 51, recovery of fixed charges below the level of target availability is on pro rata basis and at zero availability no transmission charges are payable.

4. Clause (1) of regulation 60 of the regulations as amended inter-alia provides that,-

(1) The transmission licensee shall be entitled to incentive @ 1% of equity for each percentage point of increase in annual availability beyond the target availability prescribed under regulation 51, in accordance with the following formula:

$$\text{Incentive} = \text{Equity} \times [\text{Annual availability achieved} - \text{Target availability}] / 100$$

(2) Incentive shall be shared by the long-term customers in the ratio of their average allotted transmission capacity for the year.

5. Member-Secretary, SPRC (earlier SREB) in his letter dated 12.5.2008 has certified the availability of the transmission system in the Southern Region and the inter-regional AC system, inter-regional HVDC system and bi-lateral assets during 2007-08 as under:

| S.No. | Assets   | Availability  |
|-------|--|---------------|
| 1.    | Intra-Regional AC system<br><b>AC transmission system of Southern Region</b>       | <b>99.59%</b> |
| 2.    | Intra-Regional HVDC system<br><b>HVDC Talcher-Kolar System</b>                     | <b>92.26%</b> |
| 3.    | Inter-Regional AC system   |               |
| (i)   | <b>Ramagundam-Chandrapur (Bhadrawati) (SR-WR)</b>                                  | <b>99.05%</b> |
| (ii)  | <b>Jeypore-Gazuwaka Ckt I &amp; II (SR-ER)</b>                                     | <b>99.78%</b> |
| 4.    | Inter-Regional HVDC system   |               |
| (i)   | <b>Bhadrawati back-to-back I &amp; II (SR-WR)</b>                                  | <b>99.94%</b> |
| (ii)  | <b>Gazuwaka back-to-back I &amp; II (SR-ER)</b>                                    | <b>99.66%</b> |
| 5.    | Bilateral Transmission System<br><b>Kayamkulam Transmission System (with KSEB)</b> | <b>99.80%</b> |

6. Based on the availability certified by Member-Secretary, SRPC, the petitioner has claimed incentive as under:

| S.No. | Assets   | Equity<br>(Rs. in lakh) | Incentive<br>(Rs. in lakh) |
|-------|--|-------------------------|----------------------------|
| 1.    | Intra-Regional AC system   | 119871.99               | 1905.96                    |
| 2.    | Intra-Regional HVDC system<br><b>HVDC Talcher-Kolar</b>  | 52001.94                | 0.00                       |
| 3.    | Inter-Regional AC system<br><b>Ramagundam-Chandrapur (Bhadrawati) (SR-WR)</b><br><b>Jeypore-Gazuwaka I &amp; II (SR-ER)</b>        | 1211.75<br>2365.94      | 12.72<br>42.11             |
| 4.    | Inter-Regional HVDC system<br><b>Bhadrawati back-to-back I &amp; II (SR-WR)</b><br><b>Gazuwaka back-to-back I &amp; II (SR-ER)</b> | 3958.57<br>7575.05      | 195.55<br>353.00           |
| 5.    | Bilateral Transmission System<br><b>Kayamkulam Transmission System (KSEB only)</b>   | 2267.87                 | 40.82                      |
|       |  | <b>189253.11</b>        | <b>2550.17</b>             |

7. Reply to the petition has been filed by Tamil Nadu Electricity Board.

8. The petitioner vide its affidavit dated 29.5.2009 has submitted that the equity of an inter-regional asset, namely, 50% FSC at Jeypore sub-station associated with 400 kV Jeypore-Gazuwaka D/C transmission line as approved vide order dated 19.5.2008 in Petition No. 103/2007 has not been claimed by the petitioner inadvertently. Therefore, 50% of equity as on 1.4.2007 as approved vide order dated 19.5.2008 has been considered for the purpose of incentive for the year 2007-08. On this account, incentive allowed for Jeypore-Gazuwaka transmission line exceeds that claimed by the petitioner.

9. Incentive has been worked out considering the availability as certified by the Member-Secretary, SRPC in the light of the above discussion. Based on the above, the petitioner shall be entitled to incentive as indicated hereunder:

| S.No. | Assets  | Equity<br>(Rs. in lakh) | Incentive Amount<br>(Rs. in lakh) |
|-------|---|-------------------------|-----------------------------------|
| 1.    | Intra-Regional AC system  | 119872.00               | 1905.96                           |
| 2.    | Intra-Regional HVDC system<br><b>HVDC Talcher-Kolar</b>   | 51833.85                | 0.00                              |
| 3.    | Inter-Regional AC system<br><b>Ramagundam-Chandrapur (Bhadravati) (SR-WR)</b><br><b>Jeypore-Gazuwaka I &amp; II (SR-ER)</b>                   | 1211.75<br>2717.62      | 12.72<br>48.38                    |
| 4.    | Inter-Regional HVDC system<br><b>Bhadravati back-to- back Pole-I &amp; II (SR-WR)</b><br><b>Gazuwaka back-to-back Pole-I &amp; II (SR-ER)</b> | 3958.57<br>7575.06      | 195.55<br>353.00                  |
| 5.    | Bilateral Transmission System<br><b>Kayamkulam Transmission System (KSEB only)</b>  | 2267.87                 | 40.82                             |

10. The details of calculations in support of the incentive allowed are given in the Annexure attached.

11. There is disincentive in case of HVDC Talcher-Kolar, as. It is observed, its availability was below the normative availability of 95%. The petitioner shall make necessary adjustment of disincentive on this count.

12. The Commission in its order dated 29.9.2008, had provisionally allowed incentive of 80% of that claimed by the petitioner in this petition. The provisional incentive charges by the petitioner shall be adjusted against final incentive for the year 2007-08 approved by us in this order.

13. The incentive approved except that for Kayamkulam Transmission System shall be shared by the respondents, the beneficiaries in the Southern Region, in proportion of the transmission charges shared by them in the region. As regards the Kayamkulam

Transmission System, the entire incentive shall be borne by Kerala State Electricity Board.

14. This order disposes of Petition No. 104/2008.

Sd/-  
**(V.S.VERMA)**  
**MEMBER**

sd/-  
**(S.JAYARAMAN)**  
**MEMBER**

sd/-  
**(R.KRISHNAMOORTHY)**  
**MEMBER**

sd/-  
**(DR. PRAMOD DEO)**  
**CHAIRPERSON**

**New Delhi dated the 11th August 2009**

# ANNEXURE

| 1. SOUTHERN REGION  |   |   |                           |  |  |  |  | (Rs. in lakh) |
|---|---|---|---------------------------|--|--|--|--|---------------|
| Name of the Transmission System/<br>Line (1)                                    | Petition No. for<br>the period 2001-<br>04 & date of<br>Tariff Order (2)                            | Date of<br>commercial<br>operation<br>(3)   | Equity as<br>per order(4) | Period<br>during<br>the year<br>(Year) (5) | Availability of<br>the<br>Transmission<br>on System<br>Elements of<br>Southern<br>Region (6) | Availability<br>eligible for<br>incentive<br>(7) | Incentive<br>amount<br>(8)=<br>(4)*(5)*(7) |               |
| (i) INTRA REGIONAL AC SYSTEM<br>Basic Availability for Incentive<br>calculation |   |   |                           |  |  |  |  | 98.00%        |
| 1   | RAMAGUNDUM I&II<br>(INCL. ICT AT KHAMMAM &<br>REACTOR AT GAZUWAKA)                                  | 130/2004 Order<br>dated 17.3.2008   | Before<br>31.3.2001       | 17541.21                                   | 1.00   | 99.59%   | 1.59%                                      | 278.91        |
| 2   | CTP I   | 135/2004 order<br>dated 17.03.2008  | -do-                      | 13217.50                                   | 1.00   | 99.59%   | 1.59%                                      | 210.16        |
| 3   | AUTO T/F AT HYDERABAD<br>S/S  | 129/2004 order<br>dated.17.3.2008   | -do-                      | 355.07                                     | 1.00   | 99.59%   | 1.59%                                      | 5.65          |
| 4   | CUDDAPAH REACTOR  | -do-  | -do-                      | 339.03                                     | 1.00   | 99.59%   | 1.59%                                      | 5.39          |
| 5   | SPECIAL ENERGY<br>METERS  | 132/2004 order<br>dated.31.10.2005  | -do-                      | 263.03                                     | 1.00   | 99.59%   | 1.59%                                      | 4.18          |
| 6   | RAMGUNDUM-<br>HYDERABAD   | 137/2004 Order<br>dt.16.4.2008  | -do-                      | 1045.45                                    | 1.00   | 99.59%   | 1.59%                                      | 16.62         |
| 7   | ICT-III AT<br>NAGARJUNASAGAR  | 133/2004 order<br>dated 16.4.2008<br>and order dated<br>1.7.2009 in Pet.<br>No. 47/2009 | -do-                      | 355.80                                     | 1.00   | 99.59%   | 1.59%                                      | 5.66          |
| 8   | NLC I   | 134/2004 order<br>dated.24. 1.2008  | -do-                      | 3997.08                                    | 1.00   | 99.59%   | 1.59%                                      | 63.55         |
| 9   | NLC II  | 131/2004 Order<br>dated 24. 1.2008  | -do-                      | 20203.50                                   | 1.00   | 99.59%   | 1.59%                                      | 321.24        |
| 10  | KAIGA -SIRSI  | 136/2004 Order<br>dated 16.4.2008   | -do-                      | 2492.66                                    | 1.00   | 99.59%   | 1.59%                                      | 39.63         |
| 11  | NEYVELI- BAHOR  | 6/2005 Order<br>dated.29.4.2008   | 1.7.2001                  | 462.53                                     | 1.00   | 99.59%   | 1.59%                                      | 7.35          |
| 12  | LILLO of One Ckt. of<br>NEYVELI- TRICHY   | 36/2005 Order<br>dated.17.1.2006  | 1.2.2002                  | 165.67                                     | 1.00   | 99.59%   | 1.59%                                      | 2.63          |
| 13  | LILLO of 400 KV Cuddapah-<br>Bangalore line at Kolar &<br>400 KV KOLAR- Madras<br>transmission line | 84/2005 order<br>dated 9.5.2006   | 1.12.2002                 | 2374.81                                    | 1.00   | 99.59%   | 1.59%                                      | 37.76         |
| 14  | 400 KV HOSUR-SALEM<br>transmission line, Auto<br>Transformer-I at Hossur                            | -do-  | 1.12.2002                 | 1535.51                                    | 1.00   | 99.59%   | 1.59%                                      | 24.41         |
| 15  | 315 MVA AUTO<br>TRANSFORMER-II AT<br>HOSSUR   | -do-  | 1.2.2003                  | 144.70                                     | 1.00   | 99.59%   | 1.59%                                      | 2.30          |
| 16  | 500 MVA Auto transformer &<br>400 KV D/C Kolar-Hoody line   | -do-  | 1.2.2003                  | 1482.30                                    | 1.00   | 99.59%   | 1.59%                                      | 23.57         |
| 17  | VIJAYAWADA-NELLORE<br>SRIPERUMBUR   | 48/2005 order<br>dt.14.1.2006 and<br>order dated<br>20.7.2009 Pet.<br>No. 43/2009       | 1.3.2003                  | 5786.52                                    | 1.00   | 99.59%   | 1.59%                                      | 92.01         |
| 18  | 400 KV D/C Kolar-Hosur<br>Transmission Line   | 127/2005 order<br>dated 9.5.2006 &<br>revised order<br>dated 26. 4.2007                 | 1.4.2003                  | 1300.16                                    | 1.00   | 99.59%   | 1.59%                                      | 20.67         |
| 19  | 400 KV S/C Salem-<br>Udumalpet Transmission<br>Line   | -do-  | 1.6.2003                  | 1494.62                                    | 1.00   | 99.59%   | 1.59%                                      | 23.76         |
| 20  | Additional Bays at Kolar and<br>Hosur   | 63/2008 order<br>dated 1.9.2008   | 1.9.2003                  | 106.57                                     | 1.00   | 99.59%   | 1.59%                                      | 1.69          |
| 21  | Hiriyur S/S including 315<br>MVA Auto Transformer and<br>LILLO of Davangere-Hoody                   | -do-  | 1.2.2004                  | 1202.95                                    | 1.00   | 99.59%   | 1.59%                                      | 19.13         |
| 22  | Khammam-Nagarjunasagar  | 113/2008 Order<br>dated 3.2.2009  | 1.3.2004                  | 927.11                                     | 1.00   | 99.59%   | 1.59%                                      | 14.74         |
| 23  | 400 KV D/C Ramagundam-<br>Hyderabad Transmission<br>Line (Ramagundam-III)                           | 21/2006 Order<br>dated 22.11.2006<br>& 113/2008 dated<br>3-2-2009                       | 1.11.2004                 | 1902.74                                    | 1.00   | 99.59%   | 1.59%                                      | 30.25         |

|              |  |                                 |                  |                  |      |        |       |                |
|--------------|--|---------------------------------|------------------|------------------|------|--------|-------|----------------|
| 24           | 40%FSC on Gooty-Neelmangla 400 KV S/C line & Nagarjunasagar-Cuddapah             | 129/2006 order dated 23.3.2007  | 1.11.2004        | 944.73           | 1.00 | 99.59% | 1.59% | 15.02          |
| 25           | 400 KV D/C Vijaywada-Gazuwaka Transmission Line                                  | 40/2008 order dated 28.8.2008   | 1.3.2005         | 6618.67          | 1.00 | 99.59% | 1.59% | 105.24         |
| 26           | Hyderabad-Kurnool- Gooty   | 113/2008 order dated 3.2.2009   | 1.3.2005         | 2000.72          | 1.00 | 99.59% | 1.59% | 31.81          |
| 27           | 40%FSC on Gooty-Neelmangla (Ckt- II)   | 49/2009 order dated 26. 6.2009  | 01.05.2005       | 439.69           | 1.00 | 99.59% | 1.59% | 6.99           |
| 28           | Gooty- Neelmangala (Ramagundam-III)  | 113/2008 order dated 3.2.2009   | 01.05.2005       | 1671.56          | 1.00 | 99.59% | 1.59% | 26.58          |
| 29           | 400 kV Madurai-Thiruvananthapuram TL   | 45/2009 Order dt 17. 6.2009     | 01.08.2005       | 7131.02          | 1.00 | 99.59% | 1.59% | 113.38         |
| 30           | Kaiga- Narendra TL   | 123/2007 Order dated 30-5-2008  | 01.11.2005       | 4482.68          | 1.00 | 99.59% | 1.59% | 71.27          |
| 31           | Narendra- Sub station  | 123/2007 Order dated 30-5-2008  | 01.11.2005       | 1626.05          | 1.00 | 99.59% | 1.59% | 25.85          |
| 32           | 400 kV Nagarjunasagar-Raichur line & extn of Mehboobnagar S/S                    | 23/2009 Order dated 13-5-2009   | 01.01.2006       | 323.56           | 1.00 | 99.59% | 1.59% | 5.14           |
| 33           | 400 kV Mysore-Neelamangala TL  | 51/2009 Order dated 25-6-2009   | 01.05.2006       | 3910.41          | 1.00 | 99.59% | 1.59% | 62.18          |
| 34           | 400 kV D/C Nellore-Sriperumbudur line at Almati                                  | 23/2009 Order dated 13-05-2009  | 01.06.2006       | 2325.47          | 1.00 | 99.59% | 1.59% | 36.97          |
| 35           | 2nd 315 MVA ICT at Narendra S/S  | 123/2007 Order dated 30-05-2008 | 01.09.2006       | 196.97           | 1.00 | 99.59% | 1.59% | 3.13           |
| 36           | 400 kV Neelmangala-Somanhalli TL   | 126/2008 Order dated 24-4-2009  | 01.01.2007       | 1344.35          | 1.00 | 99.59% | 1.59% | 21.38          |
| 37           | Gooty- Raichur 400kV D/c TL ( SR SS-III)   | 126/2008 Order dated 24-4-2009  | 01.05.2007       | 6063.73          | 0.92 | 99.59% | 1.59% | 88.38          |
| 38           | Nellore Extension ( SR SS-V)   | 125/2008 order dated 16-3-2009  | 01.07.2007       | 279.78           | 0.75 | 99.59% | 1.59% | 3.34           |
| 39           | Cuddapah Extension ( SR SS-V)  | do                              | 01.08.2007       | 408.99           | 0.67 | 99.59% | 1.59% | 4.34           |
| 40           | Kolar, Gooty & Somahally Extension ( SR SS-V)                                    | do                              | 01.09.2007       | 1200.02          | 0.58 | 99.59% | 1.59% | 11.13          |
| 41           | Gazuwaka Extension ( SR SS-V)  | do                              | 01.10.2007       | 382.51           | 0.50 | 99.59% | 1.59% | 3.04           |
| 42           | Munirabad Extension  | do                              | 01.11.2007       | 526.91           | 0.42 | 99.59% | 1.59% | 3.49           |
| 43           | Khammam Extension  | do                              | 01.02.2008       | 377.49           | 0.17 | 99.59% | 1.59% | 1.00           |
| 44           | 50 MVAR Reactor at Narendra under Kaiga 3&4                                      | Pet. No. 5/2009                 | 01.01.2008       | 559.66           | 0.25 | 99.59% | 1.59% | 2.22           |
| 45           | 50 MVAR Reactor at Mysore and 400 kV D/c Narendra-Devangiri Line under Kaiga 3&4 | Pet. No. 5/2009                 | 01.02.2008       | 4830.28          | 0.17 | 99.59% | 1.59% | 12.80          |
|              | <b>Sub Total-(i)</b>   |                                 |                  | <b>126341.77</b> |      |        |       | <b>1905.96</b> |
| <b>(ii)</b>  | <b>INTRA REGIONAL HVDC SYSTEM</b>  |                                 |                  |                  |      |        |       |                |
|              | Basic Availability for Incentive calculation                                     |                                 |                  |                  |      |        |       | <b>95.00%</b>  |
| 46           | Talcher -Kolar HVDC Line( Pole I)  | 84/2005 Order dated .29.4.2008  | 1.12.2002        | 36833.18         | 1.00 | 92.26% | 0.00% | <b>0.00</b>    |
| 47           | HVDC Terminal station at Talcher & Kolar related to Pole II                      | 127/2005 Order dated.29.4.2008  | 1.3.2003         | 13441.35         | 1.00 | 92.26% | 0.00% | <b>0.00</b>    |
| 48           | Upgradation of Capacity of Talcher -II   | 131/2008 Order dated.30.4.2009  | 01.08.2007       | 2338.98          | 0.67 | 92.26% | 0.00% | <b>0.00</b>    |
|              | <b>Sub Total-(ii)</b>  |                                 |                  | <b>52613.51</b>  |      |        |       | <b>0.00</b>    |
| <b>(iii)</b> | <b>INTER REGIONAL AC SYSTEMS</b>   |                                 |                  |                  |      |        |       |                |
|              | Basic Availability for Incentive calculation                                     |                                 |                  |                  |      |        |       | <b>98.00%</b>  |
| 49           | RAMAGUNDUM-CHANDRAPUR I & II (SR-WR)(50%)  | 138/2004 order dated.14. 2.2008 | Before 31.3.2001 | 1211.75          | 1.00 | 99.05% | 1.05% | <b>12.72</b>   |

|      |   |                                       |                     |                  |      |        |       |                |
|------|---|---------------------------------------|---------------------|------------------|------|--------|-------|----------------|
| 50   | 400 KV JEYPORE-<br>GAZUWAKA Transmission<br>Line (SR-ER) (50%)                              | 70/2004 order<br>dated. 9-4-2008      | Before<br>31.3.2001 | 2366.10          | 1.00 | 99.78% | 1.78% | <b>42.12</b>   |
| 51   | 50% equity for FSC at<br>Jeypore S/S associated with<br>400 kV Jeypore -Gazuwaka<br>D/c T/L | 103/2007<br>order dated 19.<br>5.2008 | 1. 1.2007           | 351.52           | 1.00 | 99.78% | 1.78% | <b>6.26</b>    |
|      |   |                                       |                     | <b>3929.37</b>   |      |        |       | <b>61.10</b>   |
| (iv) | <b>INTER REGIONAL HVDC<br/>System</b>   |                                       |                     |                  |      |        |       |                |
|      | Basic Availability for Incentive<br>calculation   |                                       |                     |                  |      |        |       | <b>95.00%</b>  |
| 52   | HVDC Back to Back at<br>Chandrapur (50%) Pole-I & II  | 137/2004 order<br>dated 16.4.2008     | Before<br>31.3.2001 | 3958.57          | 1.00 | 99.94% | 4.94% | <b>195.55</b>  |
| 53   | HVDC Back to Back station at<br>GAZUWAKA (Pole-I) (50%)                                     | 70/2004 order<br>dated. 9-4-2008      | Before<br>31.3.2001 | 2480.65          | 1.00 | 99.66% | 4.66% | <b>115.60</b>  |
| 54   | HVDC Back to Back station at<br>GAZUWAKA (Pole-II) (50%)                                    | 40/2008 order<br>dated 28. 8.2008     | 1.3.2005            | 5094.41          | 1.00 | 99.66% | 4.66% | <b>237.40</b>  |
|      | <b>Sub Total-</b>   |                                       |                     | <b>11533.62</b>  |      |        |       | <b>548.55</b>  |
| (v)  | <b>BI LATERAL SYSTEM<br/>(KSEB only)</b>  |                                       |                     |                  |      |        |       |                |
|      | <b>KAYAMKULAM TRANSMISSION<br/>SYSTEM</b>   |                                       |                     |                  |      |        |       |                |
|      | Basic Availability for Incentive<br>calculation   |                                       |                     |                  |      |        |       | <b>98.00%</b>  |
| 55   | KAYAMKULAM-EDMON<br>from 01.04. 2007 to<br>31.08.2007                                       | 74/2004 Order<br>dt.16.4.2008         | Before<br>31.3.2001 | 1526.62          | 0.42 | 99.80% | 1.80% | <b>11.45</b>   |
|      | KAYAMKULAM-EDMON from<br>01.09.2007 to 31.03.2008   | 53/2007 Order<br>dated 17.06.2008     |                     | 886.63           | 0.58 | 99.80% | 1.80% | <b>9.31</b>    |
| 56   | KAYAMKULAM-PALLOM<br>from 01.04. 2007 to<br>31.08.2007                                      | 74/2004 Order<br>dated 16.4.2008      | -do-                | 1429.31          | 0.42 | 99.80% | 1.80% | <b>10.72</b>   |
|      | KAYAMKULAM-PALLOM<br>from 01.09. 2007 to<br>31.03.2008                                      | 53/2007 Order<br>dated 17.06.2008     |                     | 889.76           | 0.58 | 99.80% | 1.80% | <b>9.34</b>    |
|      | <b>Sub Total(v)</b>   |                                       |                     | <b>4732.32</b>   |      |        |       | <b>40.82</b>   |
|      | <b>TOTAL</b>  |                                       |                     | <b>199150.59</b> |      |        |       | <b>2556.43</b> |