

TAMIL NADU ELECTRICITY REGULATORY COMMISSION
(Constituted under section 82 (1) of the Electricity Act, 2003)
(Central Act 36 of 2003)

PRESENT:-

Thiru S.Akshayakumar **Chairman**

and

Thiru.G.Rajagopal **Member**

M.P.No.32 of 2014

Tamil Nadu Generation and Distribution Corporation Ltd.
Represented by Chief Engineer / Gas Turbine Schemes
144, Anna Salai
Chennai – 600 002.

... **Petitioner**

Vs.

Nil

.... **Respondent**

Dates of hearing : **23-06-2014, 26-12-2014, 17-04-2015 and
05-10-2015**

Date of order : **28-01-2016**

The M.P.No.32 of 2014 filed by TANGEDCO came up for final hearing on 05-10-2015. The Commission upon perusing the above petition and the connected records and after hearing the submissions of the Petitioner passes the following order:-

ORDER

1 Prayer of the Petitioner in M.P.No.32 of 2014:-

(a) To approve and ratify the generation of real power of 0.86546 MU in FY 2013-14 & 2.22936 MU in April 2014 under unavoidable emergency circumstances, in order to avoid cascade tripping of generating units and EHT/HT feeders, overloading to Tondairpet and Mylapore SS, blackout in the Chennai city areas and to overcome the critical situation thereby maintaining stability of Chennai

network, running of units at Basin Bridge Gas Turbine power Station (BBGTPS) is very much essential, as Gas Turbine generators are quick start machines and they can be loaded to full capacity within the shortest time of 15 to 30 minutes and during trial run of machines.

(b). The trial run of the units had to be carried out to keep them ready for emergency operation. Real power generation at BBGTPS as and when grid disturbances occurs under extra-ordinary circumstances and during trial run of the units.

1.2. Prayer in the affidavit dated 12-05-2014:-

(a) to approve and ratify the action of having generated real power of 0.86546 MU in FY 2013-14 and 2.22936 MU in April 2014 under unavoidable emergency circumstances and even when other similar power source of GMR was available / not able to meet the instantaneous grid requirement.

(b) to grant approval to operate the machines under trial run to check their healthiness and to keep them ready for emergency operation.

(c) to exempt BBGTPS may be exempted from the ambit of "Merit Order Dispatch" considering the essentiality of the operation of BBGTPS and the circumstances under which it is being operated.

2. Contentions of the Petitioner:-

2.1. In Table 274 of Tariff Order No.1 of 2013 dated 20-06-2013, wherein capacity charges in respect of BBGTPS has been allowed but variable charges were not

allowed, as it is not in accordance with Merit Order Dispatch, due to higher Naphtha fuel cost than Commission's permissible variable cost of Rs.3.50/Unit. Hence, generating real power at BBGTPS requires prior approval of the Commission as per clause 4.223 of the said Tariff Order. However, the Commission has allowed BBGTPS to run under synchronous condenser mode for Reactive power generation to improve the voltage profile of the grid vide clause 4.177 of the said Tariff Order.

2.2. At BBGTPS, 4 Units of 30 MW each are available. The units were being operated under unavoidable emergency circumstances in FY 2013-14 as detailed below:-

Month	Generator operated	Units generated in MU (Gross)	Reasons
May 2013	III & IV	0.04922	Unit – III has been operated as a trial run after replacement of generator bearings and Unit –IV was also operated to check vibration of its bearings
July 2013	II & IV	0.1513	To maintain grid stability due to tripping of 230 KV Tondaiarpur NCTPS feeder- I & II
August 2013	I & II	0.1919	To maintain grid stability and avoid cascade tripping of generating units due to tripping of 230 KV Tondairpet – NCTPS feeder – I & 230 KV Manali-Tondaiarpur feeder
September 2013	I & II	0.2797	During the visit of Hon'ble President of India to the function held at Nehru Indoor Stadium on 24-09-2013 to meet out emergency if any arises
October 2013	I	0.0408	Tripping of 230 KV Tondaiarpur-NCTPS-I feeder
November 2013	IV	0.1005	Due to interruption of supply on 01-11-2013 on the eve of Deepavali festival on 02-11-2013 and interruption on Velachery area on 17-11-2013.
March 2014	IV	0.05204	Trial run for vibration analysis
Total generation in FY 2013-14		0.86546	

2.3. During April 2014, the EHT lines as detailed below got tripped due to mist with severe polluted atmospheric conditions prevailed at the early hours of the day in NCTPS and Vallur areas. During such worst atmospheric condition, all the 400 KV evacuation feeders of Vallur Thermal Power Station and 230 KV Tondiarpet feeders 1 and 2, 230 KV NCTPS-Kilpauk feeder and 230 KV NCTPS-ETPS feeder got tripped and became faulty frequently which causes the network overloading in Tondiarpet and Mylapore SS.

2.4. To overcome the critical situation and to avoid black out in the Chennai city areas and maintain stability of Chennai network, running of Units at Basin Bridge Gas Turbine Power Station is very much essential in transmission network contingencies in Tondairpet and Mylapore areas.

Date	Feeder tripped
18-04-2014	110 KV Sriperumbudur – Arni 400 KV Vallur –Almathy # 2 tripped at both end 110 KV Veerapuram-Nemmali 110 KV Sriperumbudur-Arni feeder tripped at Sriperumbudur 230 KV NCTPS – Tondiarpet # 1 230 KV NCTPS – ETPS tripped at both end 230 KV Kilpauk – NCTPS tripped at Kilpauk 230 KV NCTPS – ETPS tripped at both end
19-04-2014	400 KV Vallur – NCTPS Stage II feeder – II 400 KV Vallur – NCTPS Stage I feeder 400 KV Vallur – Alamathy feeder – I 230 KV NCTPS –Tondiarpet feeder – II 230 KV NCTPS – Tondiarpet feeder – I
20-04-2014	<u>Vallur Thermal Power Station:</u> 400 KV Vallur – NCTPP feeder – I 400 KV Vallur – NCTPP feeder – II 400 KV Vallur – Alamathy feeder – II & 400 KV Vallur-Kalivanthapattu feeder – II 400 KV Vallur – Alamathy feeder I Vallur Unit – I & II & 400 KV Vallur – Kalivanthapattu feeder – I

	<u>North Chennai Thermal Power Project:</u> Both units got tripped on turbine over speed protection <u>North Chennai Thermal Power Station:</u> 230 KV NCTPS – Tondiarpet feeder – I 230 KV NCTPS – Kilpauk feeder 230 KV NCTPS – Tondiarpet feeder II
21-04-2014	230 KV NCTPS – Kilpauk 400 KV Vallur – NCTPS –I 400 KV Vallur – Alamathy feeder – I 230 KV NCTPS – Tondiarpet feeder – I 230 KV NCTPS – Tondiarpet feeder – II
22-04-2014	230 KV ETPS – NCTPS 230 KV NCTPS – Kilpauk 230 KV NCTPS – Tondiarpet feeder – II 230 KV NCTPS – Tondiarpet feeder – I
23-04-2014 & 24-04-2014	To maintain grid stability in view of Parliamentary Election held on 24-04-2014

2.5. Due to the above grid disturbances narrated in Para 2.4 above, units at BBGTPS were run under Generation mode and the expenditure incurred towards fuel cost was Rs.445.885 lakh as detailed below:-

Date	Unit	Running Hours in Hrs-Min	Energy Generated in MU	Naphtha Consumption in KL	HSD Consumption in KL	Expenditure incurred in lakh
18-04-14	2	5-16	0.1247	55.764	1.778	26.058
19-04-14	2	7-09	0.1002	54.842	1.580	25.542
20-04-14	1,2	3-41	0.0215	19.357	2.506	10.001
21-04-14	1,2	16-30	0.3504	159.214	2.314	73.004
22-04-14	1,2	21-07	0.6243	238.546	21.000	118.25
23-01-14	1,2, 3,4	34-59	1.00336	303.694	108.972	192.12
24-04-14	2,4	00-14	0.0049	0.947	0.945	0.91
Total			2.22936			445.885

2.6. The Petition M.P.No.52 of 2013 was filed on 01-09-2013 before the Commission with the prayer

- (i) To revise the norms fixed for PLF for FY 2013-14 in respect of T(K)GTPS & KGTPS due to inadequate gas supply

and

- (ii) To exempt Basin Bridge Gas Turbine Power Station from getting prior approval of the Commission for generating real power during emergency, as the operation of BBGTPS is inevitable in order to avoid cascade tripping thereby restoring grid stability.

2.7. The M.P.No.52 of 2013 was subsequently withdrawn by TANGEDCO on 17-03-2014 due to administrative reasons. Hence, this petition is filed now before the Commission for approval and ratification for having generated real power of 0.86546 MU in FY 2013-14 & 2.22936 MU in April 2014 and approval to generate real power as and when emergencies arise under extra-ordinary circumstances and during trial run of the units in future.

2.8. In order to admit the expenditure incurred towards cost of fuel, during real power generation at BBGTPS in FY 2013-14 and the expenditure likely to be incurred towards usage of fuel for future real power generation, this petition is filed before the Commission, otherwise the expenditure made towards fuel for generating real power at BBGTPS could not be reflected in tariff in the TANGEDCO's ARR submission along with the Tariff Petition to be filed before the Commission for Tariff revision.

3. Further submissions made in Affidavit dated 14-08-2014:-

3.1. The above petition was taken up for hearing on 23-06-2014. As per the directives of the Commission vide Table 274 of Tariff Order No.1 of 2013 dated 20-06-2013 real power generation is not permitted due to higher Naphtha fuel cost than the permissible value of Rs.3.50/ Unit fixed by the Commission.

3.2. M.P.No.52 of 2013 filed on 01-09-2013 before the Commission was withdrawn on 17-03-2014 due to administrative reasons as already submitted in para 2.7 above.

3.3. After observing all official formalities and after getting approval of CMD / TANGEDCO the present petition was filed on 20-05-2014 praying for the approval and ratification for having generated real power of 0.86546 MU in FY 2013-14 & 2.22936 MU in April 2014 and also for approval to generate the real power as and when emergencies arise and during the trial run of the units in future.

3.4. This petition is filed before the Commission in order to admit the expenditure incurred towards cost of fuel, during real power generation at BBGTPS in FY 2013-14 and the expenditure likely to be incurred towards usage of fuel for future real power generation, in the TANGEDCO's ARR submission along with the Tariff Petition to be filed before the Commission for Tariff revision, otherwise the expenditure made towards fuel for generating real power at BBGTPS could not be reflected in tariff.

3.5. The delay in filing the present petition has occurred due to the reasons stated above and also due to the procedural delay which are neither intentional nor deliberate but has occurred due to circumstances stated above. The Commission may condone the delay in submission of new petition as the Commission had wide powers to condone the same.

3.6. Additional justification for having run the units of BBGTPS is as follows:-

During the tripping and breakdown of vital 230 KV feeders like NCTPS – Tondairpet feeders 1 & 2, Manali-Alamathy feeders, Manali-Mylapore feeders etc. there would be disturbance in 110 KV network system also causing major grid disturbance (to the tune of about 300-400 MW) in Chennai city leading to black out of major essential services like Government Head Quarter Hospital, Railway traction system, Metro Water works, High Court and Secretariat campuses etc. Hence, in order to mitigate the supply failure in the important vicinity of Chennai city, it is very much essential to keep the units in BBGTPS in service to extend supply to vital substations like 230 KV Mylapore, Tondiarpet, Taramani, substations and 110 KV GMR, Chindadaripet, Valluvarkottam and High Court substations.

3.7. On restoration of station supply to the above substations, depending upon the feeder healthy conditions, 230 KV feeders are gradually normalized with simultaneous restoration of relevant 110 KV feeders according to the Chennai city network loading condition without affecting the integrity and security of the system. The restoration process takes about 30 minutes to 2-3 hours depending upon the severity of the disturbance. After normalcy, the generation units of BBGTPS will be taken out of bar and kept as standby. In view of the above, the operation of the Generation units in BBGTPS during critical condition is very much required to meet the contingency situation in the Chennai city network in restoring supply to essential services and thus ensuring supply.

3.8. The Commission may consider this petition in a comprehensive manner in favour of the Petitioner condoning the delay and considering the additional

particulars and the fact that the unit is operated only in the extraordinary circumstances in order to maintain the grid stability.

3.9. BBGTPS can be considered as a part of grid stability mechanism rather than a power generating station and it may be exempted from the ambit of “Merit Order Dispatch”.

4. Justification for the operation of BBGTPS as submitted by the Petitioner in Affidavit dated 12-05-2014:-

4.1. The concept of “Merit Order Dispatch” was introduced for the first time in the Tariff Order No.1 of 2013 dated 20-06-2013 vide Table 274 therein. As per the directives of the Commission real power generation at BBGTPS was not permitted due to higher Naphtha fuel cost, the permissible value fixed by the Commission being Rs.3.50 / unit and generation of real power at BBGTPS requires prior approval of the Commission.

4.2. The following 4 Nos 230 KV feeders are emanating from North Chennai Thermal Power Station to cater power to the Chennai city:-

- a) NCTPS – Tondiarpet Feeder – I
- b) NCTPS - Tondiarpet Feeder – II
- c) NCTPS - ETPS Feeder
- d) NCTPS - Kilpauk Feeder

However, NCTPS–Tondiarpet Feeders–I & II are the main sources for Chennai city loads. In the event of breakdown of more number of 230 KV grid feeders due to bus fault, heavy rain, wind & pollution etc. the remaining 230 KV feeders get over loaded resulting in cascading tripping of further 230 KV feeders. In order to avoid cascading tripping of 230 KV feeders and also to save North Chennai generating units from

tripping, essential loads such as Traction, Secretariat, Government Hospitals, High Court etc. are being met out on 110 KV side by operating BBGTPS in addition to GMR generation as BBGTPS & GMR generation were the only available sources on 110 KV side. Further Gas Turbine Generators at BBGTPS are quick start machines and synchronized with 110 KV grid and 30 to 120 MW generation can be achieved within 15 to 45 minutes by operating the available four units one by one.

4.3. The justifications for every operation of generating units at BBGTPS even when other similar source of GMR power generation was available are given below for the consideration of the Commission.

Date	Generator operated	Load in MW	Gross generation in MU	Running Hours	
08-05-2013	IV	30	0.019200	0.90	
Necessity: To check the vibration in generator bearing as a maintenance – Mandatory					
09-05-2013	III	11	0.000900	0.10	
Necessity: Trial run after replacement of bearings - Periodical Maintenance					
10-05-2013	III	31	0.029120	1.09	
Necessity: Trial run after attending Lube oil leak					
31-07-2013	II & IV	59	0.151300	BBGTPS	Unit 2: 14:03 hrs to 17:09 hrs. Unit 4: 14:19 hrs to 17:12 hrs.
				GMR	10:25 hrs : 80 MW (DG2,4). 11:48 hrs : Units at GMR tripped due to feeder tripping. 13:30 hrs: Generation reached 144 MW.
Necessity : 11.48 hrs : 230 KV NCTPS – Tondiarpet feeder I & II tripped at Tondiarpet end. R phase jumper cut and supporting insulator decapped. 230 KV Manali – Tondiarpet feeder tripped at both ends. Auto Transformers at 230 KV Mylapore SS tripped. At Basin Bridge SS all 110 KV feeders tripped at other end. At GMR 110 KV Basin Bridge feeder trip. At BBGTPS, units were in condenser mode and 110 KV feeders were holding. To avoid overloading and cascade tripping of above feeders and to maintain the					

system in stable condition and to extend supply to Mylapore area, Unit 2 & 4 of Basin Bridge generation was brought into service, in addition to 144 MW generation at GMR.

04-08-2013	I & II	14	0.044000	BBGTPS	Unit 2 : 22.50 hrs to 5.8.13; 06.10 hrs. Unit 1 : 23:24 hrs to 5.8.13 ; 06.07 hrs.
05-08-2013		30	0.147900	GMR	21:54 hrs: DG4 at GMR tripped due to feeder tripping. 22:31 hrs: Generation picked up at GMR. 00.25 hrs: GMR generation 192 MW.

Necessity:
 21.53 hrs: 230 KV NCTPS – Tondiarpet feeder I tripped at both ends / Bus Jaw melting.
 230 KV NCTPS–Tondiarpet feeder II sparking ; Feeder Hand tripped.
 230 KV Tondiarpet – Manali feeder tripped at both ends.
 22:44 hrs: At Basin Bridge SS 110 KV High Court feeder tripped.
 Unit 2 at Basin Bridge was asked to blackstart and generation picked up.
 At 230 KV Tondiarpet SS, to carry out Jaw positioning works of NCTPS

Feeder II, the 230 KV Bus was made dead and works were carried out and at 05:29 hrs on 05-08-2015, 230 KV NCTPS–Tondiarpet feeder II was normalized.

To attend fault at 230 KV Tondiarpet SS in NCTPS # II, Unit 2 & 1 of Basin Bridge GPS was brought into service, in addition to picking up of generation at GMR to 192 MW.

24-09-2013	II & II	59	0.279700	BBGTPS	Unit 2: 12:46 hrs to 20:31 hrs. Unit 1: 15:35 hrs to 20:22 hrs.
				GMR	12:35 hrs : GMR generation 192 MW.

Necessity :
 12:38 hrs : NCTPS Unit 2 Hand Trip due to bus section 2 “R” phase CVT LC work.
 18.31 hrs: NCTPS U2 O/B (40 MW).

To carry out line clear works in bus section 2, of NCTPS and thus less generation in NCTPS the units at Basin Bridge GTPS were brought into service.

13-10-2013	I	32	0.040800	BBGTPS	Unit 1: 19:40 hrs to 21:18 hrs
				GMR	18:36 hrs : GMR generation 30 MW tripped due feeder tripping. 18:56 hrs: GMR DG4 on bar. 19:13 hrs: GMR generation picked up. 20:00 hrs: GMR generation 160 MW.

<p>Necessity : 18:36 hrs : 230 KV NCTPS–Tondiarpet feeder I tripped at both ends. Bus Bar Protection operated at 230 KV Tondiarpet SS due to major fault in Auto Transformer 2. 110 KV GMR – Chindhadripet feeder overloaded. Total Blackout in Chindhadripet, High Court, Sevenwells GMR Basin Bridge SS, BBGTPH and Mylapore. Unit 2 at Basin Bridge was asked to black start and generation picked up.</p> <p>Due to Bus Bar fault at 230 KV Tondiarpet SS and to contain the loading of 110 KV network in and around Mylapore area and to avoid cascading tripping due to overload, Unit I of Basin Bridge GTPH was brought into service, in addition to picking up of generation at GMR to 160 MW.</p>					
01-11-2013	I	31	0.030100	BBGTPS	Unit 1: 18:53 hrs to 20:00 hrs.
				GMR	From 06:40 hrs to 20:20 hrs. GMR generation was maintained 192 MW.
<p>Necessity : Unit I of Basin Bridge was put into service to meet out the Deepavali festival loads and to avoid any eventuality on the festival day on 02-11-2014 in addition to the generation at GMR (192 MW)</p>					
17-11-2013	I	33	0.070400	BBGTPS	Unit 1: 18:40 hrs to 20:00 hrs.
				GMR	07:50 GMR generation 192 MW.
<p>Necessity : 18:09 hrs: 110 KV Sriperumbudur – Porur feeder I and II tripped. 110 KV loads transfers done at Koyambedu and Sriperumbudur SS. In addition to GMR generation, Basin Bridge Unit I was put on bar during lighting peak hours in order to ensure the 110 KV network stability during the lighting peak hours.</p>					
21-03-2014	IV	33	0.052040	2.202	
Trial run for vibration analysis.					
18-04-2014	II	29	0.1247	BBGTPS	Unit 2 : 11:31 hrs to 16:47 hrs.
				GMR	09:20 hrs : GMR generation 183 MW. 09:38 hrs : Generation reduced from 183 MW to 138 MW due to Emergency S/d in DG4 due to liner temperature fluctuations. 19:13 hrs: GMR generation picked up 20:00 hrs: GMR generation 160 MW.
<p>Necessity : 10:03 hrs : 230 KV Kilpauk – NCTPS feeder tripped. 230 KV NCTPS – ETPS feeder tripped. 10:05 hrs : 110 KV RA Puram loads were transferred from Mylapore to Tharamani. 10:08 hrs : 230 KV Korattur – Koyambedu feeder hand tripped to limit the loads of 230 KV TPT – NCTPS # 2 and 230 KV Manali – Korattur feeder.</p>					

To limit the loading of 230 KV NCTPS–Tondiarpet feeder II, Unit 2 of Basin Bridge was put on bar, in addition to generation at GMR (138 MW).

19-04-2014	II	29	0.1002	BBGTPS	Unit 2 : 10:08 hrs to 17:17 hrs.
				GMR	04:55 hrs : GMR generation 183 MW till 24:00 hrs.

Necessity :

- 02:30 hrs : 400 KV Vallur – NCTPS Stg II feeder II tripped at both ends.
- 03:13 hrs : 400 KV Vallur – NCTPS Stg II feeder I tripped at both ends.
- 03:28 hrs: 400 KV Vallur - Alamathy feeder I tripped at Vallur end.
- 03:51 hrs: 230 KV NCTPS – Tondiarpet feeder II tripped at both ends.
- 04:00 hrs: 230 KV NCTPS – Tondiarpet feeder I tripped at both ends.

To limit the loading of 230 KV Manali–Mylapore feeder and to support 110 KV network as the office loads started picking up, Unit 2 at Basin Bridge was brought into service in addition to generation at GMR (183 MW).

Eventhough tripping had occurred in the early morning hours, as the loads were in the manageable limit, BBGTPS units were brought into service only when the office loads started picking up.

20-04-2014	I, II	10	0.0215	BBGTPS	Unit 2 : 05:48 hrs to 08:04 hrs Unit 1 : 06:54 hrs to 08:19 hrs
				GMR	0-24 hrs : GMR generation 183 MW

Necessity :

- 02:43 hrs : 400 KV Vallur – NCTPS Stg II feeder I tripped at both ends.
- 03:24 hrs : 400 KV Vallur – NCTPS Stg II feeder II tripped at both ends.
- 03:45 hrs: 230 KV NCTPS - Kilpauk feeder tripped at NCTPS .
- 03:52 hrs: 400 KV Vallur – Alamathy feeder I tripped at Vallur.
- 03:53 hrs: NCTPS Stg II – Unit 1 & 2 (600 MW each) tripped.
- 03:58 hrs: 400 KV Kalivanthapattu – Vallur feeder II tripped at both ends.
- 03:58 hrs: 400 KV Vallur – Alamathy feeder II tripped at both ends.
- 04:29 hrs: 230 KV NCTPS – Tondiarpet feeder I tripped at both ends.
- 04:50 hrs: Vallur Units 1 and 2 tripped (500 MW each).
- 400 KV Vallur – Kalivanthapattu feeder I tripped.
- 05:19 hrs : 230 KV NCTPS – Tondiarpet feeder II tripped at both ends.

Vallur units 1 & 2 & NCTPS Stg II Unit 1 and 2 got tripped. Due to outage of major multiple units, the system became unstable and to augment the power shortage, units 1 & 2 at BBGTPS were operated to maintain grid discipline to some extent.

To ensure the City network security, Unit 2 & 1 at Basin Bridge was brought into service in addition to generation at GMR 183 MW.

21-04-2014	I, II	47	0.3504	BBGTPS	Unit 1 : 11:15 hrs to 24:00 hrs. Unit 2 : 06:16 hrs to 09:09 hrs. 11:25 hrs. to 12:17 hrs.
				GMR	GMR generation 183 MW till 24:00 hrs.

<p>Necessity :</p> <p>03:45 hrs : 230 KV NCTPS – Kilpauk feeder tripped at both ends. 04:02 hrs : 400 KV Kalivanthapattu – Vallur feeder I H/t at both ends. 04:44 hrs: 400 KV Vallur – Alamathy feeder I tripped at both ends. 05:32 hrs: 230 KV NCTPS – Tondiarpet feeder I tripped at both ends. 05:47 hrs: 230 KV NCTPS – Tondiarpet feeder II tripped at both ends.</p> <p>Vallur evacuation feeders tripped causing generation loss.</p> <p>To meet out the city morning load unit 2 of Basin Bridge was on bar at 0.16 hrs. Neyveli TS1 9A got tripped 50 MW, Neyveli TS2 (E) Unit I 200 MW taken off bar due to Boiler side problem.</p> <p>To meet out the shortage in the Grid, and increasing loads of Chennai city, Units 1 & 2 of Basin Bridge was put on bar.</p>					
22-04-2014	I, II	63	0.6243	BBGTPS	Unit 1 : 00:00 hrs to 10:32 hrs. Unit 2 : 05:08 hrs to 15:43 hrs.
				GMR	183 MW till 24:00 hrs.
<p>Necessity :</p> <p>04:24 hrs : 230 KV ETPS – NCTPS feeder tripped at both ends. 04:27 hrs : 230 KV NCTPS – Kilpauk feeder tripped at both ends. 04:34 hrs: 230 KV NCTPS – Tondiarpet feeder II tripped at both ends. 04:50 hrs: 230 KV NCTPS – Tondiarpet feeder I tripped at both ends.</p> <p>To meet out the city morning load Unit 2 of Basin Bridge was on bar at 05:08 hrs. To meet out the shortage in the Grid, Unit 1 & 2 of Basin Bridge was put on bar.</p>					
23-04-2014 & 24-04-2015	I to IV	97	1.00336	BBGTPS	Unit 1: On 23.4.14, 06:37 hrs to 15:15 hrs. 18:54 hrs to 20:10 hrs. 22:05 hrs to 23:57 hrs. Unit 2: 09:50 hrs to 20:02 hrs. 22:22 hrs to 00:05 hrs. on 24-4-15. Unit 3: 10:43 hrs to 11:24 hrs. on 23-4-14. Unit 4: 11:17 hrs to 20:39 hrs. on 23-4-14. 2:38 hrs to 00:09 hrs on 24-4-15.
To maintain uninterrupted power supply in view of Parliament election				GMR	On 23-4-14, 03:00 – GMR generation 183 MW 17:45 – Reduced from 183 MW to 160 MW. 18.00 – GMR generation 160 MW 18.45 – Pick up from 160 MW to 183 MW. 19:05 – GMR generation 183 MW

Necessity :

09:32 hrs: Basin Bridge units were brought up to meet out office and commercial loads and grid requirement and peak hour loads.

11:05 hrs: OD/BBGTPS informed that in Unit No.3 condenser chamber temperature high. Unit No.4 was asked to start generation.

To maintain uninterrupted power supply in view of parliament election.

4.4. At the time of establishment of BBGTPS in the year 1996, cost of Naphtha fuel was Rs.7000/- MT and the cost of fuel was about Rs.6 to 7 when the cost of fuel in respect of other Gas Turbine Power Station was about Rs.2 to 3 per unit. The basic purpose of establishment of BBGTPS is to meet out loads requirement in peak hours and any emergency in the grid at the shortest possible time and avoiding cascade tripping of generating units and 230/110 KV feeders thereby restoring grid stability. Therefore, the Commission may consider BBGTPS as a part of grid stability mechanism rather than a power generating station and it may be exempted from the ambit of "Merit Order Dispatch".

4.5. As per clause 5.8 (c) of IEGC, 2010, priority shall be given to essential load while restoring supply. Since BBGTPS is an open cycle plant and the units are being operated intermittently, to meet emergency and peak hour loads, cost of generation is more i.e. Rs.20 to 21 / unit. If Gas / RLNG linkage is made available at Chennai, this station will be converted into combined cycle plant and it will become a base load station and the cost of generation will be comparable with that of other Gas Turbine Power Station. Till such time gas linkage is made available at Chennai, BBGTPS may be exempted from Merit Order Dispatch.

5. Findings of the Commission:-

5.1. We have carefully considered the prayers of the Petitioner which are as follows:-

- a) Ratification and approval of the Commission for having generated the real power of 0.86546 MU in FY2013-14 and 2.22936 MU in April 2014 under unavoidable emergency circumstances and even when other similar power source of GMR was available / not able to meet the instantaneous grid requirement.
- b) To grant approval to operate the machines under trial run to check their healthiness and to keep them ready for emergency operation.
- c) To exempt BBGTPS from the ambit of Merit Order Dispatch considering the essentiality of the operation of BBGTPS and the circumstances under which it is being operated.

5.2. It may be seen that the first prayer of the Petitioner is for ratification and approval of the Commission for the action of having generated real power of 0.86546 MU in FY2013-14 and 2.22936 MU in April 2014 under unavoidable emergency circumstances and even when other similar power source of GMR was available / not able to meet the instantaneous grid requirement.

5.2.1. In order to examine the merits of the prayer, it is necessary to go into the averments of the Petitioner in the affidavit. It is to be noted that the Petitioner has furnished the reasons for generation of real power month wise. At BBGTPS, 4 Units of 30 MW each are available. The reasons for operating the Units as such are as follows:

Month	Generator operated	Units generated in MU (Gross)	Reasons
May 2013	III & IV	0.04922	Unit – III has been operated as a trial run after replacement of generator bearings and Unit – IV was also operated to check the vibration of its bearings.
July 2013	II & IV	0.1513	To maintain grid stability due to tripping of 230 KV Tondiapet NCTPS Feeder I & II.

August 2013	I & II	0.1919	To maintain grid stability and avoid cascade tripping of generating units due to tripping of 230 KV Tondiarpet – NCTPS Feeder – I & 230 KV Manali-Tondiarpet Feeder.
September 2013	I & II	0.2797	During the visit of Hon'ble President of India to the function held at Nehru Indoor Stadium on 24-09-2013 to meet out emergency if any arises.
October 2013	I	0.0408	Tripping of 230 KV Tondiarpet – NCTPS – Feeder I
November 2013	IV	0.1005	Due to interruption of supply on 01-11-2013 on the eve of Deepavali festival on 02-11-2013 and interruption on Velachery area on 17-11-2013.
March 2014	IV	0.05204	Trial run for vibration analysis
Total generation in FY 2013-14		0.86546	

From the above table it can be seen that the Power station has not generated energy continuously and during the months of April 2013, June 2013, December 2013, January 2014 and February 2014 the power has not been generated.

5.2.2. Further, in the Affidavit dated 12-05-2015 also, the Petitioner has submitted the reasons for operating the BBGTPS. In the said Affidavit, the reason for running the Gas Station with running hours and the necessity has been explained in detail. The additional details submitted are as follows:

DATE	REASON
8-5-2013, 9-5-2013, 10-5-2013 & 31-7-2013	To avoid overloading and cascade tripping of above feeders and to maintain the system in stable condition and to extend supply to Mylapore area, Unit 2 & 4 of Basin Bridge generation was brought into service, in addition to 144 MW generation at GMR.

4-8-2013 5-8-2013	&	To attend fault at 230 KV Tondiarpet SS in NCTPS # II, Unit 2 & 1 of Basin Bridge GTPS was brought into service, in addition to picking up of generation at GMR to 192 MW.
24-9-2013		To carry out line clear works in bus section 2, of NCTPS and thus less generation in NCTPS the units at Basin Bridge GTPS were brought into service.
13-10-2013		Due to Bus Bar fault at 230 KV Tondiarpet SS and to contain the loading of 110 KV network in and around Mylapore area and to avoid cascading tripping due to overload, Unit 1 of Basin Bridge GTPS was brought into service, in addition to picking up of generation at GMR to 160 MW.
1-11-2013 17-11-2013	&	In addition to GMR generation, Basin Bridge Unit 1 was put on bar during lighting peak hours in order to ensure the 110 KV network stability during the lighting peak hours.
21-3-2014		Trial run for vibration analysis.

5.2.3. The reasons stated for running the Units seems to be acceptable and hence, the Commission accepts the reasons submitted by TANGEDCO and hereby approve the generation of power from BBGTPS to a quantum of 0.86546 MU for FY2013-14.

5.2.4 In respect of power generated for the month of April 2014, the Petitioner has stated that the EHT Lines as detailed below got tripped due to mist with severe atmospheric conditions prevailed at the early hours of the day in NCTPS and Vallur areas. During such worst atmospheric condition, all the 400 KV evacuation feeders of Vallur Thermal Power Station and 230 KV Tondiarpet feeders 1 and 2, 230 KV NCTPS-Kilpauk feeder and 230 KV NCTPS-ETPS feeder got tripped and became faulty frequently which causes the network overloading in Tondiarpet and Mylapore SS. It has been further stated, that in order to overcome the critical situation and to avoid black out in the Chennai city areas and maintain stability of Chennai network,

running of Units of BBGTPS has become very much essential in transmission network contingencies in Tondiarpet and Mylapore areas.

Date	Feeders tripped
18-04-2014	110KV Sriperumbudur – Arni 400 KV Vallur – Alamathy # 2 tripped at both ends 110 KV Veerapuram – Nemmali 110 KV Sriperumbudur – Arni feeder tripped at Sriperumbudur 230 KV NCTPS- Tondiarpet # 1 230 KV NCTPS – ETPS tripped at both ends 230 KV Kilpauk – NCTPS tripped at Kilpauk 230 KV NCTPS – ETPS tripped at both ends
19-04-2014	400 KV Vallur – NCTPS Stage II feeder – II 400 KV Vallur – NCTPS Stage I feeder 400 KV Vallur – Alamathy feeder – I 230 KV NCTPS – Tondiarpet feeder – II 230 KV NCTPS – Tondiarpet feeder – I
20-04-2014	<p><u>Vallur Thermal Power Station:</u> 400 KV Vallur – NCTPP feeder – I 400 KV Vallur – NCTPP feeder – II 400 KV Vallur – Alamathy feeder – II & 400 KV Vallur – Kalivanthapattu feeder – II 400 KV Vallur – Alamathy feeder – I Vallur Unit – I & II & 400 KV Vallur – Kalivanthapattu feeder – I</p> <p><u>North Chennai Thermal Power Project:</u> Both units got tripped on turbine over speed protection 230 KV NCTPS – Tondiarpet feeder – I 230 KV NCTPS – Kilpauk feeder 230 KV NCTPS – Tondiarpet feeder II</p>
21-04-2014	230 KV NCTPS – Kilpauk 400 KV Vallur – NCTPS-I 400 KV Vallur – Alamathy feeder-I 230 KV NCTPS –Tondiarpet feeder – I 230 KV NCTPS –Tondiarpet feeder – II
22-04-2014	230 KV ETP-NCTPS 230 KV NCTPS-Kilpauk 230 KV NCTPS – Tondiarpet feeder – I 230 KV NCTPS – Tondiarpet feeder – II
23-04-2014 & 24-4-2014	To maintain grid stability in view of Parliamentary Election held on 24-04-2014

5.2.5. Further, in the Affidavit dated 12-05-2015, the Petitioner has further submitted the following additional details which are as follows:

Date	REASON
18-04-2014	To limit the loading of 230 KV NCTPS – Tondiarpet feeder II, Unit 2 of Basin Bridge was put on bar, in addition to generation at GMR (138 MW).
19-4-2014	To limit the loading of 230 KV Manali – Mylapore feeder and to support 110 KV network as the Office loads started picking up, Unit 2 at Basin Bridge was brought into service in addition to generation at GMR (183 MW).
20-4-2014	Vallur Units 1 & 2 & NCTPS Stage II Unit 1 and 2 got tripped. Due to outage of major multiple units, the system became unstable and to augment the power shortage, Units 1 & 2 at BBGTPS were operated to maintain grid discipline to some extent. To ensure the City network security, Unit 2 & 1 at BBGTPS was brought into service in addition to generation at GMR (183 MW)..
21-4-2014	To meet out the city morning load Unit 2 of BBGTPS was on bar at 06:16 hours. Neyveli TS 1 9A got tripped 50 MW, Neyveli TS2 € Unit 1 200 MW taken off bar due to Boiler side problem. To meet out the shortage in the Grid and increasing loads of Chennai city, Units 1 & 2 of BBGTPS was put on bar.
22-4-2014	To meet out the city morning load Unit 2 of BBGTPS was on bar at 05:08 hours. To meet out the shortage in the Grid, Unit 1 & 2 of Basin Bridge was put on bar.
23-4-2014 & 24-4-2014	To maintain uninterrupted power supply in view of Parliament Election.

It can be seen that during April 2014, BBGTPS has generated 2.22936 MU and the expenditure incurred for generation of the same is Rs.445.885 lakh. This cost is related with the cost of Naphtha and HSD oil. The cost per unit translates to Rs.20/- per unit.

5.2.6. The reasons for running the Power Station can be accepted by the Commission, but the associated cost involved is Rs.20/- per unit in respect of Fuel Cost. This cost is highly exorbitant and the energy available from the BBGTPS is outside Merit Order Dispatch.

5.2.7. It is pertinent to mention here that the Commission in previous occasions while allowing the power purchase from the high cost IPPs' and ETPS which are covered under Merit Order Dispatch has allowed only upto the Average Rate of Realization of the Petitioner for the purpose of Annual Revenue Requirement (ARR).

5.2.8. In view of the same, the Commission deems it fit to approve the generation from the BBGTPS for the FY 2013-14 and for the month of April 2014.

5.3. The second prayer is to allow the machines to operate under trial run to check their healthiness and to keep them ready for emergency operation.

5.3.1 The prayer sounds to be reasonable and the Commission allow the Petitioner to run the machine under trial run to check their healthiness and to keep them ready for emergency operation.

5.3.2 However, if sufficient power to meet the demand is available from other sources, where the cost of such power is less than the variable cost of this station, the Petitioner by the principles of merit-order shall endeavor to curtail or stop availing from the station.

With the above Orders, the M.P.No.32 of 2014 is disposed off.

6. Appeal:-

An appeal against this order shall lie before the Appellate Tribunal for Electricity under section 111 of the Electricity Act, 2003 within a period of 45 days from the date of receipt of a copy of this order by the aggrieved person.

(Sd.....)
(G.Rajagopal)
Member

Sd.....)
(S.Akshayakumar)
Chairman

/ True Copy /

Secretary
Tamil Nadu Electricity
Regulatory Commission

