



ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

4TH Floor, Singareni Bhavan, Red Hills, Hyderabad 500004

O.P. No.12 of 2010

Dated 03.06.2016

Present

**Sri P. Rama Mohan,
Member and Adjudicating Officer**

In the matter of enquiry into non-compliance of backing down instructions of the Andhra Pradesh State Load Dispatch Centre (APSLDC) by M/s GVK Power & Infrastructure Limited., during the period from June, 2007 to May, 2010 and for imposing penalty in the petition filed by APSLDC under Section 33 read with Sections 143 and 144 of the Electricity Act, 2003 in O.P. No.12 of 2010 before the Commission.

Between:

A.P. State Load Dispatch Centre (APSLDC) through APTRANSCO

..... Petitioner

AND

1. M/s GVK Power & Infrastructure Limited

..... Respondent No.1

2. M/s GVK Industries Limited

..... Respondent No.2

This petition has come up for hearing finally on 29-12-2015 in the presence of Sri P. Shiva Rao, Legal Advisor for the petitioner, APSLDC and Sri M. Sodekar, Advocate for the Respondents and after hearing both the parties extensively and carefully going through the material on record passed the following:

ORDER

A Petition is filed by the above petitioner u/s 33 r/w Sections 143 & 144 of the Electricity Act, 2003 in the matter of Non-compliance of backing down instructions of APSLDC by the Independent Power Producers (IPPs) during the period from June 2007 to May 2010 praying for certain reliefs.

Background Facts in brief:

1. On 23-07-2010, APSLDC filed a petition before the Commission alleging that M/s GVK Power & Infrastructure Limited did not comply with the backing down instructions given by it under Section 33 of the Act and requested the Commission to appoint an Adjudicating Officer to enquire into the matter, to direct the Adjudicating Officer to pass order requiring M/s GVK Power & Infrastructure Limited Ltd. to pay Rs.5,00,000/- for each non-compliance and to direct the Respondents to pay the costs of litigation.
2. The said petition in O.P.No.12 of 2010 came up for hearing before the Commission on 05-01-2013 and after hearing the rival contentions, the Commission passed a detailed Order on 15-04-2013, wherein, in exercise of powers vested in it, Sri.R. Ashoka Chary, the then Member of Commission was appointed as an Adjudicating Officer to conduct enquiry into alleged non-compliance of backing down instructions issued by APSLDC to the GVK Power & Infrastructure Limited.
3. In pursuance thereof, the Adjudicating Officer commenced enquiry proceedings in the presence of representatives of the parties concerned and while the matter was in progress before him, the petitioner filed I.A.No.38 of 2013 under Order I Rule 10 of the Code of Civil Procedure, 1908 read with Section 94 (2) of the Act contending that though the original respondent is obliged to perform duties under the Power Purchase Agreement entered into by GVK Industries Limited with APTransco and is an absolutely necessary party, by way abundant caution, the Petitioner proposed to implead M/s GVK Industries Limited as 2nd Respondent. The Petitioner claimed that the Commission/Adjudicating Officer has wide powers to add a party. The respondents in the Interlocutory Application contended that the Adjudicating Officer has no jurisdiction to join any new party to the dispute referred to him by the State Commission. The petition to implead the 2nd Respondent filed more than three years after the non-compliance with the backing down instructions is barred by law of Limitation. Order I Rule 10 of the Code of Civil Procedure, 1908 and Section 21 of the Limitation Act, 1963 stand against the petitioner. There is no privity of contract between the petitioner and the 1st Respondent and the 1st respondent cannot be made liable to any damages/claims and no relief is claimed against the 2nd Respondent. All the obligations arising out of the Power Purchase Agreement, the Electricity Act and the Grid Code are to be performed by the petitioner and the 2nd Respondent and the 1st Respondent is responsible only to perform its obligations under the OEM contract. The 2nd Respondent reserved its right to file a detailed counter against the allegations, averments and claims of the petitioner in the main petition and hence requested for dismissal of the petition for want of jurisdiction for the Adjudicating Officer.
4. The original respondent filed a Memo on 22-11-2013 narrating the events making it evident that the petitioner is aware of the respondent being the O & M operator of the proposed respondent and that the 1st Respondent is authorised to issue despatch instructions on behalf of GVK Industries Limited.

5. The Adjudicating Officer passed orders on 27-12-2013 referring to the pleadings and contentions of both the parties and opined that the delay in filing the implead petition by itself is not an incurable defect. He also opined that the power to implead the parties to the proceedings is not given to the Adjudicating Officer under Section 143 of the Act and the Commission alone is competent to take a decision with regard to the said petition. It would be appropriate to the Commission to examine the judgements cited and hence the Adjudicating Officer referred the petition for impleadment of the 2nd Respondent to the Commission for taking necessary action.

6. The learned counsel for both the parties were heard in extenso, and the Commission, in its Order dated 23-05-2015 has held that the impleadment of the 2nd Respondent cannot be considered impermissible or illegal though there is no specific provision for the same and such a question has to be considered as incidental, consequential and an inherent part of the jurisdiction conferred on the Commission and the Adjudicating Officer under Section 33,143 and 144 of the Act.

7. As the then Member of the then Commission had to leave the enquiry half way through due to the subsequent circumstances leading to constitution of the present Commission, a fresh Adjudicating Officer, who is a Member of the Commission as of now was to be appointed.

8. The undersigned was appointed as Adjudicating Officer under Section 143 of the Act to conduct enquiry into the matter, as contemplated under Sections 33,143 and 144 of the Act and in conducting such enquiry, he shall also be guided by the orders of the Commission dated 15-04-2013 and any rules framed by the State Government under Section 143 (1) read with Section 180 (2) (1) of the Act.

Enquiry Details

9. Accordingly, the Adjudicating Officer commenced enquiry proceedings and called for hearing both the parties on 14-09-2015 and directed the parties to appear before the Adjudicating Officer either in person or through their authorized representatives.

10. On 08-10-2015, the Petitioner filed certain information relating to Real time Operation and estimation of backing down quantity, Relevant sections in Electricity Act, 2003 relating to functions of SLDC, Compliance of directions Punishment for non-compliance of directions by Appropriate Commission, Power to Adjudicate and Factors to be taken into account by Adjudicating Officer, and Relevant IEGC Clauses, the Project Profile, Backing down clauses as per PPA and the Ramp Rates.

11. A copy of the same has been handed over to the Respondent and the matter was posted to 05-11-2015, for reply by the respondent.

12. The various real time operational issues involved and the other Indian Electricity Grid Code (IEGC) conditions are submitted by the petitioner and are extracted below:

Real time Operation and estimation of backing down quantity:

During real time operation load dispatch operators will operate the system continuously by balancing the load and generation depending on the schedule, availability, drawl and also with the help of previous day's load pattern. The under drawl and over drawl from central share will be estimated by the operator. Depending upon the above, the back down of generation will be done by the operator as per the merit order sequence. A list of generators in merit order sequence with costlier variable charges to cheaper variable charges with due consideration of incentives is available to operate for implementing the Merit order dispatch. The quantum of Backing down for each generator will be restricted upto respective generator technical limits and also as per the conditions of PPA. The shift engineers team estimate the quantum of generation to be backed down as and when required with the help of previous day's load curve, today's load curve so far, the difference between schedule and drawl, the weather condition at that point of time, whether the day is (holiday/festival day/Sunday), load changeover in the Grid etc at that instant. If further reduction in generation is required, as per merit order list they will issue to backdown instructions to next generator in Merit order sequence.

Central Generating Stations (CGS) are operating under ABT. In ABT regime SLDC has to inform schedule of CGS stations generation to RLDC before six time blocks i.e. one and half hour. Hence if we want to backdown CGS generation we have to inform before six time blocks. If the demand for backdown is required by grid immediately only APGENCO generators and IPPs can be backed down as there is no ABT regime for these generators.

Relevant IEGC Clauses

2.7 Role of SLDC

2.7.1 In accordance with section 32 of Electricity Act, 2003 the State Load Despatch Centre (SLDC) shall have following functions:

(1) The State Load Dispatch Centre shall be the apex body to ensure integrated operation of the power system in a State.

(2) The State Load Despatch Centre shall –

(a) be responsible for optimum scheduling and despatch of electricity within a State, in accordance with the contracts entered into with the licensees or the generating companies operating in that State;

(b) monitor grid operations;

- (c) keep accounts of the quantity of electricity transmitted through the State Grid;
- (d) exercise supervision and control over the intra-State transmission system; and
- (e) be responsible for carrying out real time operations for grid control and despatch of electricity within the State through secure and economic operation of the State grid in accordance with the Grid Standards and the State Grid Code.

2.7.2 In accordance with section 33 of the Electricity Act, 2003, the State Load Despatch Centre in a State may give such directions and exercise such supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in that State. Every licensee, generating company, generating station, sub-station and any other person connected with the operation of the power system shall comply with the directions issued by the State Load Despatch Centre under subsection (1) of Section 33 of the Electricity Act, 2003.

The State Load Despatch Centre shall comply with the directions of the Regional Load Despatch Centre.

PROJECT PROFILE: GVK – 1

INSTALLED CAPACITY: 217 MW (45.5 X 2 GT + 48.9 GT + 75.5 ST)

TARIFF YEAR 20TH JUNE TO 19TH JUNE

BACKING DOWN CLAUSES AS PER PPA.

2.1. B. No dispatch instruction shall require the Company

PPA Article 2.1.b(i): To operator the Project in manner which leads to a reduction in the gross generating capacity of more than 50% of the Declared Capacity for any period of time; or

PPA Article 2.1.b (ii): The backing down generation from the declared capacity where the aggregate duration of Backing down (including ramping time **but excluding back down in response to Emergencies and to avoid burning Alternate fuel (but not supplementary** fuel in accordance with Article 2.2(b) would exceed 12000 hours and (b) 120 hours in any billing month prior to COD.

PPA Article 2.1.b: If company has informed the Board regarding Gas Availability for a particular day, the company shall promptly notify the Board of such reduction or expected reduction and Board may **give another Despatch instruction to avoid burning or Alternate fuel (not supplementary fuel) notwithstanding the limitation of 50% of the Declared capacity.**

PPA Article 1.1.(i): Alternate Fuel: means Naphtha and, to the extent of naphtha is not available, any fuel other than gas or naphtha, such as low sulphur heavy stock,

furnace oil and the like, that can be used by one or more units of the project to generate from the project in substitution of gas.

PPA Article 1.1.Ixxxix) Supplementary fuel: means naphtha which is expected to constitute approximately 26% of the project's fuel in normal operations.

Dispatch Instruction (PPA Article 2.1(a)): Each such directive by the board to operate the Project at specified loading levels for specified durations for a scheduled day deemed to constitute one "Dispatch Instruction",

EXHIBIT – A Technical limits and parameters

RAMP RATES:

COMBINED CYCLE HOT START RAMP RATE: 18 MW / MINUTE

OPEN CYCLE: 4 MW / MINUTE / COMBUSTION TURBINE.

In all the non-compliance instructions the duration is more than sufficient for Ramping down. If the generation is less than two GTs, then 8 MW / Minute is considered otherwise as per above ramp rates as per PPA considered. So as per Ramp Rate, they can back down in the given duration. Hence the insufficient Ramping time does not arise.

The total duration of backing down requested in a Tariff year is not exceeded 1200hours (as per the annexure enclosed).

- a) Number of backing down instructions issued by SLDC in a day to M/s GVK Industries
- b) Backing down details of all the plants (day wise)
- c) Day wise backing down duration of M/s GVK Industries
- d) Generation data yearly backing down duration of M/s GVK Industries.
- e) Procedure followed by SLDC for the real time operation as per Merit Order Dispatch (MOD)
- f) Frequency of SR grid during 2007-10.

13. In response to the above mentioned information furnished by the APSLDC on 05-11-2015, the respondents submitted their written submissions on 06-11-2015 giving detailed reply against each backing down instruction given by the petitioner that is covered under the present dispute.

14. Further, in the above reply M/s. GVK Industries submitted that

a) The respondents humbly request the Ld. Adjudicating Officer to treat the counter affidavit, sub-rejoinder and additional information filed by it in the matter, as part and parcel of this reply. The respondent is not repeating or reproducing the

said contents for the sake of brevity. At the same time, the respondent is herewith filing data against each backing down instruction shown by the petitioner in its compilation dated 08-10-2015, along with the copies of correspondence showing the objections raised by it in complying with the improper instructions, categorically stating that such instructions are not in order. The said data of the respondent is filed and marked as Annexure - I to the submissions thereof.

b) It is humbly submitted that from the year 2003, the respondent was prevented from using Naphtha for generating power given as a standing instruction. This constitutes one backing down instruction as per PPA. As per the terms of clause 2.1 (a) of PPA, the petitioner cannot give more than one instruction in a day to back down the generation of power. Thus, the instructions to back down power generation given by the petitioner in addition to the above referred standing instruction not to use Naphtha, will amount to a second dispatch instruction and that the same is in violation of the PPA terms. As such, the respondent does not have any obligation to comply with the same.

c) From the statement filed by the petitioner on 8th October, 2015, it is submitted that the petitioner wantonly and deliberately did not mention the time of issuing any particular instruction, though, the duration of backing down was mentioned in the said statement. It is because of the said instructions were given instantaneously, without any end time and for no valid reason and that the petitioner has utterly failed to prove with the help of any evidence that the said instructions were given under emergency conditions. This fact can be established from the copies of backing down instructions given by the petitioner that were brought on record by the respondent. Further, from a plain observation of a number of instructions given in a month, it can be safely inferred that the same were not given under emergency conditions, but at the same time, the said instructions were issued for load management. As such, the claim of the petitioner falls off as envisaged under section 4.3.8 of the grid code read with clause 2.1(a) of the PPA.

d) Further, it can be observed from the data provided by the petitioner that the respondent was instructed to reduce generation below 50% of its declared capacity, that too without giving sufficient time to ramp down the generation machines. As and when such instructions are received the respondents had immediately responded by reducing load up to technical limits and intimated the petitioner the difficulties in complying with instructions, as envisaged under the terms of PPA as well as in terms of the grid code. As per the said terms, the petitioner is obliged in

law, to issue revised instructions with immediate effect and that if the petitioner fails to do so the respondent can continue generation as per the availability declaration given by it on the previous day, as contemplated under section 4.3.4 of the grid code. Clause 2.1.(b) of the PPA further contemplates that (i) to operate the project in a manner which leads to a reduction in the gross generating capacity of more than 50% of the declared capacity for any period of time; or (ii) to back down generation from the declared capacity where the aggregate duration of back down (including) ramping time but excluding back down in response to emergencies and to avoid burning alternate fuel (but not supplementary fuel) in accordance with article 2.2.(b) would exceed (A) 1200 hrs in any tariff year (B) 120 hrs in a billing month prior to the combined cycle COD, unless the board agrees to compensate the company in accordance with article 2.1(b). These conditions shall be in compliance with the conditions imposed under clause 2.2(a) for complying with the Prudent Utility Practices and under clause 2.2.(b) the board may give another despatch instruction over and above 1 existing instruction, to avoid alternate fuel (but not supplementary fuel) notwithstanding the limitation in article 2.1.(a). It may kindly be noted that Naphtha being the fuel that can be used as either supplementary fuel and / or alternate fuel, the respondent is restrained by the petitioner to use Naphtha as either supplementary or alternate fuel, though the PPA is permitting, due to the standing instruction given by the petitioner. As such, the petitioner is not entitled to give any further instructions, as envisaged under the terms of the PPA; and that all the instructions given by the petitioner in violation of the above referred PPA terms are illegal and arbitrary and as such, the non-compliance of the same does not tantamount to violation of the PPA / Electricity Act or the grid code by the respondent and thus the respondent is not liable to pay any penalty as claimed by the petitioner.

e) It may further be noted that the respondent had categorically intimated to the petitioner about the technical issues the generating units will face and that the instantaneous instructions would not only cause damages to the machinery but also leads to further liabilities with the gas suppliers and further stated that ***“.... as per our OEM recommendation, operating our gas turbine below 70% load on a continuous basis is not advisable due to uneven temperature distribution inducing higher thermal stress in the material of the hot gas path components. So operating the gas turbine below 70% capacity involves certain amount of risk resulting in possible machine failures and increased***

maintenance costs” As per the terms of the PPA under article 2, as well as that of section 4.3.6 of the grid code the respondent need not have to compromise on the safety of its plant, in order to comply with the inappropriate backing down instructions of the petitioner. Copies of correspondence addressed to the petitioner may kindly be referred to this effect, as part of Annexure -1. It is further submitted that the petitioner is misleading the Ld. Adjudicating Officer by misstating that the ramping down can be down at the rate of 18 MW per minute is utterly false. As per the technical limits of the project, the ramping shall be at the rate of 5 MW per minute. As such, the instantaneous instructions given by the petitioner could not be complied with keeping in view the safety of the plant, men and machinery. Even then, the respondent had complied with all backing down instructions within the possible technical limits in order to safeguard its plant, men and machinery.

f) It is further humbly submitted that the respondent is obliged to respect the gas grid safety conditions envisaged under the gas supply and transmission agreements and that it is obligated to make good the losses the service providers there under may incur due to sudden non-drawl of the daily quantities of gas agreed to be drawn by the respondent. In the present case, due to the instantaneous backing down instructions given by the petitioner, the respondent was unable to issue backing down / non-supply instructions to its gas suppliers and there by incurred huge financial burden in terms of minimum fuel off take charges and / or ship-or-pay charges. As per the terms of the PPA, the petitioner is liable to make good the losses so incurred by the respondent. The entire liability of the respondent in this regard cannot be attributed to the respondent as the said liability was accrued by the respondent due to utter failure of the petitioner in complying with its obligations under section 4.3.3 of the grid code, where under, the petitioner is obliged to give despatch instructions under the non-emergency conditions, by 1600 hrs on the previous day, to the generators (the respondent herein in this case), that too by duly considering availability declarations given by the respondent at 10.00A.M. on the previous day. As such, the petitioner is liable to reimburse all such expenses incurred by the respondent in terms penalty towards the minimum off take charges, as envisaged under the gas supply agreements, which were duly approved by the petitioner.

g) It can also be observed from the backing down instructions given by the petitioner that the same were not given under emergency conditions but the same were given only for normal load management under the head ***“until further***

instructions”. This goes to show the failure of the petitioner in properly scheduling the power generation and in maintaining the grid safety. These failures tantamount to the violation of the grid code on the part of the petitioner as envisaged under section 4.3 of the grid code as well as under the PPA. As such the respondent shall not be made liable to the penalties demanded under the present petition. At times the petitioner has issued more than two (2) despatching instructions in a day in violation of the PPA terms.

15. On behalf of APSLDC, reply is filed on 19-11-2015 along with the annexure-A & B thereof. In the reply it is stated that:

- a) As per PPA EXHIBIT-D Technical specifications of Equipment, the installed capacity of the Generators are Gas Turbines of capacity 45.8 MW, 45.8 MW and 48.9 MW and a steam turbine of capacity 75.5 MW. Total 216 MW capacity is installed. As per PPA article 2.1 (b) no dispatch instruction shall require the company to operate the project in a manner which leads to a reduction in the gross generating capacity of more than 50% of the Declared Capacity for any period of time. Duly considering above clauses of PPA and in compliance with the Act, Section 32 (2) (a) in accordance with contracts entered with generators, APSLDC, has been issuing backing down instructions. But as per section 32 (2) (a) of the Act, APSLDC have been taking suitable steps for optimum scheduling and dispatch of electricity in accordance with contract which is PPA in this case. APSLDC has informed the company regularly for their non-compliance as per the PPA clause 2.1 (b). Hence all the remarks claiming “complied up to Technical limits” is not acceptable. The respondent in their remarks to certain Backing down instructions, it is stated that as “DI beyond 1200 Hrs”. As per the definition in PPA “Alternate fuel means Naphtha in relation and, to the extent Naphtha is not available, any fuel other than gas or Naphtha, such as Low Sulphur Heavy Stock (LSHS), Furnace Oil and the like, that can be used, by one or more units of the project to generate power from the project, in substitution of gas”. Naphtha to the extent of non-availability of gas can be avoided as alternate fuel. These instructions cannot be mixed with the limitation of 1200 hours as per the PPA article 2(b)(ii). Hence the remarks stated as DI beyond 1200 hrs., is not acceptable and not valid. Further in respect of some instructions, Respondent felt and stated as “complied up to Technical Limits” as are submitted below. In fact they have not

even complied at less than 30%, and all the instructions are not complied to 50% PPA Limit.

| Sl. No. | Date | Time | Date | Time | Gen load | Done by GEN | Requested by SLDC | % age back down | |
|---------|-----------|-------|-----------|-------|----------|-------------|-------------------|-----------------|-------|
| 2 | 10-Jun-07 | 17:55 | 10-Jun-07 | 18:30 | 196 | 157 | 100 | 19.90 | 48.98 |
| 48 | 10-Sep-07 | 01:05 | 10-Sep-07 | 10:25 | 93 | 89 | 68 | 4.30 | 26.88 |
| 93 | 06-Oct-07 | 00:00 | 06-Oct-07 | 05:15 | 136 | 127 | 68 | 6.62 | 50.00 |
| 122 | 28-Jun-09 | 17:50 | 28-Jun-09 | 18:45 | 185 | 139 | 103 | 24.86 | 44.32 |
| 124 | 07-Jul-09 | 17:58 | 07-Jul-09 | 18:40 | 125 | 108 | 68 | 13.60 | 45.60 |
| 126 | 08-Jul-09 | 18:05 | 08-Jul-09 | 18:27 | 130 | 124 | 67 | 4.62 | 48.46 |
| 127 | 10-Jul-09 | 01:45 | 10-Jul-09 | 03:10 | 129 | 113 | 68 | 12.40 | 47.29 |
| 128 | 12-Jul-09 | 18:00 | 12-Jul-09 | 18:45 | 123 | 113 | 68 | 8.13 | 44.72 |
| 130 | 05-Sep-09 | 01:10 | 05-Sep-09 | 03:00 | 192 | 145 | 103 | 24.48 | 46.35 |

As per PPA article 1.1 (xii) Technical Limits defined as the limits and constraints described in Exhibit A hereto relating to the Operation and Maintenance of the project. A copy of Exhibit-A in the PPA with Technical Limits and parameters including Ramp rates and machine performance curves are attached thereto as Annexure-A.A copy of Article 2.1(b) of PPA enclosed as Annexure-B.

(b) In reply to para (3),

Usage of alternate fuel Naphtha is optional. Generation with alternate fuel should be only as per instructions of APSLDC. The petitioner issued standing instructions not to use Naphtha, due to its prohibitive cost. Therefore the backing down instruction issued by APSLDC during real time operation of the power system do not contain about Naphtha, since there are already standing instructions to that effect. Hence the contention of respondent that the back down issued during the day of operation should be construed as the second instruction does not stand to logic or reason. Further as per Article 2.1(a) of PPA, limitation of dispatch instructions is in addition to dispatch instructions issued in response to an emergency or to avoid burning alternate fuel.

Respondent at this stage also claimed that “Respondent does not have any obligation to comply with”. It clearly reflects the intention of the Respondent not to comply with the SLDC directions. As per Electricity Act, 2003, it is the responsibility of the respondent to comply with the SLDC directions.

(c) In reply to para 4,

As per the system demand, decision to back down of generation will be arrived at. Accordingly APSLDC issued backing down instruction to generators and it cannot be deferred or planned in advance since it requires instantaneous action in the wake of Grid security. In our data it is specifically stated that spill over condition of Srisailem / Nagarjuna sagar for @85 instructions. Respondents' statement that petitioner "utterly failed to prove with the help of any evidence that the said instructions were given under emergency conditions" is not true.

Further as per article 2.1 (a) of PPA, limitation of dispatch instructions is in addition to dispatch instructions issued in response to an emergency or to avoid burning alternate fuel. Therefore both types of dispatch instructions cannot be mixed up to ascertain non-compliance or otherwise.

(d) In reply to para 5,

Respondent failed to state specifically in any of the remarks given as ramping time is insufficient.

As per the system demand, decision to back down the generation will be arrived at. Accordingly APSLDC will issue backing down instruction to generators and it cannot be deferred or planned in advance as it requires instantaneous action in the wake of Grid security.

Declared capacity is defined in the PPA as maximum output the project is capable of generating in that settlement period at inter-connecting point. The company will give the capacity notice stating Declared Capacity for each settlement period. Accordingly SLDC will back down 50% of declared capacity if required. Technical Limits, duration of backing down are as per reply stated in para 2 above.

(e) In reply to para 6,

Technical Limits and parameters are clearly defined in Article 1.1 (xliii) and Exhibit-A of PPA. Combined cycle (all generators operating) hot start Ramp rate is specified as 18 MW per minute. If any recommendations from OEM is there, then it is to be amended in the PPA of M/s GVK Industries. Under the guise of safety they cannot violate and create insecurity grid.

(f) In reply to para 7,

Only as per PPA and Grid Code, the dispatch instructions are given.

(g) Regarding Naphtha, reply is as per Para 2.

All non-compliance instructions are enclosed as Annexure – C.

All non-compliance instructions during reservoir spill over are enclosed as Annexure-D

All non-compliance instructions where non-compliance is more than 50% is enclosed as Annexure-E.

Under these circumstances and submissions, it is clearly evident the respondent has not complied with the instructions of APSLDC. Hence it is prayed that the Hon'ble Adjudicating Officer may be pleased to reject the memo and submissions of respondent, and allow the petition as prayed for.

16) The Respondent, in his submissions made on 05-12-2015, requested to condone the delay in filing the submissions wherein he has filed the following documents:

i. Gas Authority of India Limited Letter dated: 07.01.2002 to GVK Industries Limited regarding reduction of Gas supply.

ii. GVK Industries vide Letter dated:07.01.2002 intimated to the Chairman & Managing Director, AP Transco, regarding Gas Supply situation for the Project and due to short supply of Gas, GVK Industries is planning to go on mixed fuel operation using Naphtha as Supplementary fuel from 10.01.2002 onwards.

iii. AP Transco vide Reply dated:11.01.2002 informed to GVK Industries "AP Transco is not agreeable for usage of Naphtha as Supplementary fuel and requested to limit the generation to the extent of gas availability.

iv. GVK Industries vide Letter dated: 11.01.2002 replied to AP Transco that Company is entitled to claim for Deemed/Notional Generation as per clause 3.10.1 and 3.10.2 of PPA, if company is directed to limit the Generation only to the Gas availability without burning Naphtha.

v. Fax Message dated: 26.05.2007 from DE/LD to M/s GVK Industries that "Please Generate with available gas and stop generating with Naphtha from 21.00 Hrs/26.05.2007 till further instructions."

vi. Respondent's letter dated 16.07.2007 addressed to the Executive Director, Grid Operations, intimating that the plant was instructed to backing down for 1200 hrs in the tariff year 2006-07.

vii. A letter dated 13.07.2004, from ALSTOM, the OEM contractor of the Respondent Company to our Operations head, certifying that as per the technical parameters, the plant shall not run below 70% of its capacity, on a continuous basis, as some EV burners groups would remain switched off at such load points which could lead to an uneven temperatures distribution which could induce higher thermal stress in the material of the hot gas path components. Moreover, NoX level would increase substantially and also an increase of the pulsation levels cannot be ruled out.

viii. It may kindly be noted from the pleadings and evidence available on record that the Petitioner had grossly failed to prove that the second instruction given by it was given under "Emergency conditions. As such, the Petitioner has violated the PPA terms.

17) The Respondents further submitted that:

"From a plain reading of terms of Article 2 of the PPA dated 19.04.1996, it can be observed that the instructions given by the Petitioner through the above referred documents are in complete violation of the terms of the PPA. The PPA categorically entitles the Respondent to use Naphtha as an Alternate Fuel as well as Supplementary Fuel for generating power. Thus, the instruction through letter dated 26.05.2007 restraining the respondent from using Naphtha was to be considered as one standing instruction and any subsequent instructions given in addition to the said standing instruction shall be considered a a second instruction, which is in violation of the PPA terms and that the Respondent is not obliged to comply with such conditions, as empowered by the very same PPA. Further, due to the lack of sufficient gas quantities and due to the restraint imposed by the Petitioner from using Naphtha, the respondent's plant was operating below 50% of its capacity and

that any further instruction to back down may pose danger to the Respondent's men and machinery, as the Prudent Utility Practices envisaged under the PPA. As such, the Petitioner's instructions to back down generation over and above one standing instruction to avoid using Naphtha should be considered as in violation of the PPA terms and that the non-compliance with such backing down instructions by the Respondent shall not be considered as violation of terms of the PPA. The Petitioner is also governed by the provisos to Sections 32 and 33 of the Electricity Act, 2003, as well as the terms of the Grid Code, which obligates the Petitioner to respect the terms of the PPA and the Prudent Utility Practices. It may kindly be noted that there was no supply of sufficient Gas quantities at the relevant time and as such, it was incumbent on the Respondent to use Naphtha either as an Alternate Fuel or as a Supplementary Fuel, depending upon the circumstances prevailing on a given day.

Even facing the constraints narrated hereinabove, to maintain the Grid safety, the Respondent had backed down the generation to the technical limits prescribed to it. As such, the acts of the Respondent in partial compliance with the backing down instructions shall be construed as fully compliance with the terms of the PPA, the Electricity Act, 2003 as well as the Grid Code."

18) In the written arguments submitted on 5th January 2016, the Respondents have contended that the respondent No. 2 had engaged the respondent No.1 as its OEM contractor and the respondent No.1 is entitled only to generate power to supply to the APTRANSCO and that it has not been assigned with any of the rights are obligations of the respondent No.2, under the PPA and as such, the respondent No.1 was not a proper party to the case in hand.

The Respondents submitted that it is binding on the petitioner that it shall respect the technical terms of the PPA while scheduling the power despatch from the generators in the State as per the Grid Code, 2000. The Respondents contend that the provisions under the section 32 of the Act should be read in conjunction with provisions of the section 33 of the Act and the order of the sections also determines that the petitioner should honour first the contractual terms between the parties before issuing any despatch instructions to the respondents. The respondent No.1 submitted that being only an OEM contractor to the respondent No.2 and not being a party to the PPA as such it will not fall within the purview of these proceedings and its name shall be deleted from the list of respondents to the case.

19) The Respondents, while accepting that the APERC was pleased to appoint afresh, the Ld. Adjudicating Officer to inquire into the facts of the matter, including but not limited to the issue of legality in making Respondent No.1 as a party to the present case, for the reasons that were submitted before the APERC while appointed the a fresh Adjudicating Officer, again reiterated its contention that it is only an OEM Contractor to the respondent No.2 and that it is not a party to the PPA and as such, it will not fall within the purview of these proceedings and that its name shall be deleted from the list of Respondents to the case.

20) Further, the Respondents have stated that the petitioner is obliged to follow the terms of the PPA, the Act and the Code all instructions issued by it shall be within the precincts of the binding principles envisaged thereunder, it can be observed from the original list of compliances filed by the petitioner in the present case, in comparison to the list of non-compliances shown by them in the data sheet submitted on 22-12-2015, the number of violations initially alleged were brought down from 137 to 30. Subsequently, during the hearing held on 29-12-2015, the petitioner had further admitted that out of the said 30 non-compliances, another 13 can be exempted. The allegation of the petitioner against those 13 violations also did not stand the test of law, as the same were computed based on the output of the project at that instant instead of considering the declared capacity of the project. Had the petitioner considered the backed down quantities based on the declared capacity, as admittedly done by the petitioner with regard to other instructions, there would not have been any violation with regard to the said 17 disputed instructions. Thus it can be safely interpreted that the petitioner has admitted and conceded that its claim of relating to 120 alleged non-compliances against the original number of 137 non-compliances was in fact wrong and that the compliances made by the respondent No.2 with reference to the said 120 instructions were proper and legal as the same were within the precincts of the Act, the Code and the PPA and that there remain only 17 alleged non-compliances that are to be dealt with by the Ld. Adjudicating Officer to test the compliances made by the respondent No.2. The Annexure -1 table reflects the final 17 alleged non-compliances that are to be dealt with by the Adjudicating Officer. The respondents contended that as per the Code the petitioner can instruct the respondent to back down its generation, as part of Grid operations and maintenance. But at the same time, the petitioner has to comply with certain terms of PPA, the Code and with the Act. As per the PPA, the petitioner has to observe and respect the technical limits of the generating turbines

either to ramp up or ramped down the power generation. The petitioner is also obliged to respect the obligations of the respondent No.2 if it has any obligations to be complied with under ancillary or incidental agreements that were entered into with any 3rd party, for the purpose of generating power. The petitioner is obliged to consider the threat to the project and the men working therein, as and when there are sudden backing down instructions seeking the reduction of larger quantum of generation, which may lead to tripping of the gas turbine, throwing the lives of the men to danger. In addition to it the petitioner will also be liable to make good the loss that the respondent No.1 had to incur in reference to the said instantaneous instructions as well as any liabilities incurred under the fuel supply agreements. While this being so, as per clause 4.3.6 of the Code, as and when there is an instruction from the petitioner, if the respondent No.2 feels that the same cannot be complied with due to the prevailing plant conditions / circumstances if the respondent No.2 intimates immediately to the petitioners, the petitioner is obliged to modify the instruction suitable. Failing which the instruction shall be considered as no instruction and that the respondent No.2 is entitled to continue the generation as per the availability declaration given by it on the previous day. The respondent No.2 could not comply with the Annexure-I backing instructions of the petitioner, as the same were given instantaneously without giving sufficient time to ramp down the generation and that the said instructions were given without any end time. When the respondent No.2 immediately intimated to the petitioner about the difficulties in complying with the said instructions, the petitioner did not take any steps to modify the instructions. As such, as stated above as per clause 4.3.6 of the Code, the instructions shall not be treated as instructions at all, and any non-compliance with the same as per the petitioner shall not be treated as non-compliance and that the respondent No.2 shall not be liable for any penalty. The copies of such correspondence, it is stated that, is already on the record and as such is not annexed now.

21) The Respondents submitted that as per clause 4.3.8.1 of the Code the petitioner is obliged to justify the instantaneous backing down instructions given under certain specific emergency conditions once the said emergency conditions were met with. Even though the Respondent No.2 had complied with such instructions to the maximum extent possible and within the technical limits of the projects keeping the safety of the project, men and machinery therein the petitioner

never justified that the instantaneous instructions so given were in fact given to meet the emergency conditions.

The Respondents further contended that Naphtha being the fuel that can be used as either the supplementary fuel and / or alternate fuel as per the terms of the PPA. Thus, the instructions to back down power generation given by the petitioner in addition to the standing instruction not to use Naphtha, will amount to a second despatch instructions and that the same is in violation of the terms of PPA by the petitioner.

22) So far as the quantum of penalty sought by the petitioner is concerned, the Respondent No.2 reiterated its stand that it has not violated any of the despatch instructions given by the petitioner and that it had complied with the same within the technical limits of the project and as such is not liable to pay any penalty. With regard to the petitioner seeking to impose a penalty of Rs.5 lacs (Rupees five lacs) against each violation or non-compliance with its backing down instructions, the Respondent No.2 relied upon the provisos to section 33, 143 read in consonance with section 144 of the Act. The respondent has tried to conclude that the Act is not prescribing penalty of Rs.5 lacs against each and every direction, but if there are more than one direction and if at all any violation is found, the maximum penalty that can be imposed shall not exceed Rs.5 lacs. Further, it contends that in the present case the petitioner has not provided with any evidence that the respondent No.2 has made any disproportionate gain or unfair advantage by violating the instructions. It further submitted that the respondent No.2 neither violated the instructions nor repeatedly violated the instructions. In fact, though the said instructions were bad in the eye of law, with intent to co-operating with the petitioner in safeguarding the grid safety the respondent No.2 had reduced / backed down the generation of the plant to the maximum level within the technical limits, while in doing so the respondent had to face certain liabilities under the fuel supply agreements it had entered into with 3rd parties.

23) For the reasons stated herein above, that Respondent No.1 prayed that the Ld. Adjudicating Officer to consider the submissions made by it and be pleased to delete its name from the array of parties to the case; and to declare that the Respondent No.1 is not liable to pay any penalty as demanded by the petitioner. The Respondent No.2 prayed that the Ld. Adjudicating Officer to be please to considered the submissions made by it and to treat the Acts of the Respondent No.2

are fully compliant with law, that the backing down instructions given by the petitioner were bad in the eye of law; the compliances made by the Respondent No.2 in backing down the generation was proper in the prevailing circumstances, and that the Respondent No.2 is not liable to pay any penalty, much less the penalty as demanded by the petitioner herein and that the Ld. Adjudicating Officer may please be dismiss the petition / claim made by the petitioner.

24) The Petitioner submitted its reply on 29.01.2016 to the submissions made by the respondents wherein it is submitted that:

a) In reply to the claim that the Respondent No.1 is not a proper party to the case on hand and that the respondent No.2 is entitled to engage contractor for operations without any consent from the petitioner, the petitioner, quoting section 33(2) of the Electricity Act, 2003 submitted that every Licensee, generating company, generating station and any other person connected with the operation of the power system shall comply with the directions issued by the State Load Dispatch Centre under sub-section (1) thereof will make the 1st and 2nd Respondents liable to comply with the directions of the SLDC.

b) The Petitioner, denying the claim of the Respondent, submitted that as per sections 32 & 33 of the Electricity Act, 2003 Indian Electricity Grid Code, Code of Technical Interface and PPA, generator has to comply with the directives of SLDC and the respondent's contention of generating as per the availability declaration is factually incorrect, evidently false.

c) The Petitioner submitted that both the respondents are proper parties to the case.

d) The Petitioner submitted that the claim of the Respondents that it had accepted all as dispatch instructions and submitted remarks to all the instructions as complied is not correct, and denied the remarks that for some of the instructions, they were complied up to technical limits. Hence once again the Petitioner submitted the details of non-compliance i.e., list of non-compliance instructions which are not even backed down upto 70% of DC or upto the limit of one gas turbine in combined cycle (68 MW) level to the Adjudicating Officer and that it cannot be construed as certain remaining instructions are exempted and stated that the petitioner never agreed for exemption of any of the instructions.

e) The Petitioner denied the claim of the respondent that all the instructions are complied with in terms of PPA, the Code and the Act as not correct. It reiterated that as per CTI clause 4.3.8.1, in high voltage management, failure of generator to follow

SLDC instructions will constitute a violation of CTI and will entail with consequence of penalties.

f) The Petitioner submitted that ramping time was allowed while deciding non-compliance and all the instructions have sufficient ramping time.

g) The Petitioner stated that all instructions during spill over periods of Nagarjuna sagar and Srisailem reservoirs in 2007 would come under high frequency management and the remaining instructions are given for load generation balancing in merit order dispatch.

h) The Petitioner stated that the usage of alternate fuel Naphtha is optional and should be used only as per instructions of APSLDC. The petitioner has issued standing instructions to respondents not to use Naphtha, due to its prohibitive cost. Therefore the backing down instruction issued by SLDC during real time operation of the power system do not contain about Naphtha, since there are already standing instructions to that effect. Hence the contention of the respondent that the back down issue during the day of operation should be construed as the second instruction does not stand logic or reason. Further as per clause 2.1(a) of PPA, there is no limitation of dispatch instructions in response to an emergency or to avoid burning alternate fuel. Hence it is not a violation of PPA or second dispatch instruction.

i) The Petitioner citing the order of CERC in petition no.80/2009 submitted that CERC penalized APTRANSCO against grid discipline at One lakh rupees per each instance totalling to Rs.1.22 Crores.

j) Referring to the Respondent's contention that it had many pending payments from the petitioner, the petitioner stated that energy charges were already paid to the respondents and the respondent has not complied with any of the said instructions issued by APSLDC.

k) Finally, the Petitioner prayed that Hon'ble Adjudicating Officer may please reject all the claims made by the Respondent in its written arguments and allow the petition as prayed for.

The list non-compliances day wise and the energy involved in each such non-compliance along with the cost of energy are furnished by the Petitioner.

LEGAL PROVISIONS

25. Section 32 of the Electricity Act, 2003 prescribes the Functions of State Load Dispatch Centres and is reproduced hereunder:

“32. (1) The State Load Dispatch Centre shall be the apex body to ensure integrated operation of the power system in a State.

(2) The State Load Despatch centre shall---

- a) be responsible for optimum scheduling and despatch of electricity within a State, in accordance with the Contracts entered into with the Licensees or the generating companies operating in that State;***
- b) monitor grid operations;***
- c) keep accounts of the quantity of electricity transmitted through the State grid;***
- d) exercise supervision and control over the intra-state transmission system; and***
- e) be responsible for carrying out real time operations for grid control and despatch of electricity within the State through secure and economic operation of the State grid in accordance with the Grid Standards and the State Grid Code.***

(3) The State Load Despatch Centre may levy and collect such fee and charges from the generating companies and licensees engaged in intra-State transmission of electricity as may be specified by the State Commission.”

26. Further, Section 33 of the Electricity Act, 2003 specifies that:

“33.(1) The State Load Despatch Centre in a State may give such directions and exercise such supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in that State.

(2) Every Licensee, generating company, generating station, sub-station and any other person connected with the operation of the power system shall comply with the direction issued by the State Load Despatch Centre under sub-section (1).

(3) The State Load Despatch Centre shall comply with the directions of the Regional Load Despatch Centre.

(4) If any dispute arises with reference to the quality of electricity or safe, secure and integrated operation of the State Grid or in relation to any direction

given under sub-section(1), it shall be referred to the State Commission for decision:

Provided that pending the decision of the State Commission, the directions of the State Load Despatch Centre shall be complied with by the Licensee or Generating company.

(5) If any licensee, generating company or any other person fails to comply with the directions issued under sub-section (1), he shall be liable to a penalty not exceeding rupees five lacs.”

27. The provisions of the Electricity Act, 2003 relating to adjudication are reproduced below:

Section 143

(1) For the purpose of adjudging under this Act, the Appropriate Commission shall appoint any of its Members to be an adjudicating officer for holding an inquiry in such manner as maybe prescribed by the Appropriate Government, after giving any person concerned a reasonable opportunity of being heard for the purpose of imposing any penalty.

(2) While holding an inquiry, the adjudicating officer shall have power to summon and enforce the attendance of any person acquainted with the facts and circumstances of the case to give evidence or produce any document which in the opinion of the adjudicating office, may be useful for or relevant to the subject-matter of the inquiry, and if, on such inquiry, he is satisfied that the person has failed to comply with the provisions of section 29 or section 33 or section 43, he may impose such penalty as he thinks fit in accordance with the provisions of any of those sections.”

Section 144

“While adjudicating the quantum of penalty under section 29 or section 33 or section 43, the adjudicating officer shall have due regard to the following factors, namely:-

- (a) *the amount of disproportionate gain or unfair advantage, wherever quantifiable, made as a result of the default;***
(b) *the repetitive nature of the default.*”

ANALYSIS

28. The material on record and the submissions made by the parties concerned before the Adjudicating Officer is carefully examined and the following issues can be broadly identified where both the parties are having rival contentions.

- (a) **ISSUE 1:** Whether the Respondent No.1 is not a proper party to the case.
- (b) **ISSUE 2:** Whether all the 137 nos. backing down instructions allegedly not complied by the respondents (which constitutes violation of instructions), were valid
- (c) **ISSUE 3:** Whether imposition of penalty is warranted? And if so, how much?

29. Coming to the first issue, the contention of the Respondents is that the Respondent No.2 is a Generating Company as defined under Sec 2 (28) of the Electricity Act, 2003 and that it has entered into a Power Purchase Agreement (PPA) dtd.19-06-1996 with the erstwhile Andhra Pradesh State Electricity Board (APSEB) for generation and sale of electrical energy/power from its 216 MW combined cycle thermal power plant situated at Jegurupadu (v), Kadiyam (M), East Godavari District of State of Andhra Pradesh and that subsequent to unbundling of APSEB into APTRANSCO four APDISCOMS, the rights and obligations of APSEB were finally transferred to APDISCOMS. It is contended by the Respondents that as per the PPA, the Respondent No.2 was entitled to engage contractor for Operations, Engineering and Maintenance (OEM) of the Project and accordingly, the Respondent No.1 was engaged as its OEM Contractor and was entitled only to generate power to supply to APTRANSCO and that it has not been assigned with any of its rights or obligations of the Respondent No.1 under the PPA and as such the Respondent No.1 was not a proper party to the case on hand, and any violations or discrepancies in complying with the same either by the Petitioner or by the Respondent No.2 shall not bind or have any impact on the Respondent No.1.

But if we see the provisions in Section 33 of the Electricity Act, 2003, by virtue of the words in sub-section (2) that every Licensee, generating company, generating station, sub-station and any other person connected with the operation of the power system as being obligated to comply with directions issued by the State Load Despatch Centre under sub-section (1) thereof; and further by virtue of the words in sub-section (5) of Section 33 that if any Licensee, generating company or any other person fails to comply with the directions issued under sub-section (1), he shall be liable to a penalty not exceeding rupees five lacs, the Respondent No.1 also becomes liable to comply with the directions of the Petitioner notwithstanding any claims about the nature of the relationship of the Respondent No.1 in law with the Respondent No.2 or the Petitioner as observed by the Commission in its order dated 23rd May, 2015 (Para 17). ***Thus the plea of the Respondents to delete the name of Respondent No.1 from the list of Respondents to the case cannot be accepted and hence is rejected.***

30. Now the second and third issues will be considered together since these two are related more closely than the first issue. During the proceedings before the Adjudicating Officer, APSLDC reiterated its contention that M/s GVK Power & Infrastructure Limited did not comply with the backing down instructions given by it, thus APSLDC was forced to back down the lower cost generators, which has resulted in higher power purchase costs to the Licensees by way of pumping higher cost power of M/s GVK Power & Infrastructure Limited into the grid. On the other hand, the allegations of non-compliance of the backing down instructions of APSLDC are vehemently denied by M/s GVK Power & Infrastructure Limited, stating that the said backing down instructions were complied with up to the technical limits and for those units that were not able to back down were duly informed to the APSLDC at the earliest.

31. Further, the APSLDC has submitted that Hon'ble CERC while delivering its order in petition No 80/2009, has imposed a total penalty of Rs.1.22 Crores @ Rupees one Lac each for all the 122 nos. of violations on APSLDC for not maintaining grid discipline wherein the penalty was imposed for each instance.

32. Referring to the provisions of Section 32 of the Electricity Act, 2003, the petitioner maintained that, in the interest of system security APSLDC should have full control of the real time operation of the entire State Grid and maintain balance

between the supply and demand at every moment, so that the Grid frequency remains within the safe limits as specified by the CERC and duly following the instructions of the Regional Load Dispatch Centre (RLDC).

33. In this process, whenever there is an increase in frequency beyond 50 Hz, (during which time the generation is more than the system demand), APSLDC issues instructions to marginal cost generators to back down their generation based on the merit order to ensure safety, security and economy of operations of the Grid.

34. It is the contention of APSLDC that M/s GVK Power & Infrastructure Limited has violated the Grid Code by not complying with the directions of APSLDC to back down generation due to high frequency conditions in the grid on several occasions whereas all other generators have complied with such directions of the APSLDC which ultimately resulted in the backing down of low cost generation to maintain the system frequency within limits thereby the economy of operations in the system are affected to the detriment of the Licensees.

35. It is submitted by the Petitioner that, as per the procedure adopted by APSLDC, the Central Generating Stations (CGS) which operate under ABT Regime, the generators will be given choice of six (6) time blocks in case they need to back down. If there is an immediate requirement to back down, only the units of APGENCO or IPPs are to be backed down, as there is no ABT Regime for these generators.

36. In the question whether the other generators who have higher variable costs are backed down or not prior to M/s GVK Power & Infrastructure Limited, as can be seen from the details of backing down instructions produced by the Generator, most of the instructions were issued just for five (5) or ten (10) minutes, without mentioning how long such back down continues and in the instant case the generator was directed to back down as per system requirement.

37. It is noticed from the information provided by APSLDC, a number of backing down instructions were issued to various generators based on the Merit Order Despatch (M.O.D.) to back down their generation and such instructions were complied with by the other generators. It is mentioned therein that the Respondents

have not complied with the backing down instructions of APSLDC on 137 occasions from June, 2007 to September, 2009.

38. The contention of the respondents is that the Petitioner is obliged to follow the terms of the PPA, the Act and the Code and that all instructions issued by the Petitioner shall be within the precincts of the binding principles envisaged thereunder. It is contended that the Petitioner has to observe and respect the technical limits of the generating turbines either to ramp up or ramp down the power generation and also to respect the obligations of the respondent No.2 if it has any obligations to be complied with under ancillary or incidental agreements that were entered into with any third party, for the purpose of generating power. It is stated that the Respondent No.2 has entered Gas Sales and Supply Agreement with the Reliance Industries Limited and NECO Ltd and Gas Transmission Agreement with the Gas Authority India Limited (GAIL). It is further stated that the petitioner is obliged to consider the threat to the project and the men working therein, as and when there are sudden backing down instructions seeking the reduction of larger quantum of generation, which may lead to tripping of the gas turbine, throwing the lives of the men to danger and that the petitioner will also be liable to make good the loss that the respondent No.1 had to incur in reference to the said instantaneous instructions as well as any liabilities incurred under the fuel supply agreements. While this being so, as per clause 4.3.6 of the Code, as and when there is an instruction from the petitioner, if the respondent No.2 feels that the same cannot be complied with due to the prevailing plant conditions / circumstances and under the influence of the said conditions/circumstances if the respondent No.2 intimates immediately to the petitioner, the petitioner is obliged to modify the instruction suitably, failing which the instruction shall be considered as no instruction and that the respondent No.2 is entitled to continue the generation as per the availability declaration given by it on the previous day. The respondent No.2 could not comply with the backing instructions of the petitioner, as the same were given instantaneously without giving sufficient time to ramp down the generation and that the said instructions were given without any end time. When the respondent No.2 immediately intimated to the petitioner about the difficulties in complying with the said instructions, the petitioner did not take any steps to modify the instructions. As such, as stated above as per clause 4.3.6 of the Code, the instructions shall not be treated as instructions at all, and any non-compliance with the same as per the

petitioner shall not be treated as non-compliance and that the respondent No.2 shall not be liable for any penalty.

39. While admitting that the petitioner is fully empowered by the Code to give backing down instructions under emergency conditions, the Respondent, quoting clause 4.3.8.1 of the Code, claims that the petitioner is also obliged to justify the instantaneous backing down instructions given under specific emergency conditions once the said emergency conditions were met with.

40. Further the Respondent has contended that as per the PPA, Naphtha can be used as either the supplementary fuel and/or alternate fuel and hence the standing instruction of “not to use Naphtha” given by the petitioner amounts to the first instruction and any further backing down instructions given by the petitioner will amount to second (and more) instruction of a day and thus need not be complied.

41. The Petitioner, while contesting the claims made by the Respondents, stated that all the backing down instructions were given in discharging the responsibility of SLDC as per Section 32 (2) (a) of the Electricity Act, 2003 and PPA technical limits for optimum scheduling in load crash, high frequency or spill-over conditions. Quoting clause 4.3.6 of the Code of Technical Interface (CTI), the petitioner stated that the Respondents are obliged to comply with the backing down instructions given by the Petitioner. It is further stated by the Petitioner that Art 2.2 of the PPA does not envisage that the generator can continue generation of power as per the availability declaration without complying with SLDC directions and that, in fact, as per Art 2.2(d) the generator has to comply with SLDC directive. The petitioner further stated that the claim of the Respondent that it had accepted all as dispatch instructions and submitted remarks to all the instructions as complied is not correct and that all the 137 instructions were only non-compliance instructions and entail with consequences of penalties and that the Petitioner never agreed for exemption of any of the instructions.

42. The Petitioner, while stating that the claim of the Respondent that all the instructions are complied with terms of PPA, the Code and the Act is not correct, has relied on clause 4.3.8.1 of the CTI that in high voltage management, failure of

generator to follow the instructions of SLDC instructions will constitute a violation of the CTI and will entail consequences of penalties.

The Petitioner further stated that the Ramping time was allowed while deciding non-compliance.

43. The petitioner stated that 84 out of 137 instructions in the list were issued during spill-over period of Hydel reservoirs keeping the economy of operations in view and that they would come under high frequency management and also that the remaining instructions were given for load generation balancing in Merit Order dispatch.

44. The petitioner further stated that the usage of alternate fuel Naphtha is optional and that the Generation with Alternate Fuel should be only as per instructions of APSLDC and thus the standing instruction of “not to use Naphtha” due to its prohibitive cost issued cannot be considered as an instruction issued in the real time operation of the power system. It further stated that as per Art 2.1 (a) of the PPA, there is no limitation of dispatch instructions in response to an emergency or to avoid burning alternate fuel.

Now, let us examine the relevant articles of the PPA:

Article 2.1 Sale and Purchase of Energy

- (a) From and after the Commercial Operation Date of the first Generating Unit, subject to the provisions of this Agreement, the Company shall sell, and the Board shall purchase, for the consideration set forth in the Tariff, the entire capacity available and all energy generated by the Project from time to time, less auxiliary consumption from time to time, subject to such Dispatch Instructions as may be in effect. From and after the Acceptance Date of the first Generating Unit, the Company shall follow the directives of the Board to back down generation and to resume generation, in each case consistent with the Project's Technical Limits, Prudent Utility Practices and this Agreement and the other arrangements between the Company and the board regarding communication and coordination of operations (each such directive by the Board to operate the Project at specified loading levels for specified durations for a Schedule Day

deemed to constitute one "Dispatch Instruction"). *No more than one Dispatch Instruction may be given each day in addition to Dispatch Instructions issued in response to an Emergency or upon the issuance of a Revised Capacity Notice as set forth in Article 2.6(a) or pursuant to Article 2.2(b) to avoid burning Alternate Fuel (but not Supplementary Fuel).*

- (b) Except in an emergency and except as provided in Article 2.2(b), no Dispatch Instruction shall require the Company :
 - (i) to operate the Project in a manner which leads to a reduction in the gross generating capacity of more than 50% of the Declared Capacity for any period of time; or
 - (ii) to back-down generation from the Declared Capacity where the aggregate duration of back-down (including ramping time but excluding back-down in response to Emergencies and to avoid burning Alternate Fuel (but not Supplementary Fuel) in accordance with Article 2.2(b) would exceed (A) 1200 hours in any Tariff Year and (B) 120 hours in any Billing Month prior to the Combined Cycle COD, unless the Board agrees to compensate the Company in accordance with Article 2.1(d).
- (c)
- (d) The Board shall not be required to reimburse the Company for any costs or damages incurred as a result of responding to Dispatch Instructions which the Board is permitted to give under this Article 2.1.
- (e) Any instruction issued by the Board to reduce generation because the Project is not being operated within the Technical Limits or in accordance with Prudent Utility Practices or this Agreement shall not constitute a Dispatch Instruction for the purposes of the limitations set forth in this Article 2.1.

Article 2.2 Dispatch Procedure and Fuel Constraints

- (a) The Board shall notify the Company prior to the COD of the first Generating Unit and from time to time thereafter of the procedures for dispatch of the Project which shall be consistent with Prudent Utility Practices and the limitations set forth in Article 2.1 herein, and shall require the Company to inform the Board of the daily availability of Gas

and the expected Ambient Temperature. Unless the Generating Company objects in writing within 30 days after being notified of the dispatch procedures (or any amendments to them) that any of the proposed procedures are unfair or unreasonable or are inconsistent with the requirements of this Agreement, such procedures shall go into effect 60 days after the Company was notified of the procedures or such other date as the Parties may agree.

- (b) If the availability of Gas to the Project is reduced or if the company becomes aware of any unexpected reduction in the availability of Gas to the Project after the Company has informed the Board regarding Gas availability for a particular day, the Company shall promptly notify the Board of such reduction or expected reduction and the Board may give another Dispatch Instruction to avoid burning Alternate Fuel (but not Supplementary Fuel) notwithstanding the limitation in Article 2.1(a). The Company may continue to operate the Project using Alternate Fuel to the extent of insufficient Gas at its Declared Capacity or consistent with the previous Dispatch Instruction, as the case may be, until such time as the Board issues a new Dispatch Instruction. If there is insufficient Gas availability to operate even one turbine Generating Unit entirely on Gas, the Board may require the Company to reduce Generation to a level as low as the output of one turbine Generating Unit in Combined Cycle mode.
- (c)
- (d) Should the Company question the validity of the declaration of an emergency in any Dispatch Instruction issued by the Board hereunder, it will nevertheless comply with such directive consistent with the Technical limits and Prudent Utility Practices and any dispute regarding the proper issuance of any directive by the Board to back down or resume generation and the recovery as set forth in Article 2.1(d) of any costs incurred by the Company in complying with any directive not properly issued by the Board shall be resolved in accordance with Article 15 of this Agreement.
- (e)
- (f) After the Combined Cycle Acceptance Date, if the Board issues a dispatch Instruction to reduce generation by the Project, then in carrying out such Dispatch Instructions the Company shall make reasonable efforts

(consistent with the Technical Limits and Prudent Utility Practices) to reduce the generation attributable to Alternate Fuel, then to reduce the generation attributable Supplementary Fuel and lastly to reduce generation attributable to gas.

On perusal of the above and the other PPA articles, it can be seen that there is no limitation on the number of dispatch instructions given by the Board (now APSLDC) if they are given in an emergency and in a real time operation of the power system, the APSLDC will be a better judge to decide the nature (whether certain situation was an emergency or not) and there is no reason to believe that APSLDC may give inappropriate instructions to one particular Generator when it is obligated to operate the power system under strict adherence to well-established and standard practices.

As per Clause 2.2(b) it is apparent that the SLDC may also give instructions to the generator to reduce the generation to avoid burning Alternate Fuel (Naphtha) in spite of shortage of gas (the primary fuel) as informed by the generator to the Board (now SLDC). Thus the standing instruction given to the generator not to run with Naphtha as Alternate Fuel need not be considered as an instruction given in the emergency but as a general instruction given to avoid generation burning Naphtha due to its prohibitively high cost which action also achieves the objective of economy and efficiency of operation of the power system by APSLDC as mandated by the Electricity Act, 2003.

45. It is observed that APSLDC, as the power system operator in the State of Andhra Pradesh, in the process of discharging its duties under the provisions of the Electricity Act, 2003 and the state Grid Code, has given certain backing down instructions to reduce generation to a certain level which was not complied with fully by the Respondent (Generator) allegedly referring to certain provisions of the PPA, the Code and the Act.

46. While sub-section (2) (a) of Section 32 of the Electricity Act, 2003 recognises the contracts entered by the Generator with the Licensees in accordance with which the optimum scheduling and despatch of electricity is to be done by the SLDC, sub-section 2(e) speaks about the responsibility of SLDC for carrying out real time operations for grid control and despatch of electricity within the State through secure

and economic operation of the State grid in accordance the Grid Standards and the State Grid Code. And as per subsection (1) of Section 33, SLDC may give such directions and exercise such supervision and control as may be required for ensuring the integrated operations and for achieving the maximum economy and efficiency in the operation of power system in the State, and as per sub-section (2) of Section 33 every generator shall comply with the directions issued by the SLDC under sub-section (1) while sub-section (5) of Section 33 says that if any licensee or generator fails to comply with the directions issued under sub-section(1), he shall be liable to a penalty not exceeding rupees five lacs.

47. The main function of APSLDC is to maintain the Grid Stability. If the frequency goes beyond 50 Hz (i.e., in case where the Supply is more than the Demand), the APSLDC instructs the Generators, as per the merit order, to back down. It is the system requirement and as per Section 33 of the Electricity Act, 2003, every generator shall comply with such instructions and there is no other alternative to the generator but to comply.

Backing down means the instructions of SLDC or RLDC (conveyed through SLDC) for reduction of generation of a generating unit under abnormal conditions such as high frequency, low system demand or system constraints as envisaged by the system operator.

As per the Code of Technical Interface (AP Grid Code), clause 4.3.8., which is extracted below, APSLDC shall monitor the frequency of the transmission system and take action to ensure that they are within the acceptable limits in co-ordination with SRLDC. Corrective action shall be initiated when frequency deviates by 1% from the nominal value.

4.3.8.1 High Frequency Related Emergencies: When the frequency is tending to increase above the statutory upper limit, SLDC shall request the Generators to reduce generation and request SRLDC to take necessary action at Regional level. While reducing generation, merit order despatch procedure shall be followed by SLDC. In order to implement merit order despatch, the relevant cost data shall be furnished by all CDGUs on one-month ahead basis. The instructions to reduce generation will be issued by SLDC by telephone communication. **Failure of a generator to follow the SLDC instructions in this context will constitute a violation of the CTI and will entail penalties.** During periods of high frequency operation, the SLDC telephone instructions to Generators shall supercede other

provisions of the CTI, and all Acts, Rules and Regulations of State and Central Governments. Adequate authority shall be delegated to the duty Engineers of SLDC to enable them to take spot decisions for on-line operation of the Grid. On demand by a generator the SLDC shall confirm its verbal instruction by written instructions after the operation is completed. SLDC is responsible for complying all Codes, Acts etc., and must justify its instructions in the light of Code, Acts, etc., or must be ready to justify any deviation in dealing with an unforeseen emergency threatening the security of the Grid.

48. As Grid Operation being a common service, laws governing them need to be followed by all in letter and spirit, as any grid failure would lead to suffering by all the concerned. Also, as envisaged in the Section 33 of the Electricity Act, 2003, the SLDC is also bestowed with the responsibility of ensuring the integrated grid operations and for achieving economy and efficiency in the operation of the power system in the State which apparently would need the SLDC to implement the Merit Order Despatch in its true sense. This goes to show that the SLDC is also required to maintain the economy of operations when it comes to the question of spillage of either Srisailem or Nagarjuna Sagar and operation of Merit Order Despatch (MOD).

Hence the main contention of the Respondent that “the backing down instructions issued by APSLDC were in the process of and for load management but not the system emergencies and hence it is not binding on the generator for following such instructions” does not hold much water and does not qualify to be accepted because achieving economy and efficiency of operation of the power system is also an EQUALLY IMPORTANT function of the State Load Dispatch Centre (APSLDC).

49. If there are any technical constraints to the Generator for backing down as per APSLDC requests, the same needs to be informed to APSLDC immediately to enable them to take further course of action to maintain the system security.

50. In the present case, the other contention of the respondent is that its inability to reduce the generation beyond the Technical Limits specified by the OEM and was conveyed to the APSLDC. On perusal of the letters written by the Generator to the APSLDC, it shows that the generator has not reduced the generation upto the required level as requested by APSLDC due to various reasons such as:

- (i) the instruction issued, being the second instruction after the standing

- instruction not use Naphtha, could not be complied
- (ii) the duration of the backing down was not indicated,
 - (iii) they have crossed the 1200 hours of aggregate backing down hours for the respective year,
 - (iv) we are not able draw the allocated gas capacity for the day which will attract minimum off-take charges of per gas supply agreement with GAIL,
 - (v) the units are already operating at technical minimum limits and any further reduction in generation will lead to unstable operation and may endanger the safety of the equipment and men...

51. From the cursory reading of all the correspondence, it is observed that the reasons are mostly relating to the PPA conditions, technical minimum limits of the OEM or other contractual obligations for gas transportation.

52. If there are any PPA conditions not to back down beyond certain hours in a billing month or tariff year, or below certain technical limits as per the OEM recommendations, they are all commercial terms and conditions and need to be addressed accordingly by way of amendments to the PPA but certainly not in the form of non-compliance (either in part or full) of the backing down instructions which may threaten the grid security. Such a provision has been made, though in a different context, in Clause 4.3.6 of CTI to provide a remedy to the Generator, if he is made to keep the generator as a hot standby. If any dispute arises with reference to the quality of electricity or safe, secure and integrated operation of the State grid or in relation to any direction given u/s 33 (1) of the Electricity Act, 2003, it has to be referred to the Commission which option the Generator has not chosen to exercise whereas it is the APSLDC that has filed a petition before the Commission, apparently out of the responsibility to exercise such supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in the State. It will not out be of context to mention here that the PPA was signed by both the parties prior to the Grid Code and enactment of the Electricity Act, 2003 and there were certain amendments made to the PPAs by the group company M/s GVK Gowthami Power Ltd. in 1997 and later modified in 1999.

It is also to be significantly noted here that the Commission, while delivering the order dated 15-04-2013 for the appointment of the Adjudicating Officer where the request of the petitioner for appointment of the Adjudicating Officer to enquire

into the case and other related prayers were made, has made an observation that though there may be conditions in the PPA, the Act prevails over the PPA but however left it to the Adjudicating Officer to decide whether it can be entertained about backing down instructions only in case of emergency or otherwise(Para 11).

It is interesting to note here that the Respondent has contended that the order of the Sections in the Electricity Act, 2003 determines that the Petitioner should honour first the contractual terms between the parties before issuing any dispatch instructions to the Respondents. Apparently the respondent was referring to Section 32 (2) (a) where the functions of the SLDC are prescribed wherein the SLDC is responsible for optimum scheduling and despatch of electricity within a State, in accordance with the *contracts (emphasis applied)* entered into with the Licensees or the generating companies operating in that State and Section 33 (1) , (2) & (5) of the Act where the SLDC is empowered to issue directions to the generating Company or any other person connected with the operation of the power system and essentiality of compliance of such directions by them and the consequence of non-compliance of such directions are provided. The moot question here is that whether the order of the sections of the Act or the significance of the sections of the Act is important. If the spirit of the sections in the Act is to be rightly interpreted, Section 32 of the Act indicates the responsibility of the SLDC to take into account, such contracts between the generating companies and the Licensees ; Section 33 of the Act prescribes the responsibility of the generating company to comply with the directions of the SLDC (given in exercise of its supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in the State) and consequence of such non-compliance. Undoubtedly the responsibility bestowed on the SLDC under Section 33 is of paramount importance since it involves optimising the power system operations and conservation of scarce resources and thus serving a larger interest of the public in general and electricity consumers in particular as well the responsibility of ensuring discipline among the various participants in the network.

However, it is also pertinent to note that the Respondents' inability to reduce the generation beyond the technical limits fearing threat to the safety of the equipment, men and other machinery also cannot be lost sight of in view of the in-built provisions, protections and remedies provided in the PPA and also the Code of Technical Interface (CTI) apart from some compelling obligations on the part of

SLDC as provided in the Electricity Act, 2003 as mentioned in Para 46 supra as well as the advisory remarks of the OEM that running the units below the Technical Limits may lead to flame instability and may cause damage to the turbine components.

53. Keeping this in view, the Adjudicating Officer, for arriving at the likely number of backing down instructions which were not complied with and qualify for imposing any penalty, sought to obtain the details of the backing down instructions taking into account

- (i) non-consideration of the standing instruction given by the APSLDC of “not to run with the alternate fuel, i.e. Naphtha”, as a backing down instruction given in the course of real time operation of the grid (since it was not a backing down instruction given in the course of real time operation of the grid but was given as a general instruction not to use Naphtha due to its prohibitively high cost and clauses 2.2 (b) & (f) of the PPA will justify this to a large extent)
- (ii) the number of non-compliance instructions considering the limitation of one instruction per day (though as per clause 2.1(a) of the PPA, there is no limitation to the number of instructions issued in response to an emergency (in the power system) or upon the issuance of a Revised Capacity Notice as set out thereof) and
- (iii) 70% technical limit as per the recommendations of the Original Equipment Manufacturer (OEM) even though as per Art 2.1 (b) (i) of the PPA, the backing down is permitted upto 50% of the Declared Capacity in an Emergency and as provided in Art.2.2 (b).

54. Accordingly, the petitioner has submitted that out of the 137 total number of non-compliances, considering the limitation of one instruction only during one day, the number of non-compliances will come down to 80 only and if the limitation of backing down upto technical limit is also accepted, the number of non-compliances will further come down to only 30.

After taking the above aspects into consideration, and in view of the foregoing discussion, the undersigned is of the opinion that making the above assumptions is

reasonable and can be taken into consideration to finalise the total number of non-compliances. Thus the total number of non-compliances for which the generator shall become liable to penalty will be 30 and the same has also been impliedly admitted by the Respondents in their submissions made on 5th Jan, 2016. But again, the Respondent contested therein that out of the 30 non-compliances, 13 nos. non-compliances could further be exempted as the same were computed based on the output of the project at that instant instead of considering the declared capacity of the project. Here it is to be considered that during the real time operation of the power system, the SLDC will be considering the actual power flows that exist at that particular moment of time and assess the situation at that particular moment of time but not the installed or declared capacities of the generators to decide the requirement of any backing down or pressing into operation of any generator or curtailing any load. Therefore the output of the machine at the instant of issuing backing down instructions will be more appropriate and relevant than the Declared Capacity of the project, however, subject to the technical limits of the generating machines based on the OEM recommendations. In view of this, the number of non-compliances for which the Respondents will become liable for imposing penalty can be taken as 30.

And as the said 30 non-compliances were repetitive in nature, though warranting the maximum penalty to be levied, the undersigned, keeping in view all the aspects, and also observing that it is for the first time that such a situation has arisen after the major private participation in the power generation in the State of Andhra Pradesh which obviously necessitates for taking a considerate stand and also from the stand point of view that all the players in the network operation have to be placed on the same level-playing field while dealing with such complex technical issues, feels that a penalty of Rupees One Lakh per each violation is justifiable. But, at the same it also has to be understood that the violators of grid discipline cannot always get away with meagre penalties and any such violations which threaten the grid security and economy and efficiency of power system operation will be dealt with sternly in future.

55. Now coming into the issue of loss sustained by the Licensees, as alleged by the Petitioner, due to backing down of low cost generation as a result of non-compliance of the backing down instructions by the Respondent (Generator), it is a fact that APSLDC, as a power system operator had to resort to backing down of certain low cost generation so as to maintain the security of the grid and economic

operation of the State grid in accordance with the Grid Standards and the State Grid Code as envisaged in the Electricity Act, 2003. The loss sustained by the Licensees due to backing down of low cost generation instead of the marginally costly generator, i.e., the Respondent Generating Company in the instant case at the time of issuing the backing down instructions as per the mandatory Merit Order Dispatch Stack comprising of all the generators is nothing but the consequence of non-compliance of the backing down instructions given by the SLDC which liability is to be borne by the non-complying generator. There appears to be no reason not to accept the correctness of the details of day-wise backing down instructions (given by SLDC) which were not complied with by the generator and the low cost generation details, the backing down of which was resorted to by the SLDC as a part its statutory duty as the system operator to back down the next low cost generator in the Merit Order Stack. (The details are shown in the **Annexure-I.**)

56. Even though, prima facie, there does not seem to be any direct amount of disproportionate gain or unfair advantage, as mentioned in Section 144 of the Electricity Act, 2003 made by the Respondent by way of resorting to the above said violations, since the Respondent did generate power and pumped it into the Grid and received the energy charges from the Licensees to that effect; the losses sustained by the Licensees, as rightly argued by Petitioner, as a result of the acts of the Respondents would need to be treated as the indirect gain to the Respondents as such losses would not have occurred, had the Respondent complied with the backing down instructions issued by the Petitioner.

57. Thus it will be in the fitness of the things that the loss sustained by the Licensees due to backing down of the low cost generation as a result of non-compliance of the above 30 (thirty) backing down instructions by the Respondents, is made good by the Respondent to the Licensees.

58. The initiative and efforts of APSLDC, the petitioner, in initiating the litigation against non-compliance of its instructions issued as a part of its duty as the system operator, though not the direct beneficiary of the litigation, speaks about the responsibility it has assumed in maintaining the discipline among the various participants in the network.

CONCLUSION

59. In the light of the above discussion, the undersigned is of the opinion that the respondents can be held guilty of contravention of and non-compliance with the provisions of Section 33(1) of the Act thereby becoming liable for penalty as per section 33(5) of the Electricity Act, 2003 apart from the responsibility of making good the loss sustained by the Licensees in the action of SLDC having backed down the low cost generation to meet the power system requirements as per the merit order stack at the moment of such non-compliance.

60. Thus the undersigned is fully satisfied that the circumstances warrant imposing a penalty on the Respondent (Generator) to the extent of Rupees One Lakh for each non-compliance apart from making good the loss of Rs.366388/- (Rupees Three Lakh Sixty Six Thousand Three Hundred and Eighty Eight Only) sustained by the Licensees due to backing down of Low cost generation associated with the said 30 non-compliances. Thus, against 30 contraventions, the respondents shall pay a penalty of Rupees 30 Lacs plus Rs.366388/-, totalling to Rs.33,66,388/- (Rupees Thirty Three Lakh Sixty Six Thousand Three Hundred and Eighty Eight Only). Both the parties will bear their own costs.

61. I order accordingly,

Sd/-
(P. Rama Mohan)
Member and Adjudicating Officer
A.P.E.R.C.

ANNEXURE - I

OP No 12 of 2010

| Sl.NO | Name | date | time | date | time | No. of MU | No. of C.T. | SSLM SPILLING | NSR SPILLING | FREEQUE NCY AT THE TIME OF BD | AVG FQ DURING BD | MAX FQ DURING B | MOD INSTRUCT ION | variable cost (ps/kwh) | Gen. Cost Rs | b/d at that moment variable cost (ps/kwh) | Differential cost | Amount lost to the Govt |
|-------|------|-------------|-------|-------------|-------|--------------|----------------|------------------|-----------------|--|------------------------|--------------------|------------------------|---------------------------|-----------------|--|----------------------|-------------------------------|
| | | | | | | | | | | | | | | | | | | |
| 1 | GVK | 10-05-07 | 17.55 | 10-05-07 | 18.30 | 0.033 | 1 | | | 50.19 | 50.25 | 50.37 | MOD | 99.309 | 33020 | 99.309 | 0.000 | 0 |
| 2 | GVK | 08-05-07 | 17.30 | 08-05-07 | 19.20 | 0.028 | 1 | | | 50.21 | 49.99 | 50.76 | MOD | 97.298 | 26757 | 86.940 | 10.357 | 2982.45 |
| 5 | GVK | 27-05-06-07 | 23.08 | 28-05-06-07 | 00.00 | 0.025 | 1 | | NSR SPILL | 50.32 | 50.32 | 50.44 | MOD | 96.798 | 24329 | 77.102 | 19.696 | 1378.67 |
| 77 | GVK | 28-05-06-07 | 00.00 | 28-05-06-07 | 04.10 | 0.117 | 1 | SSLM SPILL | NSR SPILL | 50.32 | 50.27 | 50.49 | MOD | 96.798 | 112931 | 77.102 | 19.696 | 1378.67 |
| 76 | GVK | 28-05-06-07 | 01.45 | 29-05-06-07 | 04.20 | 0.075 | 1 | SSLM SPILL | NSR SPILL | 50.36 | 50.18 | 50.37 | MOD | 96.798 | 72518 | 77.102 | 19.696 | 1378.67 |
| 80 | GVK | 02-05-07 | 00.00 | 02-05-07 | 00.00 | 0.780 | 1 | | NSR SPILL | 50.39 | 50.37 | 50.5 | MOD | 96.798 | 88893 | 77.102 | 15.696 | 18087.45 |
| 86 | GVK | 03-05-07 | 00.00 | 03-05-07 | 04.00 | 0.116 | 1 | SSLM SPILLING | NSR SPILL | 50.26 | 50.25 | 50.48 | MOD | 96.798 | 112286 | 77.102 | 5.919 | 8181.53 |
| 87 | GVK | 04-05-07 | 00.00 | 04-05-07 | 04.50 | 0.145 | 1 | | NSR SPILL | 50.1 | 50.01 | 50.23 | MOD | 96.798 | 140357 | 90.879 | 0.000 | 0 |
| 89 | GVK | 05-05-07 | 00.00 | 05-05-07 | 05.15 | 0.310 | 1 | | NSR SPILL | 50.4 | 50.27 | 50.68 | MOD | 97.403 | 58604 | 97.403 | 0.000 | 0 |
| 91 | GVK | 06-05-07 | 00.00 | 06-05-07 | 02.25 | 0.060 | 1 | | NSR SPILL | 50.81 | 50.33 | 50.83 | MOD | 101.212 | 53347 | 101.180 | 0.032 | 16.6667 |
| 93 | GVK | 22-05-08 | 15.10 | 22-05-08 | 18.20 | 0.053 | 1 | | NSR SPILL | 50.54 | 50.05 | 50.57 | MOD | 101.212 | 40569 | 97.232 | 3.980 | 1535.17 |
| 94 | GVK | 20-05-09 | 21.15 | 21-05-09 | 22.20 | 0.040 | 1 | | NSR SPILL | 50.32 | 50.13 | 50.66 | MOD | 101.212 | 30364 | 101.180 | 0.032 | 9.5 |
| 95 | GVK | 23-05-09 | 17.25 | 23-05-09 | 18.15 | 0.030 | 1 | | NSR SPILL | 50.42 | 49.89 | 50.34 | MOD | 101.212 | 157722 | 97.232 | 3.980 | 6600.77 |
| 96 | GVK | 24-05-09 | 00.00 | 24-05-09 | 04.35 | 0.156 | 1 | | NSR SPILL | 50.12 | 49.86 | 50.15 | MOD | 128.600 | 111453 | 124.777 | 3.823 | 3113.17 |
| 99 | GVK | 01-05-09 | 00.00 | 01-05-09 | 02.10 | 0.050 | 1 | | NSR SPILL | 50.03 | 50.22 | 50.44 | MOD | 128.600 | 28592 | 128.000 | 0.600 | 352.507 |
| 103 | GVK | 07-05-09 | 18.00 | 11-05-09 | 18.40 | 0.025 | 1 | | NSR SPILL | 50.2 | 49.88 | 50.22 | MOD | 128.600 | 31721 | 124.777 | 3.823 | 8076.087 |
| 107 | GVK | 13-05-09 | 02.00 | 13-05-09 | 07.25 | 0.211 | 1 | | NSR SPILL | 50.05 | 49.93 | 50.12 | MOD | 128.600 | 68437 | 116.000 | 12.600 | 6705.0 |
| 111 | GVK | 14-05-09 | 01.27 | 14-05-09 | 03.10 | 0.065 | 1 | | NSR SPILL | 50.14 | 49.98 | 50.73 | MOD | 128.600 | 77331 | 128.000 | 0.600 | 360.3 |
| 114 | GVK | 15-05-09 | 01.47 | 15-05-09 | 18.45 | 0.033 | 1 | | NSR SPILL | 49.75 | 50.03 | 50.44 | MOD | 128.600 | 42438 | 112.440 | 16.160 | 5332.8 |
| 116 | GVK | 17-05-09 | 17.58 | 17-05-09 | 18.40 | 0.028 | 1 | | NSR SPILL | 50.17 | 50.42 | 50.85 | MOD | 128.600 | 36008 | 128.000 | 0.600 | 168 |
| 118 | GVK | 10-05-09 | 01.45 | 10-05-09 | 03.10 | 0.064 | 1 | | NSR SPILL | | | | MOD | 132.100 | 84214 | 128.550 | 3.550 | 63.125 |
| 122 | GVK | 12-05-09 | 18.00 | 12-05-09 | 18.45 | 0.034 | 1 | | NSR SPILL | | | | MOD | 132.100 | 44584 | 127.400 | 4.700 | 1566.35 |
| 124 | GVK | 05-05-09 | 01.10 | 05-05-09 | 03.00 | 0.077 | 1 | | NSR SPILL | | | | MOD | 131.100 | 100947 | 116.000 | 15.100 | 1162.7 |
| 128 | GVK | 06-05-09 | 00.00 | 06-05-09 | 05.00 | 0.315 | 1 | | NSR SPILL | | | | MOD | 131.100 | 412965 | 116.000 | 15.100 | 7565 |
| 133 | GVK | 07-05-09 | 00.00 | 07-05-09 | 02.55 | 0.099 | 1 | | NSR SPILL | | | | MOD | 131.100 | 130008 | 120.803 | 10.297 | 1021.19 |
| 135 | GVK | 29-05-09 | 00.05 | 29-05-09 | 02.15 | 0.087 | 1 | | NSR SPILL | | | | MOD | 121.900 | 105647 | 116.000 | 5.900 | 4115.23 |
| 137 | GVK | | | | | | | | | | | | | | 3591573 | | | 356388 |

TOTAL COST

| variable cost (ps/kwh) | Gen. Cost Rs | b/d at that moment variable cost (ps/kwh) | Differential cost | Amount lost to the Govt |
|---------------------------|-----------------|--|----------------------|-------------------------------|
| 99.309 | 33020 | 99.309 | 0.000 | 0 |
| 97.298 | 26757 | 86.940 | 10.357 | 2982.45 |
| 96.798 | 24329 | 77.102 | 19.696 | 1378.67 |
| 96.798 | 112931 | 77.102 | 19.696 | 1378.67 |
| 96.798 | 72518 | 77.102 | 19.696 | 1378.67 |
| 96.798 | 759024 | 77.102 | 19.696 | 1378.67 |
| 96.798 | 88893 | 77.102 | 15.696 | 18087.45 |
| 96.798 | 112286 | 77.102 | 5.919 | 8181.53 |
| 96.798 | 140357 | 90.879 | 0.000 | 0 |
| 97.403 | 58604 | 97.403 | 0.000 | 0 |
| 101.212 | 53347 | 101.180 | 0.032 | 16.6667 |
| 101.212 | 40569 | 97.232 | 3.980 | 1535.17 |
| 101.212 | 30364 | 101.180 | 0.032 | 9.5 |
| 101.212 | 157722 | 97.232 | 3.980 | 6600.77 |
| 128.600 | 111453 | 124.777 | 3.823 | 3113.17 |
| 128.600 | 39009 | 116.000 | 12.600 | 360.3 |
| 128.600 | 28592 | 112.440 | 16.160 | 5332.8 |
| 128.600 | 31721 | 128.000 | 0.600 | 168 |
| 128.600 | 271668 | 124.777 | 3.823 | 8076.087 |
| 128.600 | 68437 | 116.000 | 12.600 | 360.3 |
| 128.600 | 77331 | 128.000 | 0.600 | 168 |
| 128.600 | 42438 | 112.440 | 16.160 | 5332.8 |
| 128.600 | 36008 | 128.000 | 0.600 | 168 |
| 132.100 | 84214 | 128.550 | 3.550 | 63.125 |
| 132.100 | 44584 | 127.400 | 4.700 | 1566.35 |
| 131.100 | 100947 | 116.000 | 15.100 | 1162.7 |
| 131.100 | 412965 | 116.000 | 15.100 | 7565 |
| 131.100 | 130008 | 120.803 | 10.297 | 1021.19 |
| 121.900 | 105647 | 116.000 | 5.900 | 4115.23 |
| | 3591573 | | | 356388 |

DIFF. COST