

Nuclear Power Corporation **NPC** No. 1004

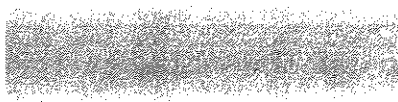
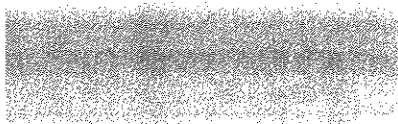
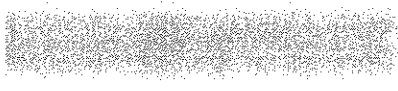
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MAPS.

BULK POWER SUPPLY AGREEMENT
BETWEEN
NUCLEAR POWER CORPORATION OF INDIA LIMITED
AND
ANDHRA PRADESH STATE ELECTRICITY BOARD
KARNATAKA ELECTRICITY BOARD
KERALA STATE ELECTRICITY BOARD
TAMIL NADU ELECTRICITY BOARD
AND
ELECTRICITY DEPARTMENT, GOVERNMENT OF PONDICHERRY

This AGREEMENT entered into on this Twenty Sixth day of July Nineteen Hundred and Ninety six (26-07-1996) at Madras between Nuclear Power Corporation of India Limited (A Government of India Enterprise wholly owned by Department of Atomic Energy), a company incorporated under the Companies Act, 1956, having its registered office at 424-425, World Trade Centre, Barakhamba lane, Connaught Place, New Delhi-110 001, hereinafter referred to as 'NPC', (which expression shall, unless repugnant to the context, include its representatives, successors and assigns) as party of the first part and Andhra Pradesh State Electricity Board, Vidyut Soudha, Hyderabad-500 049,

Handwritten signatures and initials at the bottom of the page, including a large signature on the left and several smaller ones on the right.



Karnataka Electricity Board, Cauvery Bhavan, Bangalore-560 009, Kerala State Electricity Board, Vaidyuthi Bhavanam, Pattom, Trivandrum-695 004, and Tamil Nadu Electricity Board, NPKRR Maaligai, 800, Electricity Avenue, Anna Salai, Madras-600 002, all constituted under the Electricity (Supply) Act, 1948, and Electricity Department, Government of Pondicherry, Pondicherry - 605 001, hereinafter referred to individually as 'APSEB', 'KEB', 'KSEB', 'TNEB' and 'Pondicherry' respectively and collectively called as 'Bulk Power Recipients' (which expression shall unless repugnant to the context include their representatives, successors and permitted assigns) as parties of the second, third, fourth, fifth and sixth part respectively.

WHEREAS a southern regional Atomic Power Station namely the Madras Atomic Power Station (hereinafter called 'Power Station') originally designed for an installed nominal capacity of 470 MWe, consisting of two generating units each of 235 MWe which were subsequently rerated to two units of 170 MWe each with effect from April 8, 1996 belonging to and set up by erstwhile Nuclear Power Board of Department of Atomic Energy (DAE), at Kalpakkam, Chingleput District, TAMIL NADU, to generate electricity, was later on transferred by the DAE to NPC, on ownership basis.

AND WHEREAS the operation of first unit of the two units of the Power Station had been declared commercial since January 27, 1984 and the operation of second unit had been declared commercial since March 21, 1986.

AND WHEREAS upon both Units becoming commercially operational, the Power Station capacity as a whole shall be allocated amongst Bulk Power Recipients as per allocations made by the Government of India, Ministry of Power, from time to time.

AND WHEREAS NPC had executed an agreement on the fifth day of March, Nineteen Hundred Ninety two at Madras regarding sale of power from the Power Station.

AND WHEREAS NPC agrees for sale of electrical energy to the Bulk Power Recipients from the Power Station after meeting the requirements of all the Power Station facilities belonging to the Department of Atomic Energy, Government of India, in the vicinity of the power station including its Indira Gandhi Centre for Atomic Research (IGCAR).

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NOW, THEREFORE, in consideration of the premises and mutual agreements, covenants and conditions set forth herein and in the general provisions governing the Agreement as contained in Annexure A and appendix-I attached hereto which shall form an integral part of this Agreement, it is hereby agreed by and between the parties hereto as follows:

1. DEFINITIONS

The words/expressions used in this Agreement unless repugnant to the context shall have the same meaning as assigned to them in the Indian Electricity Act, 1910 and Electricity (Supply) Act, 1948 as amended from time to time and the Rules framed thereunder. The words/expressions mentioned below shall have the same meanings respectively as assigned hereunder.

- i) CEA : Shall mean Central Electricity Authority which is a Statutory Authority.
- ii) SREB : Shall mean Southern Regional Electricity Board duly established by the Government of India vide Resolution No. EL.II/35(1)/63 dated 07.02.1964 and subsequent amendment(s)/resolution(s) thereof and as defined in the amended Electricity (Supply) Act, 1948.
- iii) CHARGES FOR SUPPLY OF ENERGY : Shall mean and include all charges to be paid by Bulk Power Recipients in respect of supply of active energy to them from/by the Power Station in accordance with the provisions of this agreement.
- iv) MAIN IMPORT METER : Shall mean already installed electro-magnetic energy meters of 0.5 class accuracy required for measurement in kilowatt-hours of active energy import by/at the Power Station at its 230 kv Bus Bars for energy accounting, billing and payment purpose.

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- v) MAIN EXPORT METER : Shall mean already installed electro-magnetic energy meters of 0.5 class accuracy required for measurement in kilowatt-hours of active energy export by/from the Power Station at its 230 kv Bus Bars for energy accounting, billing and payment purposes.
- vi) CHECK IMPORT/EXPORT METER : Shall mean already installed electro-magnetic meters of 0.5 class accuracy required for maintaining a check on performance of Main Import/Export meter.
- vii) POWER FACTOR : Shall mean the ratio expressed as percentage of kilowatt-hours to the kiloampere-hours supplied by/from the Power Station during any period.
- viii) DAE : Shall mean Department of Atomic Energy.
- ix) GOI : Shall mean Government of India.
- x) IGCAR : Shall mean Indira Gandhi Centre for Atomic Research
- xi) LC : Shall mean Irrevocable revolving Letter of Credit.
- xii) REGIONAL ENERGY ACCOUNT : Shall mean Monthly Energy Account including amendments/revisions thereof, prepared/issued by Commercial Committee of SREB for billing and payment purposes of the drawals of energy individually by BULK POWER RECIPIENTS from each of the Central Generating Stations in Southern Region namely Ramagundam STPS, Second Thermal Power Station at Neyveli and Madras Atomic Power Station determined as per the methodology and the terms and conditions decided by the BULK POWER RECIPIENTS from time to time.
- xiii) SOUTHERN REGIONAL GRID : Shall mean the electric power Transmission Systems owned in Southern Region by M/s. Power Grid Corporation of India Ltd. and also by the Bulk Power Recipients which are operated in synchronous/integrated mode.

2.0 ALLOCATION OF CAPACITY

Allocation of the rerated capacity of power from the Power Station shall be in proportion to the allocation made by the Government of India, Ministry of Power vide letter No. 4/11/85-US(IP) dated November 15, 1985 and shall be as follows.

<u>NAME OF THE STATE/UT</u>	<u>SHARE IN (MWe)</u>
Andhra Pradesh	28
Karnataka	21
Kerala	18
Tamil Nadu	255
Pondicherry	4
Unallocated	14

	340
	=====

However, the total active electrical energy output from the Power Station after meeting all the requirements of Power Station as well as the requirements of the facilities belonging to the Department of Atomic Energy, Government of India in the vicinity of the Power Station including IGCAR shall be shared pro-rata amongst the Bulk Power Recipients in the ratio of the Megawatt allocations made to them and described in clause 2.0. The allocation of the unallocated power shall be made by the Government of India, from time to time.

3.0 POWER SUPPLY FROM THE POWER STATION

- 3.1 The drawal of power by the Bulk Power Recipients from the Power Station shall be in accordance with the conditions detailed in Annexure-A of this Agreement. Bulk Power Recipients shall draw their respective allocation of power detailed in clause 2.0 through the transmission systems owned in the Southern Region by M/s. Power Grid Corporation of India Ltd. and the transmission systems of Bulk Power Recipients directly and/or by displacement method. The Bulk Power Recipients shall regulate their drawal in accordance with the allocations detailed in clause 2.0.
- 3.2 The Power Station shall feed its output into the transmission system of TNEB at its 230 KV Switchyard. The Bulk Power Recipients shall regulate their drawal in accordance with the allocations detailed in clause 2.0.
- 3.3 NEC shall at all time endeavour to operate the Power Station at as high a plant load factor as a base load station as is possible considering the system conditions and safety of the Power Station. The Bulk Power Recipients shall at all times endeavour to draw all the power which the Power Station is in a position to sell. However, in the event of high frequency conditions in the Southern

Regional Grid, the Power Station would be the last resort in the Southern Regional Grid to regulate the generation to the extent feasible consistent with safety of the Power Station.

3.4 In the event of any additional investment made with the approval of DAE, towards the modification of the Power Station facilities, to meet the safety requirements, the tariff will be revised as per notification issued by the GOI. However, in case of any additional investments towards modifications / improvement of operational efficiency, the Bulk Power Recipients shall be consulted in advance.

4.0 SYSTEM OF SUPPLY

4.1 The supply of electrical energy to the Bulk Power Recipients shall be in the form of three phase, alternating current, at a normal frequency of 50 Hertz and at a potential of 230 KV subject to the variation limits permitted by the Indian Electricity Rules, 1956 as amended from time to time. In the event of the grid frequency falling below 49.5 Hertz or rising above 50.5 Hertz, the Bulk Power Recipients and the Power Station shall take all measures expeditiously to restore the frequency as per SREB instructions.

4.2 'Power Factor' shall mean the ratio expressed as percentage of the kilowatt hours to the kilovolt ampere hours supplied during any period and it shall not at any time be less than 85 percent lagging. The Recipients shall without involving the NPC into any liability take such steps as may be necessary to prevent the power factor of its offtake from falling below the said limit of 85 percent lagging.

5.0 POINT OF DELIVERY/ENERGY, METERING AND ACCOUNTING

5.1 The point of delivery of power/energy from the Power Station to the Bulk Power Recipients and the points for measurement for billing and payment purpose of active electric energy shall be the 230 KV outgoing feeders from the Power Station, where supply shall be metered at the 230 KV bus at the Power Station as per the memorandum of instructions for the assessment of energy sold, appended as Annexure-A to this Agreement.

5.0 AUXILIARY POWER REQUIREMENTS OF THE POWER STATION

5.1 If, at any time, the Power Station is unable to meet its own auxiliary power requirements and/or the requirements of other facilities belonging to the Department of Atomic Energy, GOI in the vicinity of the power station including IGCAR which are supplied power directly from the Power Station, full requirement of power as and when required by the Power Station and other facilities of the

DAE, GOI shall be made available by TNEB at 230 KV Bus Bars of the Power Station. The actual active energy so supplied will be adjusted against the energy supplied from the Power Station in the subsequent month(s).

6.2 TNEB shall ensure reliable start up power to the extent required from two independent sources of the interconnected transmission system of TNEB.

7.0 RATES OF SUPPLY

7.1 The tariff rate for the supply of active energy will be fixed from time to time in accordance with section 22(1)(b) of the Atomic Energy (Amendment) Act, 1987 (Central Act 33 of 1962). The tariff rate so fixed shall be subjected to the fuel and heavy water adjustment charges. Variations in effective rates as a result of the fuel cost adjustment charge and heavy water cost adjustment charge shall NOT be deemed to be a revision in the rates.

7.2 In accordance with clause 7.1, the tariff rate will be fixed and notified from time to time by GOI. In case the tariff is not finalised before the due date, the Bulk Power Recipients shall pay in accordance with the clause 7.1 above or any other mutually acceptable rates.

7.3 The Bulk Power Recipients shall reimburse to NPC, any levy in respect of nuclear energy as may be notified by the Department of Atomic Energy from time to time or any other such impositions.

8.0 LEVY, TAXES, DUTIES, CESS, ETC.

8.1 The above Tariff is exclusive of any statutory taxes, levy, duties, cess or any other kind of impositions(s) whatsoever imposed/charged by any Government (Central/State) and/or any other local bodies/authorities on generation of electricity including auxiliary consumption or on any other types of consumption, transmission, sale or on supply of power/energy and/or in respect of any of its installations associated with Generating Stations and/or on Transmission System.

8.2 In the absence of tax liability on NPC as per Income Tax Act in force from time to time shall be recovered from the Bulk Power Recipients duly certified by the Statutory Auditors of NPC. The Income Tax allocated to each of the Bulk Power Recipients will be in proportion to its energy drawal during the year to which the Income Tax pertains.

8.3 The total amount of such taxes/duties/cess etc. payable by NPC to the authorities concerned in any month on account of the said taxes/duties/cess etc. as referred to above shall be borne and additionally paid by the Bulk Power Recipients to NPC and the same shall be charged in

the monthly surcharges raised by NPC on the Bulk Power Recipients in the proportion of energy drawal by them from the Power Station.

BILLING AND PAYMENTS

The Bulk Power Recipients shall pay to the Power Station all bills for the active energy supplied to them by the Power Station as well as the bills for the interest charges, if any, levied under clauses 9.2 and 9.3 below on presentation of such bills by the Power Station. The date of presentation of the bill shall be deemed to be the third working day from the date of issue of bills by the Power Station. The procedure for assessment of supply of energy shall be as laid down in the memorandum of instructions appended as Annexure-A to this Agreement.

Such bills shall be in accordance with the tariff rates in force.

ESTABLISHMENT OF LC AND PAYMENT OF BILLS.

Payment of all bills shall be made by the Bulk Power Recipients through an irrevocable revolving LC, opened in favour of NPC at a branch of the State Bank of India or any nationalised bank for an amount equivalent to one month's average billing based on past three months billing.

2 If the amount of bill is more than the amount of LC, NPC will prepare two bills, one bill equal to the amount of LC and the other for the balance amount for direct payment by the Bulk Power Recipients.

The LC shall be without any limitation or restriction with regard to the manner and dates when bill(s) can be presented to the Bank by NPC. The bills so presented by NPC to the bank shall be promptly paid on their presentation. The amount of LC shall be reviewed each quarter commencing April, July October and January in each financial year and its amount shall be enhanced/reduced accordingly. The LC charges shall be borne by the respective Bulk Power Recipients.

9.2 3 REBATE ON PAYMENT THROUGH LC

NPC shall allow a rebate of 2.5% only (two and a half percent only) (excluding duties, levies, etc.) on the amount paid through LC upon presentation of the bills by NPC to Bank. Thereafter, NPC shall allow a rebate of 1.5% (one and a half percent) only on the amount paid through LC upto 20th day from the date of presentation of the bills. Where the payments are made subsequently through LC or otherwise within a period of one month from the date of presentation of the bills, a rebate of 1% (one percent) only will be allowed. The rebate shall be

limited to the amount of NPC bills after excluding wheeling charges (if any), taxes, duties cess etc. billed therein.

9.2.4 SURCHARGE DUE ON LATE PAYMENT

If LC is opened for a lower amount or though the LC is opened and the payment is not received, the bill amount not received would be payable with an interest @ zero point zero six seven percent (0.067%) per day (i.e. 2% per month) reckoned from 30 days of the presentation of bill. Also, no rebate referred in Clause 9.2.3 above will be admissible on such amount.

9.2.5 This interest shall automatically become due and payable by the Bulk Power Recipients. Such interest shall be calculated and billed on monthly basis.

9.2.6 SUPPLEMENTARY BILLS

If the bill amount is greater than normal LC amount as per the average amount given in sub-clause 9.2.1 above, NPC will raise supplementary bill for the balance amount. The due date of payment for the supplementary bill will be 30 days from the date of presentation of the bill.

- (i) If the supplementary bill is paid within 7 (Seven) days of presentation of the bill, a rebate of 2.5% (two and a half percent only) excluding duties, taxes, etc. will be allowed.
- (ii) If the payment of the supplementary bill is made through LC or otherwise between 8th (Eighth) day and 20th (Twentieth) day, a rebate of 1.5% (one and a half percent only) excluding duties, taxes, etc. will be allowed.
- (iii) If the payment of the supplementary bill is made through LC or otherwise within a period of 30 (Thirty) days, a rebate of 1% (one percent only) excluding duties, taxes, etc. will be allowed.
- (iv) If the supplementary bill is paid beyond the 30th (Thirtieth) day, the interest will be payable @ zero point six seven percent (0.067%) per day (2% per month) beyond the 30th (thirtieth) day of presentation of the supplementary bill.

9.3 ERROR/REVISION IN THE BILLS

9.3.1 In the event of any error in the bills coming to the notice of the Bulk Power Recipients, the same shall be intimated by the Bulk Power Recipients within 30 days of the presentation of the bill to the Power station in writing and a copy endorsed each to NPC, Mumbai and SREB. The Bulk Power Recipients shall pay the portion of the bill as admitted by them within due date in respect of

which an error is noticed in accordance with clause 9.2. The Power Station will modify the bill, if found necessary and shall refund the excess amount, if any, paid by the Bulk Power Recipients with an interest calculated @ 0.067% per day (2% p.m.) from the date of receipt of amount to the date of refund.

2 If the action of the Power station, on intimation of error in the bill, is disputed by the Bulk Power Recipients, a reference shall be made to Arbitration, as provided under clause 12, herein below. If on Arbitration, it is decided that the amount paid was not payable by the Bulk Power Recipients, NPC shall refund the same to the extent found not admissible by the Arbitrator along with such interest as may be determined by the Arbitrator, subject to this interest rate not exceeding 2% per month.

NON-PAYMENT OF BILLS AND NON-ESTABLISHMENT OF LC

It is agreed that the Bulk Power Recipients will make all efforts to open LC within a reasonable period. In the event of failure to establish/enhance LC within a reasonable period or alternatively in the absence of LC, if any bill(s) remain unpaid for a period exceeding two months from the date of receipt of the bill, NPC, shall have the authority to discontinue/reduce the supply of power from the Power station to such Bulk Power Recipients in consultation with the SREB.

10.0 PERIOD OF AGREEMENT

The Agreement shall be deemed to have come into effect from 1st April 1996 and shall continue to remain in force upto 31st March 2001, provided that this Agreement may be mutually extended, renewed or replaced by another Agreement on such terms and or such further period as the parties may mutually agree. In case, the Bulk Power Recipients continue to get power from the Power station even after expiry of this Agreement without further renewal or formal extension thereof, then all the provisions of this Agreement shall continue to operate till this Agreement is formally renewed, extended or replaced.

11.0 FORCE MAJEURE

The parties shall ensure compliance of the terms of this Agreement. However, no party shall be liable for any claims for loss, damage or compensation whatsoever arising out of failure to carry out the terms of this agreement, to the extent such failure is due to force majeure events such as war, rebellion, civil commotion, mutiny, riot, strike, lockout, fire, explosion, tempest, flood, lightning, earthquake or other forces, accident or any cause beyond the reasonable control of any party, or act of God or due to any restraint or regulation of the State

or Central Government. But any party claiming the benefit of this clause shall satisfy the other party of the existence of such an event and written notice within 30 (thirty) days to the other party to this effect. Generation /drawal of power shall be started as soon as practicable by the parties concerned after such eventuality has come to an end or ceased to exist.

12.0 ARBITRATION

12.1 All differences or disputes between the parties arising out of or in connection with these presents, save any question or matter of dispute which falls within the scope and purview of the statutory arbitration under the provisions of Electricity (Supply) Act 1948 as amended, shall be settled through arbitration as provided herein.

12.2 - In the event of such differences or disputes between the parties and failing settlement of the same through mutual discussions amongst parties concerned and/or in the forum of SREB within three months, any party may, by a written notice of 30 days to the other party or parties request for appointment of an Arbitrator. The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Ordinance 1996 and/or any Arbitration Act in force at the relevant time in this regard. The Arbitrator shall give a speaking and reasoned award. The decision of the Arbitrator shall be final and binding on the parties. The venue of the arbitration shall be as decided by the Arbitrator. The Arbitrator shall reasonably decide in what proportion his fee and cost of arbitration proceedings shall be borne by the parties. The Arbitrator with the consent of the parties may enlarge the time, from time to time, to make and publish the award.

12.3 Notwithstanding the existence of any disputes and differences referred to arbitration, the parties hereto shall continue to perform their respective obligations under this Agreement and the payment of any bill referred shall not be withheld by the Bulk Power Recipients for any reason whatsoever including the pendency of arbitration proceedings.

13.0 IMPLEMENTATION OF THE AGREEMENT

13.1 All discretions to be exercised and directions, approvals, consents and notices to be given and actions to be taken under these presents unless otherwise expressly provided herein, shall be exercised and given by the signatories to this Agreement or by the authorised representative(s) that each party may nominate in this behalf and notify in writing to the other party by Registered Post from time to time. Nomination of authorised representative(s) shall be informed likewise in writing by the Bulk Power Recipients within one month of signing of the Agreement.

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2 It is specifically agreed that this agreement shall supersede all previous discussions and meetings held and correspondence exchanged between Bulk Power Recipients and NPC in respect of this Agreement and any decisions arrived at therein in the past and before signing of this Agreement shall have no relevance with reference to matters covered under this Agreement and no reference of such discussions or meetings or past correspondence etc. shall be entertained for interpreting this Agreement or its implementation.

4.0 NOTICE

4.1 All notices required or referred to under this agreement shall be in writing and be signed by the authorities mentioned below. Each such notice shall be deemed to have been duly given upon receipt by the party involved, if delivered or sent by Registered Post/ Speed Post with postage prepaid and with an acknowledgment of receipt from the other party as follows:

To or by the NPC:

Managing Director,
Nuclear Power Corporation of India Ltd.
16th Floor, World Trade Centre,
Cuffe Parade,
Mumbai - 400 005.

To or by the Power Station:

Station Director,
Madras Atomic Power Station,
Kalpakkam P.O.,
Tamil Nadu - 603 102.

To or by the Bulk Power Recipients:

The Chairman,
Tamil Nadu Electricity Board,
NPKRR Maaligai,
800 Anna Salai,
Madras - 600 002.

The Chairman,
Andhra Pradesh State Electricity Board,
Vidyut Soudha,
Hyderabad - 500 049.

The Chairman,
Karnataka Electricity Board,
Cauvery Bhavan,
Bangalore - 560 009.

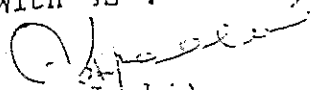
The Chairman,
Kerala State Electricity Board,
Vaidyuthi Bhavanam, Pattom,
Thiruvananthapuram - 695 004.

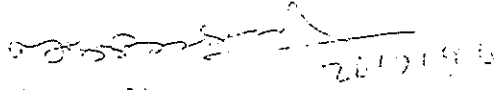
Chief Secretary,
Government of Pondicherry,
Pondicherry - 605 001.


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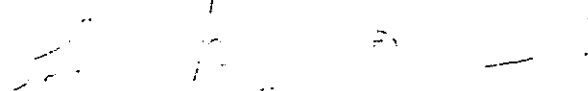
In witness whereof the parties hereto have caused this Agreement to be executed by their respective duly appointed representatives on the day, month and the year first above written.

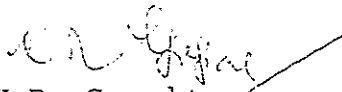
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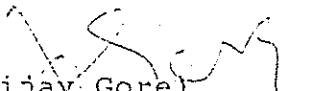

(R.C. Joshi)
Executive Director (F)
NPCIL

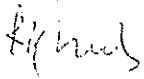

(Y.S.R. Prasad)
Managing Director, NPCIL
For and on behalf of
Nuclear Power Corporation
of India Limited

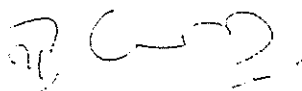

(H. Vittal)
Chief Engineer
APSEB

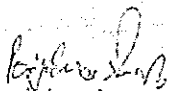

(K.Y. Venugopala Rao)
Member (Transmission), APSEB
For and on behalf of
Andhra Pradesh State Electricity Board

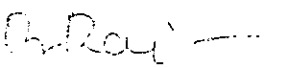

(H.R. Gopal)
Technical Member
KEB

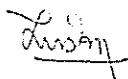

(Vijay Gore)
Chairman, KEB
For and on behalf of
Karnataka Electricity Board

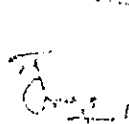

(R. Gopalakrishnan)
Member (Electrical)
KSEB


(V. Rajagopalan)
Chairman, KSEB
For and on behalf of
Kerala State Electricity Board


(Brijeshwar Singh)
Accounts Member
TNEB


(P.V. Rajaraman)
Chairman, TNEB
For and on behalf of
Tamil Nadu Electricity Board,


(N. Rajasekhar)
Secretary (Power)
Pondicherry


(S.R. Arya)
Chief Secretary,
Government of Pondicherry
For and on behalf of
President of India

(H.K. Ananda Rao)
Member Secretary-In-Charge, SREB

ANNEXURE-A

MEMORANDUM OF INSTRUCTIONS FOR THE ASSESSMENT
OF ENERGY SOLD TO THE BULK POWER RECIPIENTS
BY NPC FROM THE MADRAS ATOMIC POWER STATION

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- A.1.0 This memorandum jointly approved by the Bulk Power Recipients and the NPC lays down the legal procedure to be followed for the assessment, billing and payment of active electrical energy supplied from the Power Station at Kalpakkam to the Bulk Power Recipients.
- A.2.0 For evacuating the power generated from the Power Station, TNEB has laid four 230 KV lines from the Power Station - two to Singaperumal Koil, one to Villupuram and one to Arni 230 KV substations.
- A.2.1 Apart from supplying power to Tamil Nadu grid, the Power Station will be using a portion of the power generated for their internal consumption as well as for supplying power to other facilities belonging to the Department of Atomic Energy, Government of India, in the vicinity of the Power Station including its IGCAR. The schematic layout of the 230 KV switchyard is attached to this memorandum as Appendix-I.
- A.3.0 Through these 230 KV transmission lines, there will also be power flow to the Power Station from the system of TNEB. If, at any time, the Power Station is unable to meet its own auxiliary power requirements and/or the requirements of other facilities belonging to the Department of Atomic Energy, GOI in the vicinity of the power station including IGCAR which are supplied power directly from the Power Station, full requirement of power as and when required by the Power Station and other facilities of the DAE, GOI shall be made available by TNEB at 230 KV Bus Bars of the Power Station. The actual active energy so supplied will be adjusted against the energy supplied from the Power Station in the subsequent month(s).
- A.4.0 For assessing and billing the active energy supplies by the Power Station to the Bulk Power Recipients and vice versa, the following metering arrangements have been made :

A.4.1

A set of summation CTs are connected to feeders L1, L2, L3 and L4.

- L1 (Kalpakkam-Singaperumal Koil Feeder I)
- L2 (Kalpakkam-Singaperumal Koil Feeder II)
- L3 (Kalpakkam-Arni Feeder)
- L4 (Kalpakkam-Villupuram Feeder)

When additional feeders are added, suitable arrangements will be made for metering with the consent of TNEB.

A.4.2

Two main meters designated as 6514-L-TVM 3 (TVM 3) and 6514-L-TVM 4 (TVM 4) of NPC and two check meters of TNEB designated as 6514-L-TVM 1 (TVM 1) and 6514-L-TVM 2 (TVM 2) are connected to these summation CTs and bus PTs. While TVM 3 and TVM 1 will record the energy exported from the Power Station, TVM 4 and TVM 2 will record the energy imported by the Power Station. All the above meters are housed in the 220 KV switchyard of the Power Station.

A.5.0

For billing and payment purposes, the net active energy supplies from the Power Station will be arrived at by subtracting the energy recorded in the meter designated as TVM 4 from the active energy recorded in the meter designated as TVM 3. In case, the energy imported by the Power Station is more than the energy exported by the Power Station, then the net energy supplied to the Power Station will be arrived at by subtracting the energy recorded by the meter designated as TVM 3 from energy recorded in the meter designated as TVM 4. The meters designated as TVM 1, TVM 2, TVM 3 and TVM 4 are provided with reverse block arrangement to prevent recording of energy when the meters run in the reverse direction.

A.6.0

It is agreed that under normal conditions, when the meters designated as TVM 3 and TVM 4 function correctly, the quantum of net active energy supplied by NPC to the Bulk Power Recipients will be quantum of active energy recorded in the meter designated as TV3 as reduced by the quantum of active energy recorded in the meter designated as TVM4. However, when the active energy recorded by the meter TVM 4 is more than the energy recorded by the meter designated as TVM 3, the net energy supplied by TNEB to the Power Station will be the quantum of active energy recorded in the meter designated as TVM 4 as reduced by quantum of active energy recorded in the meter designated as TVM 3.

- A.7.0 For billing and payment purposes, the total quantum of net active energy supplied by NPC to the Bulk Power Recipients as determined in clauses A.5.0 and A.6.0 above shall be apportioned to each of the Bulk Power Recipients on the basis of regional energy accounts and the Power station shall accordingly raise bills on the Bulk Power Recipients individually..
- A.8.0 In case regional energy accounting system is not continued and adopted but kept in suspension for any reason, the energy account given by TNEB (by displacement method) in respect of quantum of energy supplied by the Power Station to other Bulk Power Recipients shall provisionally form the basis for raising bills by NPC on the Bulk Power Recipients.
- A.9.0 The monthly meter readings (both main and check meters) shall be taken jointly by TNEB and the Power Station on the first day of every calendar month at 1200 noon. The readings shall be telexed to SREB immediately and a copy sent by post. A signed copy of such readings will also be furnished to all concerned by the representative of each party at the monthly SREB commercial committee but in no case later than sixth day.
- A.10.0 All the main and check energy meters (export and import) installed at power station shall be of 0.5 accuracy class. They shall be jointly inspected and sealed on behalf of TNEB and the Power Station and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.
- A.11.0 All the main and check meters shall be test checked for accuracy every quarter. The meter shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.5 accuracy class. The consumption registered by the main meters alone will hold good for the purpose of preparation of regional energy accounts and also for raising the bills by NPC on Bulk Power Recipients as long as the error in the main meter is within the permissible limits.
- A.12.0 If during the quarterly test checks, any of the main meters are found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then billing will be as per the main meter as usual. The check meter shall, however, be calibrated immediately.

A.13.0

If during the quarterly test checks, any of the meters is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible limits of error, then the billing for the month upto the date and time of such test check shall be as per the check meter. There will be no revision in the bills for the preceding months. The main meter shall be calibrated immediately and billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

A.14.0

If during the quarterly test checks, both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the meters shall be immediately calibrated and the correction applied to the consumption registered by the main meter to arrive at the correct consumption of energy for the purposes of Regional Energy Accounts for the month from the date of last meter reading upto the time of replacement of correct main meter. Billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

A.15.0

The main and check metering devices (which term shall include all equipment associated with metering, like meters, CTs, PTs, etc.) shall be tested/calibrated by the respective parties in whose jurisdiction the meters are located, irrespective of calibration that might have been done in accordance with Clauses A.11.0, A.12.0 and A.13.0 above, at intervals not exceeding twelve months. The testing/calibration shall be carried out jointly with the party concerned. The meters shall be calibrated using a RSS calibrated meter at 100, 50, 20 and 10 percent load at unity and 0.5 power factor. The meters shall be deemed to be working satisfactorily if the errors are within the permissible limits of 0.5 class accuracy meters.

A.16.0

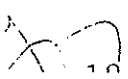
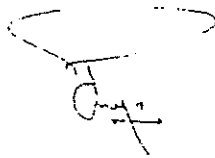
If errors found at the time of annual calibration are beyond permissible limits the same procedures applicable to quarterly test checks shall be followed. Corrections in billing, wherever necessary, shall be applicable to the period between the previous monthly meter reading and the date and time of the test calibration in the current month when the error is observed and this correction shall be for the full value of the absolute error.

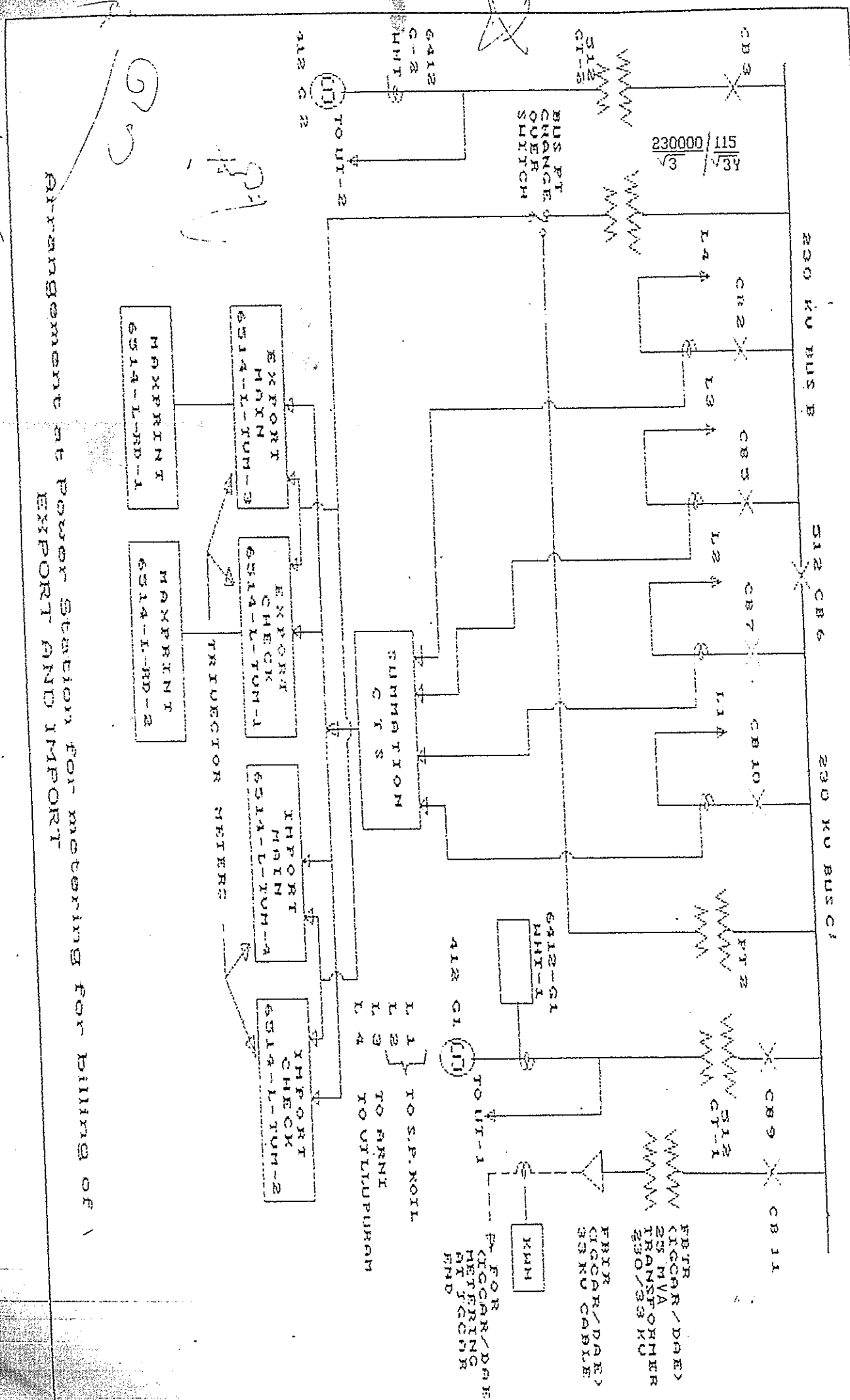
A.17.0

If both the main meter designated as TVM 3, and check meter designated as TVM 1 fail to record energy either due to blowing of PT fuses or other causes, the energy exported during the period of outage will be computed for billing purpose from the energy generated as recorded by the generator meter of the Power Station multiplied by the ratio of net export to generation during the calendar day. For this purpose, accurate hourly meter reading should be taken for generation, export and import by the Power Station every day.

A.18.0

Necessary facilities will be made available by the NPC for the purpose of telemetering by TNEB and SREB.





Arrangement of Power Station for metering for billing of Export and Import

FOR CLEAR/DRE METERRING AT TCCOR END

FBIK (IGOR/DRE) 33KV CABLE

