

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

PRESENT:

Thiru. S.Akshayakumar - **Chairman**

Thiru. G.Rajagopal - **Member**

and

Dr.T.Prabhakara Rao - **Member**

M.P.No.54 of 2014

**In the matter of : Approval of Capital Investment Plan filed by TamilNadu
Transmission Corporation Limited(TANTRANSCO) for the FY 2014-15 and 2015-16**

Tamil Nadu Transmission Corporation Limited
Represented by Chief Engineer/Transmission
144, Anna Salai, Chennai – 600 002.

....Petitioner
(Thiru.M.Gopinathan
Standing Counsel for TANTRANSCO)

Dates of hearing : 22.12.14, 23.02.2016 and 25.04.2016

Date of Order : 28-06-2016

The M.P.No. 54 of 2014 came up for final hearing on 25.04.16. The Commission upon perusal of the petition and the additional affidavit and after hearing the submissions of the petitioner hereby makes the following order:-

ORDER

1. Prayer of the Petitioner:

1.1 The prayer of the petitioner in the above M.P. No.54 of 2014 is to approve the Capital Investment Plan (CIP) for the FY 2014-15 for Rs.2907.43 crs and for the FY 2015-16 for Rs.3841.10 crs.

1.2 The prayer of the petitioner in the additional affidavit to M.P. No.54 of 2014 is to approve the CIP for the FY 2014-15 for Rs.2907.43 crs. and revised CIP for the FY 2015-16 for Rs. 2946.75 crs. and to pass any other order as the Commission deems fit.

2. In exercise of the powers conferred under Sections 62, 64 and other provisions of the Electricity Act, 2003, read with Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for the determination of Tariff) Regulations, 2005 (herein after referred as Tariff Regulations) and TNERC (Terms and conditions for Determination of Tariff for Intra State Transmission/Distribution of Electricity under MYT Framework) Regulations, 2009, the Commission has carefully considered the submissions of the Petitioner and passes the following Order.

3. Tamil Nadu Transmission Corporation Limited (herein after called TANTRANSCO) is the designated State Transmission Utility in Tamil Nadu, providing transmission services to the Tamil Nadu Generation and Distribution Corporation Limited (herein after called TANGEDCO), Captive and Open Access Customers.

4. Under Section 61 of the Electricity Act, 2003, read with Section 181 thereof and all other powers enabling in that behalf, the Commission notified the regulations namely Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for the determination of Tariff) Regulations, 2005 (herein after referred as Tariff Regulations) and TNERC (Terms and conditions for Determination of Tariff for Intra State Transmission/Distribution of Electricity under MYT Framework) Regulations, 2009.

5. The relevant provisions with respect to Capital Investment Plan in TNERC's Regulations is submitted below:

i) The Regulation 17 of the Tariff Regulations 2005 relates to filing of Capital Investment Plan by the entities covered by the said Regulations and the relevant portion is reproduced below:

“17. Capital Investment Plan

(1) The licensee shall file a detailed Capital Investment Plan every year showing separately, ongoing projects that will spill into the year under review and new project (along with justification) that will commence but may be completed within or beyond the tariff period.

(2) The Commission may consider the licensee’s investment plan for approval and for this purpose, may require the licensees to provide relevant technical and commercial details. The costs corresponding to the approved investment plan of a licensee for a given year shall normally be considered for its revenue requirement.

(3) In presenting the justification for new projects, the licensee shall detail the specific nature of the works and the results to be achieved. The details must be shown in physical parameter (e.g.) new capacity to be added, length of lines to be energised, number of sub-stations / Bays to be added, meters to be added, replaced, etc. so that it is amenable for physical verification. In case of significant shortfall in achieving physical targets, the Commission may require the licensee to explain the reasons, and may proportionately reduce the provision, including interest and return component made towards revenue requirement, in the next tariff proposal.

(4) The licensee may, at any time, during the tariff year, seek provision for additional capital expenditure to meet natural calamities involving substantial investment and the Commission shall examine and review these provisions in the manner as given in this regulation and approve their inclusion in the revenue requirement in the next period.

(5) The licensee shall get the Capital Investment Plan approved by the Commission before filing ARR and Application for determination of tariff.”

ii) The TNERC (Terms and conditions for Determination of Tariff for Intra State Transmission/Distribution of Electricity under MYT Framework) Regulations, 2009 with respect to Capital Investment Plan is reproduced below:

“Chapter II, 3) v) Capital Investment Plan:

The licensee shall get the approval of the Capital Investment Plan for each year of the initial control period in accordance with the Regulation 17 of TNERC Tariff Regulations. It may be ensured that the approval of the Commission is obtained before tariff filing under

MYT frame work. The Capital Investment Plan shall have capitalisation schedules for each year of the control period.

The source of finance to meet the capital expenditure in each year of the control period shall be furnished along with Capital Investment Plan.”

6. The relevant provisions of the Tariff Policy of Govt. of India notified on 6th January 2016 with respect to the Capital Investment Plan are reproduced below:

“ 5.11 Tariff policy lays down

a) Return on Investment

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While allowing the total capital cost of the project, the Appropriate Commission would ensure that these are reasonable and to achieve this objective, requisite benchmarks on capital costs should be evolved by the Regulatory Commissions.

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g) Renovation and Modernization

A multi-year tariff (MYT) framework may be prescribed which should also cover capital investments necessary for renovation and modernization and an incentive framework to share the benefits of efficiency improvement between the utilities and the beneficiaries with reference to revised and specific performance norms to be fixed by the Appropriate Commission. Appropriate capital costs required for pre-determined efficiency gains and/or for sustenance of high level performance would need to be assessed by the Appropriate Commission.

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6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:

(6) In order to further encourage renewable sources of energy, no inter state transmission charges and losses may be levied till such period as may be notified by the Central Government on transmission of the electricity generated from solar and wind sources of energy through the inter-state transmission system for sale.

7.1 Transmission pricing

.....

(4) In view of the approach laid down by the NEP, prior agreement with the beneficiaries would not be a pre-condition for network expansion. CTU/STU should

undertake network expansion after identifying the requirements in consonance with the National Electricity Plan and in consultation with stakeholders, and taking up the execution after due regulatory approvals. For smooth operation of the grid, efforts should be made to develop transmission system ahead of generation.

7.2 Transmission loss allocation

(2) It would be desirable to move to a system of loss compensation based on incremental losses as present deficiencies in transmission capacities are overcome through network expansion. The Appropriate Commission may require necessary studies to be conducted to establish the allowable level of system loss for the network configuration and the capital expenditure required to augment the transmission system and reduce system losses. Since additional flows above a level of line loading lead to significantly higher losses, CTU/STU should ensure upgrading of transmission systems to avoid the situations of overloading. The Appropriate Commission should permit adequate capital investments in new assets for upgrading the transmission system.”

7. The Hon'ble Appellate tribunal for Electricity (APTEL) in its order on Appeal No.197 of 2013 dated 18th October 2014 has directed the State Commission to true up/provisionally true up the capitalisation for the FY 2013-14 immediately and the shortfall if any should be accounted while determining the tariff for the FY 2015-16, with carrying cost on the impact of the variation on this account on the ARR. The relevant extracts of the APTEL order which mentions about Capital Investment approval also are reproduced below:

“39. We find that the Regulation 17(5) of the Tariff Regulations 2005 and Regulation 3(v) of MYT Regulations, 2009 specifies that the licensee shall get the Capital Investment Plan approved by the State Commission before filing of the ARR and application for determination of tariff. However, the State Commission has approved the capital expenditure without approval of the Capital Investment Plan contrary to the Regulations.

40. We also find that the State Commission has approved the capital expenditure and capitalization for the control period 2013-14 to 2015-16 as submitted by the TANTRANSCO without any prudence check and without considering the past performance of the TANTRANSCO.

.....

The capital expenditure and capitalization for the second control period appears to be very optimistic considering the past performance of TANTRANSCO. We feel that the State Commission has erred in approving the capital expenditure/capitalization without considering the details of the capital investment Plan and the past performance of TANTRANSCO.

41. We, therefore, direct the State Commission to true up/ provisionally true up the capitalization for FY 2013-14 immediately and the shortfall if any should be accounted for while determining the tariff for the FY 2015-16, with carrying cost on the impact of the variation on this account on the ARR. We direct TANTRANSCO to submit the actual accounts of capital expenditure and capitalization during FY 2013-14 by 30.11.2014 to the State Commission. TANTRANSCO shall also submit the Application for Capital Investment Plan for FY 2014-15 and 2015-16 in the requisite formats to the State Commission for approval as per the Tariff Regulations by 30.11.2014, if not already done. The State Commission shall accordingly approve the Capital Investment Plan of TANTRANSCO for the FY 2014-15 and 2015-16 after following due process of law, if not already done and consider the same while approving the tariff for the FY 2015-16.”

8. The Commission took cognisance of the above directions of Hon'ble APTEL and accordingly, the Commission in its SMT Order No.8 of 2014 dated 11.12.2014 for Suo-Motu Determination of Transmission tariff and other related charges directed TANTRANSCO as follows with respect to Capital Expenditure and capitalization:

“Capital expenditure and capitalization:

4.19 Regulation 17(5) of the tariff Regulations,2005 and Regulations 3(v) of the Tariff Regulation under MYT frame work specifies that the licensee shall get the capital investment plan approved by the Commission before filing ARR and Application for determination of Tariff. However, TANTRANSCO has not complied with this provision and has also not filed its petition.

4.20 As per the APTEL's judgment on Appeal No.197 of 2013 dated 18th October 2014 reproduced in Chapter A3 the Commission has relooked at the approach for considering capex and capitalization and would require the capital investment plan to be submitted by TANTRANSCO pending which it has considered the tentative capital expenditure and capitalization of transmission schemes data submitted by TANTRANSCO for FY 2014-15.

4.21 TANTRANSCO has submitted provisional details of capital expenditure and capitalization for the FY 2014-15 to the Commission but there is no adequate information on sources of funding, broad details and physical quantum of the proposed capital expenditure.

4.22 Thus Commission directs TANTRANSCO to reconcile its accounts with respect to capital expenditure and submit the scheme wise information in the requisite formats. Commission also directs TANTRANSCO to file the progress of the capital expenditure and capitalization on a quarterly basis.”

9. TANTRANSCO filed the Miscellaneous Petition on 25-11-2014 for approval of its Capital Investment Plan for the period FY 2014-15 and FY 2015-16. After due verification, it was registered as M.P. No. 54 of 2014. The prayer of TANTRANSCO is for approval of the Capital Investment Plan for Rs.2907.43 Crs for FY 2014-15 and for Rs.3841.10 Crs. for FY 2015-16.

10. Also, pursuant to the directions of the Hon'ble APTEL in appeal No. 197 of 2013 filed by TANTRANSCO challenging the Transmission Order No.2 of 2013 dated 20.06.13 issued by this Commission on various issues including CIP approval, the R.A.No.2 of 2014 has been initiated by the Commission and written submissions have been made by the TANTRANSCO stating that TANTRANSCO has complied with the directions of the Hon'ble APTEL in its order dated 18.10.2014 in appeal No. 197 of 2013 by submitting the actual capital expenditure and capitalization for the FY 2013-14 and filed the Capital investment plan for the FY 2014-15 & 2015-16 for approval on 25.11.14 before the Hon'ble Commission and assigned as M.P.No.54 of 2014 (i.e. the present petition for which orders is now pronounced). True up/provisional true up of the capitalization for the FY 2013-14 will be taken up by the Commission in the said Remand Appeal, R.A. No 2 of 2014, orders on which is yet to be pronounced.

11. During scrutiny of the present petition M.P 54 of 2014, as certain additional information was found necessary, the Utility was directed in Lr.dt.06.03.15 to submit the required details and the revised data furnished by the Licensee in reply dated 30.03.15 have been taken on record.

12. The scheme wise Capital expenditure for the FY 2014-15 (subject to audit) furnished by TANTRANSCO in letter dated 21.12.15 separately has also been taken on record.

13. A Technical Validation Session on the petition was held with the Utility on 12.01.16 in the office of Commission. During the Technical Validation Session, the Utility was asked to review and reassess the schemes proposed with respect to physical and financial progress of work and submit the CIP proposals with due consideration to actual accounts so as to avoid the impact of variation on this account on the ARR.

14. During the hearing on 23.02.16, this Commission analysed the physical and financial status of the schemes that were included in the CIP for the FY 2014-15 and FY 2015-16 and directed the petitioner to revise the CIP for the FY 2015-16 by duly considering the progress of works, expenditure incurred so far and expenditure expected to be incurred upto 31.03.16.

15. Based on the above direction, additional affidavit was filed by the petitioner on 08.03.16. The petitioner has maintained the capital investment plan for FY 2014-15 at Rs.2907.43 crores and revised the CIP for the FY 2015-16 from Rs.3841.10 Crs. to Rs.2946.75 crores. The petitioner submits that expected financial progress for the FY 2015-16 could not be achieved due to slow progress of works in respect of 400 KV sub stations and Right of Way (ROW) issues in 400 KV line works.

16.The major works proposed in the Capital Investment plan of TANTRANSCO and the status as submitted in the additional affidavit dated 08.03.16:

16.1. 400 KV Backbone network:

To evacuate huge quantum of wind power from southern parts of the State to load centers in Northern parts of the State through Karaikudi, Pugalur and Kalivanthapattu 400 kV Sub stations of PGCIL, high capacity backbone network consisting of 2 nos. new 400 kV substations at Kayathar (in Tirunelveli area) and

Sholinganallur (Ottiyambakkam) (in Chennai area) and 1488 circuit kms (ckms) of 400 kV Lines connecting Kayathar– Karaikudi – Pugalur – Kalivanthapattu – Sholinganallur (Ottiyambakkam) substations have been proposed. Kayathar 400 kV SS and one circuit of 195 Kms 400 kV DC line from Kayathar 400 kV SS to Karaikudi 400 kV SS was charged on 04.07.2014 and tied with the grid on 26.07.2014. The 400 kV DC line works of 326 ckms from Karaikudi 400 kV SS to Pugalur 400 kV SS were completed and the line charged on 03.07.15 and tied with the grid on 09.07.15. The entire DC line works of 727 circuit Kms from Pugalur 400 kV SS to Kalivanthapattu 400 kV SS near Chennai have been completed and the circuits have been tied with the grid on 23.07.2014 and 16.10.2014 respectively. Sholinganallur (Ottiambakkam) 400 kV SS works will be completed by 2015-16. Kalivanthapattu to Ottiambakkam 400 kV line works are under progress; however ROW issues are involved.

16.2. Inter-State Transfer of Power:

For effective utilization of inter-state power, establishment of 400 kV substation at Tiruvalam along with associated transmission lines from Tiruvalam to Mettur Thermal Power Station - Stage-III and Thiruvalam to Alamathy 400 kV substation (upto common point) was proposed. Tiruvalam 400 kV SS was charged on 27.07.2014 with one no. 315 MVA ICT. 2nd 315 MVA ICT has been charged on 06.10.2014 with 4 nos.230 kV feeders in service. The 400 kV line from Tiruvalam to MTPS was charged on 11.05.15 and the Thiruvalam to Alamathy (upto common point) 400kV DC line was charged on 03.09.15.

16.3. Wind power evacuation System:

For evacuation of wind power in Theni and Udumalpet areas, a separate wind corridor with 400 kV sub stations at Thappagundu, Anaikadavu and Rasipalayam along with 788 ckms of the associated 400 kV lines connecting Thappagundu-Anikadavu-Rasipalayam to Dharmapuri (Palavadi) 400 kV sub station has been taken up. Works are under progress and this transmission system is expected to be completed during 2015-16.

Also to evacuate wind power in Tirunelveli area, additionally one no. 400 kV Substation is established at Kanarpatty with connectivity to Kayathar 400 kV SS and Abishekapatty (Power Grid) 400 kV SS. The Substation and 400 kV line works are under progress and expected to be completed by 2015-16.

Further, works are under progress at the 400 kV Substation at Dharmapuri (Palavadi) and expected to be completed by 2015-16.

16.4. Power evacuation from Private Power Projects (PPP):

In order to evacuate about 730 MW power in Gummudipoondi area, it is proposed to establish a 400 kV substation at Thervoikandigai and the Substation works are under progress. Initially it is proposed to commission the SS at 230 kV level. For 400 kV connectivity, for one portion (part of the line) works are under progress and works are being awarded for the balance portion.

16.5. Solar power evacuation:

In order to evacuate the solar power generation likely to be installed in the southern parts of the state, it is proposed to establish a 400 kV SS at Kamudhi and a 230 kV SS at Muthuramalingapuram. Also 230 kV DC line works of length 300 ckms connecting Muthuramalingapuram to the existing Kavanoor 230 kV SS via proposed Kamuthi 400 kV SS and from Kavanoor 230 kV SS to Karaikudi 230 kV SS is under progress towards interim measure and is expected to be completed by 2015-16.

For Kamuthi 400 kV SS, work is under process and the SS is expected to be commissioned by 2016-17.

Work will be taken up for establishment of Pudukkottai 400 kV SS with associated lines during 2015-16.

16.6. Japan International Co-operation Agency (JICA) Assistance:

Under the Official Development Assistance (ODA) Loan of JICA with the financial assistance amounting to Rs.3572.93 crores, 5 nos. 400 kV substations and 14 nos. 230 kV substations with the associated transmission lines are proposed to be established throughout the State towards transmission system improvement.

Programme and status of the schemes under JICA funding is furnished below:

Alandur (CMRL) 230 kV substation has been commissioned during May 2015.

Works are under progress for two nos. 400 kV substations viz. Sholinganallur (Ottiyambakkam), Karamadai and 8 nos. 230 kV substations viz. Ambattur 3rd Main Road, RA Puram, Kumbakkonam, Kinnimangalam, Poiyur, Karuvalur, CMRL(Central) and Purisai. These substations are expected to be commissioned by 2015-16.

Works are also under progress at Manali 400 kV Gas Insulated Switchgear (GIS) sub station and 230 kV substations at Tiruppur and Shenbagapudur. Tendering activities are under process for 230 kV substation at TNEB Head Quarters and 400 kV substations at Korattur and Guindy.

16.7. Other Schemes proposed in Chennai area:

Apart from the schemes proposed in JICA for improving Chennai network, three more new 230 kV Substations at Thiruverkadu, Mambalam and Porur are proposed to be established. Works has been completed at Thiruverkadu 230 kV sub station and the sub station was charged on 08.10.15. Work has been commenced for establishment of Mambalam 230 kV sub station and tendering activities are under progress for 230 kV substation at Porur.

16.8. Other Substations for system improvement:

Eight nos. 230 kV substations are proposed for commissioning during FY 2014-15 of which, the following 4 nos. 230 kV substations have been commissioned:

Karamadai 230 kV SS	– 19.04.2014
Coimbatore 230 kV SS	– 16.07.2014
Pallakkapalayam 230 kV SS	– 14.08.2014.
Anthiyur 230 kV SS	– 14.01.2015

Works are under progress in respect of other four Nos. 230 kV substations at Guindy, Thingalur, Singapuram and Ulundurpet and these 230 kV sub stations programmed for 2014-15 were commissioned during 2015-16 as detailed below:

Guindy (GIS)	- 06.04.15
Thingalur	- 05.12.15

Ulundurpet - 31.01.16

Singapuram - 31.03.16

Works have been taken up for six nos. 230 kV Substations at Omega, Vyasarpadi, Jambunathapuram, Kurukuthi, Gurubarapally and Valayapatty in 2014-15 with completion during 2015-16. Two new schemes at Udanapally and Thuvakudi were taken up during 2015-16.

Of the eight Nos. 2015-16 schemes stated above, the following are the status:

Omega – programmed for commissioning by 31.03.16

Vyasarpadi - programmed for commissioning by 31.03.16

Jambunathapuram - work under progress

Kurukuthi – work under progress

Gurubarapally - Sub station works under progress; line works completed.

Valayapatty – work under progress

Udanapally - Estimate under preparation for floating tender

Thuvakudi – Site taken over; estimate is under scrutiny; survey under progress for line works.

16.9 Power evacuation scheme for new thermal power projects in North Chennai area:

In order to evacuate the power generated from the proposed new thermal power projects in North Chennai area, a new 765 kV substation is proposed at North Chennai and land acquisition is under process for the Substation. For effectively distributing the power generated and sourced from other States, another 765 kV Substation at Ariyalur in Villupuram District has been approved. Tender will be floated shortly for Ariyalur 765 kV Substation. Further a 400 kV GIS substation at Pulianthope is proposed with connectivity to the existing NCTPS Stage-II. Tender has been floated for Pulianthope 400 kV GIS substation.

16.10. Green Energy Corridor - KfW Funding:

In order to evacuate the huge quantum of the Renewable Energy (RE), TANTRANSCO has taken up establishment of a vast network of high capacity transmission lines in the State for Rs.6000 crores. Ministry of New and Renewable Energy (MNRE) recommended for assistance in the form of Grant under National Clean Energy Fund (NCEF) from Ministry of New and Renewable Energy and loan from KfW, the German Development Bank for a portion of creation of the transmission network infrastructure for RE power evacuation for Rs.1593 crores to Ministry of Finance/ Government of India.

The schemes under KfW funding primarily for evacuation of renewable energy are taken up in five packages.

Package I – 400 kV sub station at Thennampatti (Pavoorchatram)

Package II – 400 kV DC line from Thennampatti to Kayathar

Package III – 400 kV DC line from Rasipalayam to Palavadi

Package IV – 230 kV Transmission lines connecting various sub stations in Tirunelveli, Madurai, Coimbatore region

Package V – Augmentation of transformation capacity at six numbers existing 230 kV sub stations.

Tendering activities are under progress for Packages I & II and works are under progress for the rest of the three packages.

16.11 110 kV sub stations:

To improve the voltage regulation, reduce the line loss, providing load relief to the existing sub stations, to meet the future load growth in and around the area, to provide 33 kV source to new 33 kV sub stations and to extend EHT/HT supply, 38 Nos. 110 kV sub stations and 40 Nos. 110 kV sub stations have been taken up in FY 2014-15 and FY 2015-16 respectively. Of the above, 32 Nos.110 kV sub stations have been commissioned during 2014-15 and 39 Nos. 110 kV sub stations have been commissioned during 2015-16.

16.12 Addition of new transmission lines at 400 kV, 230 kV and 110 kV level as link lines, towards power evacuation and improvement works:

16.12.1 Link Lines:

Major work under the link line category is erection of 400 kV DC Quad line from Karaikudi 400 kV SS to Pugalur 400 kV SS for a length of 326 ckms and Pugalur to Kalivanthattu for a length of 778 ckms which is part of the backbone network for transfer of wind power from southern part to northern part of the state have been charged on 09.07.15 and 16.10.14 respectively. The work of 400 kV line between Kalivanthattu and Ottiampakkam which is also a part of the backbone network is under progress; however ROW issues are involved.

16.12.2 Power Evacuation Lines :

Power evacuation lines include the works taken up for Sugar mills, wind power evacuation (LILO of Thappagundu and Anikadavu 400 kV Lines at Udumalpet (PGCIL) SS) and Solar power evacuation (Erection of 300 ckms of 230 kV lines in and around Muthuramalingapuram area).

16.12.3 Improvement line works under 230 kV and 110 kV level have been taken up.

16.13 Other Capital works: TANTRANSCO CIP proposal includes addition/enhancement of power transformers in EHV sub stations, installation/replacement of capacitor banks, Grid security system, R-APDRP and construction of administrative building for TANTRANSCO for an amount of Rs.662 crores for the FY 2014-15 and Rs.214.20 crores for the FY 2015-16.

17.0 Cost Benefit analysis

TANTRANSCO submits that cost benefit analysis is not feasible in view of the following:

The main function of the transmission system is to evacuate power from the generation projects such as Thermal, wind etc., to distribution/ load centres by establishing sub stations and transmission lines. Adequate transmission system has to be in place to provide power as per the installed capacity and to meet the demand.

Further, the transmission system shall ensure availability of the system with minimum down time, avoiding congestion in the network, meeting the revised transmission Planning criteria reducing the line loss to the maximum extent possible by improving and augmenting the existing network.

18.0 Funding of Capital Investment Plan works:

TANTRANSCO has indicated that the schemes have already been tied up with REC, Power Finance Corporation, Japan International Cooperation Agency and TamilNadu Investment Promotion Programme. It is also noted that certain schemes for creation of transmission network infrastructure for evacuation of Renewable energy for Rs.1593 crores are executed with the financial assistance in the form of Grant under National Clean Energy Fund (NCEF) from Ministry of New and Renewable Energy and loan from KfW, the German Development Bank.

19.0 General observations of the Commission on CIP:

19.1 The Commission makes the following observations on the CIP proposal of TANTRANSCO:-

19.1.1 The CIP proposal submitted by TANTRANSCO is based on the initially approved cost by the Board of TANTRANSCO.

19.1.2 Approval has been sought for scheme cost of more than Rs.2.00 crores only as per Commission's letter dated 06.03.15.

19.1.3 On going through the details of the capital works submitted by TANTRANSCO, it is seen that there is a huge time gap between initial approval date of the scheme and taking up of work and award of works. Also there is again a time over run from award date to completion of the schemes. For example, Palakkapalayam which has been initially approved during 2008, was actually completed during 08/2014 only. This is also observed in most of the 230 kV sub station schemes such as Anthiyur, Guindy, Karamadai, Thingalur, Ulundurpet, Singapuram etc. Though the Utility is well aware that

delayed implementation / completion of the schemes reflects on the costs, the initiative taken by the Utility to ensure speedy completion of capital works is far from satisfactory.

19.1.4 Largely mismatch in implementation of the sub station and associated transmission line works is observed i.e., either the sub station works are under progress but its associated line works are in tendering stage or the vice versa. In schemes such as Thervaikandigai 400 kV SS, it is seen that it is proposed to commission the SS at 230 kV level and for the 400 kV connectivity, for one portion (part of the line) works are under progress and work is being awarded for the balance portion. Similar such inconsistency in transmission sub station and associated line works are also observed in a few JICA schemes.

19.1.5 It is also noticed that there is abnormal delay in the completion of power evacuation schemes be it for Private Power Producers, wind, solar etc, though the Utility is well aware that the gestation period of wind and solar power generation projects are low.

19.1.6 The Utility has planned for execution of power evacuation schemes from new thermal power projects in North Chennai area at 765 kV level viz. the North Chennai 765 kV pooling station and also another 765 kV sub station at Ariyalur in Villupuram District for effective distribution of the generated power and also the power sourced from other States. However, a provision of Rs. 20.00 crores has been made for Ariyalur 765 kV sub station in FY 2014-15 and no provision has been made for FY 2015-16. Lack of planning in execution of works is evident in spite of the fact that the said transmissions schemes are of crucial nature and are to be completed in synchronization to the generation projects.

19.1.7 It is pertinent to note that sub station works and associated line works are taken up independently without considering the probable completion period of each of them. For example, it is seen that award of work for construction of 400 kV Gas Insulated Switchgear (GIS) sub station at Guindy is in progress. However there is no precipitate

action with respect to its line works. It is well known that the completion period of 400 kV sub station is 18 months, the same for the line in this case Underground (UG) Cable is more than 30 months. It is essential on the part of the TANTRANSCO to plan the works in such a way that there is synchronism.

19.2 Commission's view on Cost Benefit analysis

19.2.1 As per provisions of the Electricity Act, 2003, the functions of the STU shall be,

- i) to ensure development of an efficient, coordinated and economical system of intra state transmission lines for smooth flow of electricity from a generating station to the load centers and
- ii) to provide non-discriminatory open access to its transmission system for use by any licensee or generating company or any consumer on payment of the transmission charges.

19.2.2 Also, the National Tariff Policy 2016 states the following:

- i) In order to further encourage renewable sources of energy, no inter state transmission charges and losses may be levied
- ii) CTU/STU should undertake network expansion after identifying the requirements in consonance with the National Electricity Plan and in consultation with stakeholders, and taking up the execution after due regulatory approvals. For smooth operation of the grid, efforts should be made to develop transmission system ahead of generation.
- iii) CTU/STU should ensure upgrading of transmission systems to avoid the situations of overloading. The Appropriate Commission should permit adequate capital investments in new assets for upgrading the transmission system

19.2.3 Accordingly, CIP proposal of TANTRANSCO describes network expansion taken up by the Utility for various intentions such as power evacuation for thermal, Wind and solar projects, for interstate transfer of power, towards system strengthening, to meet the load growth, and for reducing line loss.

19.2.4 The Utility has proposed schemes for evacuation of power from new thermal projects in North Chennai area, wind power in Theni, Udumalpet and Tirunelveli areas, solar power from southern parts of the State and Private power projects. Though the wind power is seasonal, infirm in nature and solar power is available only through the day as against the firm thermal power, investments has to be made by TANTRANSCO irrespective of the nature for power evacuation schemes.

19.2.5 The investments proposed by TANTRANSCO for establishing 230 kV and 110 KV sub stations and improvement line works under 230 kV and 110 kV level is primarily to meet the increasing demand, to avoid overloading of the nearby sub stations, to accommodate future loads, reduce line loss.

In view of the above, Commission appreciate the fact that TANTRANSCO's primary duty is to establish and maintain reliable transmission network across the State to cater to the needs of the consumer of the State.

However, this Commission also likes to point out that the Utility is to operate its transmission system in the most economical manner. In this regard, the Commission considers that the Utility shall ensure that each element of the transmission system whenever taken up for construction is thoroughly analysed scientifically using modern software facilities that are available.

Another important aspect that the Utility shall consider is optimizing the transmission losses. Optimisation of transmission loss necessarily involves consideration of cost benefit. It is necessary that whenever a new transmission scheme is proposed, the utility shall assess the transmission loss before inclusion of the element and after inclusion of the same. Similarly whenever a new improvement scheme is proposed, it is very essential to quantify and compare the reduction in transmission loss that would result on account of the commissioning of the proposed scheme vis a vis the cost incurred for setting up the same.

20.0 PAST PERFORMANCE:

The Commission has analysed the actual investments made by the petitioner for the last three years. In the Commission's SMT Order No. 8 dated 11.12.14, the capital expenditure considered by the Commission which is based on the audited accounts and annual statement of accounts of TANTRANSCO is as under:

PARAMETER	FY 2011-12	FY 2012-13	FY 2013-14
Capital Expenditure Rs. in cr.	1044.60	1412.17	2204.55

The capital expenditure considered by the Commission in the SMT Order No.8 dated 11.12.14 for the FY 2014-15 is Rs. 2907.43 crores as per provisional details submitted by TANTRANSCO.

21.0 CIP for the FY 2014-15 and FY 2015-16:

21.1 The Utility has submitted a Capital Investment Plan of Rs. 2907.43 crores for the FY 2014-15 and Rs. 2946.75 crores (revised) for the FY 2015-16.

21.2 The Commission took note of the Capital expenditure incurred for Rs.3200.04 crs in the FY 2014-15 (subject to audit) furnished by TANTRANSCO separately and an expenditure of Rs.2446 crores upto 31.01.16 for the FY 2015-16 as stated in the Additional affidavit of TANTRANSCO.

21.3 It is observed that the actual expenditure for the FY 2014-15 has exceeded the CIP for the year though the CAPEX statement includes expenditure incurred for schemes completed prior to FY 2014-15. The Commission also took note of Capitalization of Rs.3418.70 crs. based on TANTRANSCO Balance sheet for the FY 2014-15.

21.4 The statement of CIP proposed for the FY 2014-15 and FY 2015-16 is as follows:

PARAMETER	TANTRANSCO CIP proposal for				Considered in SMT Order No.8/11.12.14	CAPEX Statement of TANTRANSCO FY 2014-15
	Original		Revised			
	FY 2014-15	FY 2015-16	FY 2014-15	FY 2015-16		
Capital Expenditure (Rs. in cr.)	2907.43	3841.10	2907.43	2946.75	2907.43	3200.04

21.5 From the CIP proposal, it is noted that the Utility has undertaken vast network expansion by way of creating new evacuation system, improving the existing infrastructure to cater to the existing and the future loads.

21.6 Considering the network expansion taken up by the Utility, past performance, actual expenditure incurred for the FY 2014-15 (i.e.Rs.3200.04 crs) and upto 31.01.16 (i.e.Rs.2446 crs.) for the FY 2015-16, actual progress of works in respect of 765 kV, 400 kV sub stations and 230 kV sub stations furnished by TANTRANSCO in their additional affidavit and ROW issues in 400 kV line works during 2015-16, the Commission considers it appropriate to allow Rs.2890.43 crs. for the FY 2014-15 against Rs.2907.43 crs after considering disallowance of Rs.17.00 crs in respect of the following sub station works in view of the poor progress of works and ROW issues:

- i) Ariyalur 765 kV sub station works - Rs.10.00 crs.
- ii) 110 kV sub station works at Amaravathipudur, } - Rs. 7.00 crs.
Poosalakudi, M.G.Pudur, Nadaikavu, Race Course }

For the FY 2015-16, the Commission allows Rs.2799.95 crs against Rs.2946.75 cr disallowing Rs.146.80 crs. in the following sub station works including JICA schemes considering the slow progress of work:

- i) 400 kV sub station works at Rasipalayam, } - Rs.98.00 crs.
Kanarpatty, Dharmapuri (Palavady), Kamudhi }
- ii) 230 kV sub station work at Kurukkathi, Valayapatty - Rs.20.00 crs.
- iii) JICA Schemes - Rs.28.80 crs.

21.7 The Transmission scheme wise abstract of the Capital expenditure proposed by TANTRANSCO and allowed by the Commission is as follows:

Sl. No	Description	FY 2014-15		FY 2015-16	
		TANTRANSCO CIP proposal	Commission's Approval	TANTRANSCO CIP proposal	Commission's Approval
I	Sub station works				
	765 kV Sub Stations	20.00	10.00	-	-
	400 kV Sub Stations	1165.00	1165.00	795.00	697.00
	230 kV Sub Stations	222.70	222.70	286.00	266.00
	110 kV Sub Stations	305.73	298.73	270.75	270.75
	SUB TOTAL	1713.43	1696.43	1351.75	1233.75
II	Transmission Line works				
	Link Lines - 400 kV, 230 kV	200.00	200.00	165.00	165.00
	Power Evacuation Lines - 400 kV, 230 kV and 110 kV	82.00	82.00		
	Improvement Lines - 230 kV, 110 kV	250.00	250.00	200.00	200.00
	SUB TOTAL	532.00	532.00	365.00	365.00
III	OTHERS				
	Enhancement / Additional Transformers Power	240.00	240.00	199.20	199.20
	TRANSCO Building	20.00	20.00	5.00	5.00
	Capacitor Bank	20.00	20.00	---	-
	R- APDRP	20.00	20.00	10.00	10.00
	Grid Security System	62.00	62.00	-	-
	JICA Schemes	300.00	300.00	728.80	700.00
	KfW Schemes			287.00	287.00
	SUB TOTAL	662.00	662.00	1230.0	1201.20
	Total	2907.43	2890.43	2946.75	2799.95

21.8 The scheme wise details are enclosed as Annexure I-IV.

22. CIP APPROVAL

22.1 The initial approved scheme cost furnished by the Utility in the petition is taken into consideration and based on the review and reassessment of physical progress of various EHV works, the approved investment plan, submitted by TANTRANSCO, would be as under:

Approved Investment Plan for the FY 2014-15 and FY 2015-16

Sl. No.	Particulars	Proposed by TANTRANSCO	Approved by the Commission
1	Transmission works for 2014-15	Rs.2907.43 crs	Rs.2890.43 crs.
2	Transmission works for 2015-16	Rs.2946.75 crs.	Rs.2799.95 crs

However, if TANTRANSCO incurs actual expenditure more than what is approved in this order, TANTRANSCO may seek a revision with reasons and the Commission may consider the same subject to verification of actuals and prudence check.

23. Capitalization Plan:

The capitalization plan submitted by TANTRANSCO is for spill over as well as new schemes which is taken note of. However actual capitalisation shall be accounted and adjusted at the time of true up when realistic values will be available.

24. Summary

In adherence to the directions of Hon'ble APTEL in order on Appeal No.197 of 2013 dated 18th October, TANTRANSCO has submitted the application for CIP for the FY 2014-15 and 2015-16 for approval and the Commission also issues this order on the Capital Investment Plan approval in compliance to the directions of the Hon'ble APTEL though it is beyond the Plan period. The Capital Investment Plan submitted by the TANTRANSCO and as approved by the Commission is as hereunder:

Sl. No.	Particulars	Proposed by TANTRANSCO Rs. in cr.	Approved by the Commission Rs. in cr.
1	Transmission works for 2014-15	2907.43	2890.43
2	Transmission works for 2015-16	2946.75	2799.95

25. Commission's Directives

25.1 Approval granted by the Commission is in-principle approval and such approval by the Commission does not in any way absolve or dilute the responsibility and liability of the competent authorities to adhere to prudence check of technical requirement and detailed specifications.

25.2 Priority of implementation of the schemes and their completion should be decided by TANTRANSCO. Effective monitoring should be made for completion of the schemes within the scheduled period. It is also to be ensured that the sub station works and its associated lines works are in sync so that the entire scheme could be put into effective use.

25.3 As 765 kV schemes are taken up for the first time by TANTRANSCO, TANTRANSCO need to take every possible effort so that the said transmissions schemes which are of crucial nature are completed in synchronization to the generation projects keeping in mind the ROW issues which are inherent to transmission schemes.

25.4 During actual execution, in some of the schemes, there may be slippage in the completion schedule, due to ROW issues such as Court cases/Land owners objections, delay on the part of turnkey contractor/ material suppliers etc. However, TANTRANSCO should endeavor to complete the works as per the plan.

25.5 As provided in the regulations, in case of emergency situations, causing threat to life and property, work may be taken up by the utility on its own. However, in such cases, the petition for ex-post facto approval should be submitted at the first available opportunity with justification. The Commission, subject to its satisfaction with exigency stated and prudent scrutiny of cost, may accord approval for such additional capitalization.

25.6 The work of arranging land for establishment of sub-stations, forest clearance, resolving ROW issues etc. should be processed timely and on priority, as this take its own time.

25.7 TANTRANSCO is also directed to file quarterly progress report of transmission schemes whose administrative approval cost is more than Rs.100.00 crores with details such as program of execution and completion, contract award details, expenditure incurred etc.

25.8 TANTRANSCO shall furnish the Commission the actual transmission losses for the FY 2014-15 and FY 2015-16 within a month.

25.9 TANTRANSCO is directed to ensure proper financial planning and due diligence and also reconcile its accounts with respect to capital expenditure and capitalization and file the progress on a quarterly basis.

26.0 Appeal:

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

(Sd)
(Dr.T.Prabhakara Rao)
Member

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

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

/ True Copy /

Secretary
Tamil Nadu Electricity
Regulatory Commission

ANNEXURE - I

ABSTRACT - CAPITAL INVESTMENT PLAN OF TANTRANSCO FOR THE FY 2014-15

		TANTRANSCO CIP Proposal Rs in Lakhs	Commission's Approval Rs in Lakhs
		2014-15	2014-15
I.	Sub station works		
	765 kV Sub Stations	2000	1000
	400 kV Sub Stations	116500	116500
	230 kV Sub Stations	22270	22270
	110 kV Sub Stations	30573	29873
	SUB TOTAL	171343	169643
II	Transmission Line works		
	Link Lines - 400 kV, 230 kV	20000	20000
	Power Evacuation Lines - 400 kV, 230 kV and 110 kV	8200	8200
	Improvement Lines - 230 kV, 110 kV	25000	25000
	SUB TOTAL	53200	53200
III	OTHERS		
	Enhancement / Additional Power Transformers	24000	24000
	TRANSCO Building	2000	2000
	Capacitor Bank	2000	2000
	R- APDRP	2000	2000
	Grid Security System	6200	6200
	JICA Scheme	30000	30000
	KfW Schemes		
	SUB TOTAL	66200	66200
	Total of New Projects	290743	289043

ANNEXURE - II -DETAILS OF CAPITAL INVESTMENT PLAN OF TANTRANSKO FOR THE FY 2014-15

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSKO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
I.	SCHEMES PROGRAMMED FOR COMMISSIONING IN 2014-15										
A	400 kV SUB STATIONS										
	1	KAYATHAR	2X315+1X200	69132	77/17.06.10	29.05.14/04.07.14	3000	3000	To evacuate/pump out huge quantum of wind power from southern parts of the State to load centres in Northern parts of the State through Karaikudi, Pugalur and Kalivanthapattu PGCIL 400 kV substations and to avoid overloading of Abishekapatty 400 kV SS due to wind power in addition to atomic power from Koodankulam.	REC	315 MVA, 400/230 kV ICT-I commissioned on 04.07.14 and second ICT on 08.09.14. 200 MVA, 400/110 kV ICT commissioned on 16.08.14
	2	THIRUVALAM	2X315	102918	8/04.02.13	10.10.14/27.07.14	50000	50000	For transfer of interstate power	REC	315 MVA, 400/230 kV first ICT commissioned on 27.07.14 and second ICT on 06.10.14
	3	THERVAIKANDIGAI	2X315+1X200	57619	7/10.02.12	03.03.14/03.03.15	5000	5000	To connect all the private power plants which can be used as an evacuation hub with connectivity to major 400 kV substations for power evacuation, to meet out the rapidly increasing load demand of Chennai city and for effective load management.,	REC	Works are under progress. Initially, it is proposed to commission the SS at 230 kV level by 31.03.16.
	Total						58000	58000			

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
B 230 kV SUB STATIONS							2014-15	2014-15			
	1	KARAMADAI	2X100	5380	566/ 27.10.07	Charged on 19.04.14	300	300	To meet the increasing demand of Coimbatore area and for effective load management.	REC	1x100 MVA Tr. Commissioned on 19.04.14 and second 100 MVA Tr. Commissioned on 09.02.15.
	2	COIMBATORE	2X100	3972	18/23.01.13	16.07.14	750	750	To feed the sanctioned and proposed 110 kV substations and to accommodate future load growth in Coimbatore city area.	REC	1x100 MVA Tr. Commissioned on 16.07.14 and second 100 MVA Tr. Commissioned on 13.12.14.
	3	PALAKKAPALAYAM	2X100	3728	95/21.06.08	19.12.12/ 14.08.14	200	200	To feed the sanctioned and proposed 110 kV substations and to accommodate future load growth in Mettur EDC.	PFC	Commissioned on 14.08.14.
	4	ANTHIYUR	2X100	4492	148/29.10.10	11.06.14/ 31.12.14	750	750	To reduce the overload in the nearby 230 kV substations and and to accommodate future load growth	PFC	Commissioned on 14.01.15.
	5	GUINDY (GIS)	3X100	42455	10/28.01.08	31.12.14	500	500	To give load relief to Koyambedu and Kadapperi 230 kV substations, to have operational flexibility, to avoid over loading and load shedding and to accommodate the rapidly increasing demand.	REC	Commissioned on 16.04.15

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	6	ALANDUR(CMRL) (GIS)	2X100+ 2X50	15644	21/30.04.12	28.11.14/ 31.03.15	*	*	To provide quality and reliable supply to CMRL and Airport EHT services, to accommodate future load growth and to provide load relief to Kadapperi 230 kV SS.	JICA	First 100 MVA Tr. Commissioned on 29.05.15 and second 100 MVA Tr. commissioned on 17.08.15.
	7	THINGALUR	2X100	9079	3/08.02.11	17.04.13/ 31.03.15	750	750	To give load relief to Ingur and Gobi 230 kV substations and to cater the existing and proposed substations.	PFC	Test charged on 05.12.15
	8	ULUNDURPET	2X100	4009.46	87/30.04.05	31.03.15	500	500	To cater the loads of Ko.Poovanur, Ulundurpet, Thiagadurgam, T.V.Nallur, Pillayarkuppam and Veppur 110 kV substations which are fed from Neyveli S-I-Deviakurichi feeders - I & II by T off arrangement.	PFC	Works completed . SAS testing is under progress. Programmed to be commissioned by 31.01.16.
	9	SINGAPURAM	2X100	3254	145/29.10.10	14.09.13/ 31.03.16	1500	1500	To avoid overloading, to feed the proposed and sanctioned 110 kV substations, to accommodate future load growth in Salem area and to reduce over loading of 110 kV Salem - Deviakurichi feeder - I & II.	REC	Works are under progress. One no. 100 MVA auto transformer erected and P&C testing is under progress. SAS panel awaited. Programmed to be commissioned by 31.03.16
		TOTAL					5250.00	5250.00			

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
C 110 kV SUB STATIONS							2014-15	2014-15			
	1	KOSAVAPATY	1x10+1x10	644.67	32/04.07.03	26.03.14	100.00	100.00	To improve the voltage regulation, reduce the line loss, provide load relief to the existing substations, to meet the future load growth in and around the area , to provide 33 kV source to new 33kV Substations and to extend EHT/HT Supply.	PFC	Commissioned on 26.03.14
	2	KATHIRNAIKENPALAYAM	2x16	653.53	64/21.09.13	29.03.14	100.00	100.00		REC	Commissioned on 29.03.14
	3	NARASINGAMPATTY	1x16	215.42	190/06.11.13	30.04.14	200.00	200.00		PFC	Commissioned on 30.04.14
	4	VELLORE	1x16	193.39	15/23.01.13	30.04.14	100.00	100.00		PFC	Commissioned on 30.04.14
	5	MUKUNTHARAYAPURAM	2X16	617.14	27/27.06.12	16.05.14	350.00	350.00		REC	Commissioned on 16.05.14
	6	KATPADI	1X16	229.05	30/18.02.13	16.05.14	100.00	100.00		PFC	Commissioned on 16.05.14
	7	SALAI PUDUR	2x16	777.85	65/21.09.13	31.05.14	450.00	450.00		REC	Commissioned on 31.05.14
	8	DURAISAMPURAM	1x16+1x8	599.68	19/03.05.13	14.08.14	350.00	350.00		PFC	110/33 kV ratio commissioned on 14.08.14 and 33/11 kV ratio commissioned on 17.12.14.
	9	THIRUTTANI	1x10	157.39	206/06.12.13	22.08.14	120.00	120.00		REC	Commissioned on 22.08.14
	10	MINUKKAMPATTY	2x16	775.51	34/04.07.13	10.09.14	600.00	600.00		PFC	Commissioned on 10.09.14
	11	VENBAKOTTAI	2X16	877.39	12/11.03.13	20.09.14	200.00	200.00		PFC	Commissioned on 20.09.14

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	12	MOOLAKARAIPATTY	1x16	1234.4	142/23.08.13	03.11.14	500.00	500.00		PFC	Commissioned on 03.11.14
	13	PERUMBAKKAM	1X25+2X16	1222.12	3/04.02.13	30.11.14	250.00	250.00		TNIPP	Commissioned on 21.11.14
	14	OLAPALAYAM	2x16	532.59	148/30.08.13	31.12.14	350.00	350.00		REC	Commissioned on 25.11.14
	15	MALLIAKARAI	2X10	727.66	18/11.05.11	31.12.14	350.00	350.00		REC	Commissioned on 11.12.14
	16	CHINNAKATTALAI	1x25	243.96	123/30.07.13	31.12.14	200.00	200.00		PFC	Commissioned on 11.12.14
	17	GUDAMALAI	2x10	491.83	22/22.05.13	31.03.15	300.00	300.00		REC	Commissioned on 22.01.15
	18	KOTTAMANGALAM	2x16	745.21	14/13.01.14	31.01.15	447.00	447.00		REC	Commissioned on 30.01.15
	19	MATHUR	1x25	268.15	109/11.07.13	31.03.15	200.00	200.00		REC	Commissioned on 05.02.15
	20	VADAKKUPATTU	1X25	221.41	38/07.03.14	31.12.14	206.00	206.00		REC	Commissioned on 06.02.15
	21	P.G.PALAYAM	2x16	731.08	182/24.10.13	31.03.15	400.00	400.00		REC	Commissioned on 20.02.15
	22	PERALI	2x10	533.68	20/03.05.13	31.03.15	300.00	300.00		PFC	Commissioned on 18.02.15
	23	KOMBUKARANATHAM	1x16+1x8	1002.79	36/04.07.13	31.03.15	900.00	900.00		PFC	Commissioned on 03.03.15
	24	SANKARANKULAM	2x16+2x8	659.52	87/06.11.13	31.03.15	450.00	450.00		PFC	Commissioned on 16.03.15
	25	ALUKULLI	2x10	588.11	62/21.09.13	31.01.15	400.00	400.00		REC	Commissioned on 30.03.15
	26	VANJIPALAYAM	2x16	985.87	15/13.01.14	31.03.15	800.00	800.00		PFC	Commissioned on 30.03.15
	27	KARAMBAYAM	1x16+1x8	791.23	86/06.11.13	31.03.15	450.00	450.00		PFC	Commissioned on 30.03.15

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No. (Rs.Lakhs.)		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	28	VANIYAMBADI	1x16	239.67	80/28.05.13	31.03.15	200.00	200.00		REC	Commissioned on 31.03.15
	29	ILANTHAIKULAM IT PARK	2X16	599.12	41/15.04.10	31.03.15	500.00	500.00		REC	Commissioned on 31.03.15
	30	MADURANTHAGAM	2x16	1279.53	68/26.04.13	31.03.15	500.00	500.00		REC	Test charged on 25.06.15
	31	OTHAKADAI	1x10	396.35	88/07.11.13	31.03.15	250.00	250.00		PFC	Commissioned on 24.08.15
	32	KANDAMANUR VILAKKU	1x16	1889.12	2/09.01.14	31.03.15	1100.00	1100.00		PFC	Test charged on 30.11.15
	33	THIRUMANGALAM SOUTH (METRO ZONE)	2x25+ 2x16	2832.39	20/30.04.12	2015-16	1500.00	1500.00		TNIPP	Works are under progress. Programmed to be commissioned by 31.03.16.
	34	AMARAVATHIPUDUR	1x16	1190.28	4/09.01.14	31.03.15	850.00	750.00		PFC	Works are under progress.
	35	POOSALAKUDI	1x10	847.16	3/09.01.14	31.03.15	700.00	600.00		PFC	Works are under progress.
	36	M.G.PUDUR	2x16	1746.94	20/13.01.14	31.03.15	1000.00	800.00		REC	Works are under progress.
	37	NADAIKAVU	1x10	518.36	235/13.12.07	31.03.15	300.00	200.00		PFC	SS Work completed. Line work under ROW issue.
	38	RACE COURSE	2x10	1610.19	20/08.02.10	31.03.15/2016-17	500.00	300.00		PFC	Control room works awarded and commenced. Alternate route is under finalisation for 110 kV line work due to long pending railway crossing approval.
		Total					16573	15873			

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
IV		LINK LINES, POWER EVACUATION LINES AND IMPROVEMENT LINES (2014-15)									
	i	LINE WORKS 2014-15									
	A	LINK LINES									
	a.	400 kV Line									
	1	Erection of 400 kV DC line with Quad Moose conductor from Karaikudi 400 kV SS to Pugalur 400 kV SS	326	38781	26/06.08.2011	31.12.14	15000	15000	Part of the Back bone Network for transfer of Wind power from Southern Part to Northern Part of the State.	REC	Both the Ckts have been test charged radially from Kayathar end on 03.07.15 and tied with the grid on 09.07.15.
	2	400kV DC line from Pugalur 400kV PGCIL SS to Kalivanthapattu	778	128440	137/18.06.2007					REC	One Ckt charged on 23.07.14 and 2nd Circuit test charged on 16.10.14
		a)Pugalur-Pandiyankuppam reach	296.0	48050		One Ckt charged on 23.07.14 and 2nd Circuit test charged on 16.10.14					
		b) Pandiyankuppam Veeramanur reach	228.0	36086							
		c) Veeramanur - to Kalivanthapattu SS	254.00	44304							
	3	400kV DC line from Kalivanthapattu to Ottiyambakkam	48.00	3120	137/18.06.2007	2015-16				REC	Works are under progress. ROW issues involved
	TOTAL of 400 kV Lines					15000	15000				

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	b	230 kV Line									
	1	Proposal for erection of 230 kV link lines to Kalivanthapattu 400/230 kV SS	38.02	4869	12/08.02.2011	31.12.14	5000	5000	Link line of Kalivanthapattu 400 kV SS	REC	Line work completed and radially charged from Kadapperi end on 13.01.15
	2	Erection of 230 kV SC line on DC towers from Arasur 400 kV SS to Karamadai 230 kV SS	48	1107	262/07.12.2005	31.03.15			Link line of Arasur PGCIL 400 kV SS	REC	Line energised on 08.06.15.
	3	Erection of 230 kV SC line on DC towers from Karaikudi 400 kV SS to Sembatty 230 kV SS	140	4228	77/11.04.2007	31.03.15			Link line of Karaikudi PGCIL 400 kV SS	REC	Contract terminated and balance work is being taken up by SE/GCC/Madurai. Tender opened on 03.12.15 and under finalisation.
		Total of 230 kV Lines					5000	5000			
		Total of Link Lines					20000	20000			
	B	Power Evacuation Lines									
		110 kV Sugar Mill			Various approvals	14-15	200	200	Power evacuation line		
		Total of Power Evacuation Lines					200	200			
	C	Improvement Lines				14-15			Towards Improvement works		
		230 kV LINES	106		Various approvals		5000	5000			
		110 kV LINES	300				20000	20000			
		66 kV Lines					0	0			
		Total of improvement of Line					25000	25000			
		Grand Total of Lines					45200	45200			

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) No.	Date of Completion (Actual/Anticipated)	TANTRANS CO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.	2014-15	2014-15			
II	PROVISION FOR SCHEMES PROGRAMMED FOR COMMISSIONING DURING 2015-16 AND SUBSEQUENT YEARS									
A	765 kV SS									
1	Ariyalur	2X1500	212145	91/07.11.13	2018-19	2000	1000	For Transferring power either way which have been pooled at North Chennai Pooling station and Udangudi Pooling station to the Load centers.	REC	Specification under preparation for floating tenders
	Total					2000	1000			
B	400 kV SS - Non JICA schemes									
1	Thappagundu	3X200	9311	59/3.12.12	04.12.14	10000.00	10000.00	For evacuation of wind power in Madurai region	PFC	Work under progress
2	Anikadavu	2X315+2X200	50640	59/3.12.12	04.12.14	10000.00	10000.00	For evacuation of wind power in Coimbatore region	PFC	Work under progress
3	Rasipalayam	2X315+3X200	63046	59/03.12.12	15.11.15	7000.00	7000.00	For evacuation of wind power in Coimbatore region	PFC	Work under progress
4	Kanarpatty	2X500 + 4x200	24760	107/06.07.13	10.06.15	9000.00	9000.00	For evacuation of wind power in Tirunelveli region	REC	Work under progress
5	Dharmapuri (Palavady)	2x315+ 2x200	98185.83	19/13.01.14	25.12.15	2500.00	2500.00	To cater the proposed SEZ loads in Krishnagiri District , future load growth and to feed the new Gurubarapalli and Uddanapalli 230 kV substations	NABARD	Work under progress
6	Pulianthope, Edayarpalayam and Kamudhi	3x315 MVA, 2x315MVA +3x200 MVA, 2x315 MVA + 3x200 MVA	55800 77282 43550	83/06.11.13 16/13.01.04 84/06.11.13	2017-18 2018-19 2016-17	20000.00	20000.00		REC & PFC	Kamudhi SS - Work under Progress; Pulianthope SS - Tender floated & Edayarpalayam - Revised Adm.appl to be sought.
	Total 400 kV SS					58500.00	58500.00			

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.)	with B.P. No.	Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.		2014-15	2014-15			
C	400 kV SS - JICA Funding schemes										
	1	Sholinganallur (Ottiyambakkam) (JICA)	2x315 MVA + 1x200 MVA	14860	76/ 11.04.07	18.06.15	*	*	To meet the bulk industrial loads coming up in Sholinganallur and Siruseri areas.	JICA	Works are under progress in respect of sub station and lines.
	2	Karamadai (JICA)	3x315 MVA	41576.56	05/03.03.12	19.11.15	*	*	To meet the rapidly increasing load demand of Coimbatore region for effective load management, to avoid overloading of existing 400/230 kV ICTs at Myvadi and Arasur during nil Hydro and nil Wind generation.	JICA	Substation works completed and back charged at 230 kV on 09.12.15. 400 kV line works are under progress.
D	230 kVSS - Non JICA Schemes										
	1	Omega	3x100	11555.27	58/ 30.11.12	18.05.15	250.00	250.00	To extend supply to the integrated Township near Mahabalipuram. Line loss savings 0.718 MW.	TNIPP	Work under progress
	2	Vysarpadi	2x100	6849.06	134/16.08.2013	25.05.15	250.00	250.00	To avoid overloading of 110 kV feeders, drawl of power at high cost, and to meet the future load growth	PFC	Work under progress
	3	Tiruverkadu	2x100	11392.6	04/ 04.02.13	12.10.15	2000.00	2000.00	To provide load relief to Korattur and Sriperumbudur substations and to cater the future load growth.	TNIPP	Work under progress
	4	Kurukuthi	2x100	12861.62	53/ 16.08.13	31.03.16	3500.00	3500.00	To provide load relief to Palladam, Ingur and Ponnapuram 230 kV substations and to facilitate operational flexibilities and alternate feeding arrangement to the existing substations.	REC	Work under progress

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. (Rs.Lakhs.) No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	5	Jambunathapuram	2x100	5478.15	23/22.05.13	31.03.16	2500.00	2500.00	To meet the EHT demand of 32 MVA at Jambunathapuram for the upcoming Steel Rolling Mill and to provide load relief to Trichy, Perambalur, Samayapuram and Budansandhai 230 kV substations.	REC	Work under progress
	6	Muthuramaligapuram	2x100	4751	84/06.11.13	31.03.16	2520.00	2520.00	To evacuate solar power from solar power promoters in Virudhunagar District.	PFC	Work under progress
	6	Mambalam	2x100	12270	36/06.03.14	2016-17	1000	1000	To accommodate the future load growth and to provide load relief to 33/11 kV Substations in Mambalam area	TNIPP	Tender under process
	7	Porur	2x100	24734	23/01.02.14	2016-17	1000	1000	In order to provide load relief to 110 kV Sriperumpudur - Porur feeder I and II and to accommodate future load growth.	REC	Tender under process
	8	Valayapatty	2x100	8869.18	12/13.01.14	2015-16	2000	2000	To provide load relief to Pugalur and Pudanchandai 230 kV Substaions. To meet the future load growth in and around Namakkal area and to provide operational flexibilities and alternate feeding arrangements to the existing substaions, so as to maintain uninterrupted power supply.	PFC	Work under progress
	9	Gurubarapally	2x100	3434.92	17/13.01.14	2016-17	2000	2000	To provide load relief to Hosur 230 kV SS and Shoolagiri 230 kV SS. To provide 33kV and 11 kV load relief to Krishnagiri 110/33-11 kV SS.	PFC	

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
E	230 KV SUB STATIONS - JICA Funding schemes										
	1	Karuvalur(JICA)	2x100	5342.09	19/30.04.12	20.08.15	*	*	To provide load relief to Arasur, Gobi 230 kV substations and to avoid overloading of 110 kV feeders and to meet the future load growth in and around Karuvalur area.	JICA	Work awarded and under progress
	2	Poiyur (JICA)	2x100	3470.89	131/05.10.10	20.08.15	*	*	To meet the future load growth in Ariyalur area, to provide uninterrupted power supply to EHT consumers especially for the Railway Traction and to provide the alternate supply to the existing Substations.	JICA	Work awarded and under progress
	3	CMRL Central (JICA)	2x100	17062.57	54/25.10.12	18.08.15	*	*	To provide reliable supply to CMRL	JICA	Work awarded and under progress
	4	Kinnimangalam (JICA)	3x100	4755.15	12/14.03.12	19.08.15	*	*	To provide load relief to existing Pasumalai 230 kV SS, to evacuate the wind generation in Theni district and to feed the proposed 110 kV new substations.	JICA	Work awarded and under progress
	5	Kumbakonam (JICA)	2x100	5790.72	06/04.02.13	19.08.15	*	*	To meet the future load growth and to extend supply to proposed 110 kV new substations.	JICA	Work awarded and under progress
	6	Purisai (JICA)	2x100	4552.78	07/04.02.13	18.09.15	*	*	To improve the voltage profile of Purisai and surrounding areas . There will be a saving of 3 MW on establishment of the SS.	JICA	Work awarded and under progress

Sl No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION'S Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	7	Ambattur 3rd main road (JICA)	2X100+2X25,10/33+2X16,110/11	8389.79	53/25.10.12	02.03.15	*	*	To meet the future load growth, development in Ambattur and surrounding area and to ensure reliability of supply to the essential upcoming infrastructure loads of Chennai city	JICA	Work awarded and under progress
	8	R.A.Puram (JICA)	2x100	16007.3	60/05.04.13	23.07.15	*	*	To provide load relief to Tharamani 230 kV SS, to provide alternate supply and to accommodate the enhancement of transformer capacity fed off by the substation.	JICA	Work awarded and under progress
		Total 230 kV SS					17020.00	17020.00			
D		110 kV SS (LS)					14000.00	14000.00			
		Total for 765 kV, 400 kV, 230 kV and 110 kV substations					91520.00	90520.00			
	ii	LINE WORKS 2015-16									
	A	POWER EVACUATION LINES -2015-16									
	a	400 kV LINES- 2015-16									
	1	LILo of one circuit of Thappagundu-Anaikadavu 400 kV DC line at Udumalpet 400/230 kV PGCIL SS with 2 Nos. bay extension	30	4052	209/26.12.2013	2015-16	1000	1000	For wind power evacuation.	REC	Tender floated with due date for opening on 13.01.16

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost with B.P. (Rs.Lakhs.) No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	b	230kV LINES -2015-16									
	1	Erection of 230 kV DC line on DC towers with Zebra conductor including OPGW cable from the proposed 230/110 kV Muthuramalingapuram 230/110-33 kV SS near Muthuramalingapuram to the existing Kavanoor 230 kV SS via proposed Kamuthi 400 kV SS	130	6459	185/30.10.2013	2015-16	7000	7000	For solar power evacuation	PFC	Works are under progress.
	2	Erection of 230 kV DC line on DC tower with Zebra conductor from Kavanoor 230 kV SS to Karaikudi 230 kV SS with 6 nos. 230 kV bay extension at Kavanoor and Karaikudi	170.0	9617	185/30.10.2013	2015-16			For solar power evacuation	PFC	Works are under progress

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO Provision Rs. In Lakhs	COMMISSION's Approval Rs. in lakhs	Justification	Funding	Present status
				Scheme cost	B.P.No.						
							2014-15	2014-15			
	B	Link Lines 2015-16									
	1	Erection of 230 kV SC line on DC towers with Zebra conductor between Palladam and Ingur instead of LILO of 230 kV Myvadi-Pugalur line at Palladam 230 kV SS	62.0	3463	73/02.11.2011	2015-16	0.00	0.00	Link line of Palladam 230 kV SS	REC	Works are under progress; Budget provision given in 2015-16.
	2	Replacement of aged Kundah conductor in the existing 230 kV Neyveli - Eachangadu feeder SC line on SC tower by 230 kV SC line on DC tower with Zebra conductor	39.90	1779	255/26.06.2010	2015-16	0.00	0.00	To strengthen the existing aged conductor with higher capacity conductor to carry more power	REC	Works are under progress; Budget provision given in 2015-16.
	3	Laying of 230 kV DC feeder cable with 1x1200 Sqmm XLPE cable from Mylapore - Taramani	25.00	4639	203/30.04.2005	2015-16	0.00	0.00	To conversion of Mylapore substation as Grid substation and strengthening 230 kV Network in Chennai Metro Area.	REC	Cable laying in 21/26 sections completed; Budget provision given in 2015-16.
		Total 230 kv					7000.00	7000.00			
		TOTAL of 400 kv and 230 kv Lines					8000.00	8000.00			

SI No	Item No.	Location	Capacity for SubStation/Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/Anticipated)	TANTRANSCO	COMMISSION's	Justification	Funding	Present status
				Provision Rs. In Lakhs	Approval Rs. in lakhs						
				Scheme cost	B.P.No.		2014-15	2014-15			
VI		OTHERS									
	1	ADDITIONAL / ENHANCEMENT OF TRANSFORMERS			Various approvals		24000.00	24000.00			
	2	TRANSCO BUILDING					2000.00	2000.00			
	3	CAPACITOR BANK			Various approvals		2000.00	2000.00			
	4	R-APDRP					2000.00	2000.00			
	5	GRID SECURITY SYSTEM (P&C)					6200.00	6200.00			
	6	BUDGET FOR JICA SCHEMES (*)					30000.00	30000.00			
		Total					66200.00	66200.00			
		Total of SS and Lines					290743	289043			

ANNEXURE - III

ABSTRACT - CAPITAL INVESTMENT PLAN OF TANTRANSCO FOR THE FY 2015-16

		TANTRANSCO CIP Proposal in Lakhs	Rs	Commission's Approval
		2015-16		2015-16
I.	Sub station works			
	765 kV Sub Stations			
	400 kV Sub Stations	79500		69700
	230 kV Sub Stations	28600		26600
	110 kV Sub Stations	27075		27075
	SUB TOTAL	135175		123375
II	Transmission Line works			
	Link Lines - 400 kV, 230 kV	16500		16500
	Power Evacuation Lines - 400 kV, 230 kV and 110 kV			
	Improvement Lines - 230 kV, 110 kV	20000		20000
	SUB TOTAL	36500		36500
III	OTHERS			
	Enhancement / Additional Power Transformers	19920		19920
	TRANSCO Building	500		500
	Capacitor Bank			
	R- APDRP	1000		1000
	Grid Security System			
	JICA Scheme	72880		70000
	KfW Schemes	28700		28700
	SUB TOTAL	123000		120120
	Total of New Projects	294675		279995

ANNEXURE - IV - DETAILS OF CAPITAL INVESTMENT PLAN OF TANTRANSCO FOR THE FY 2015-16

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
I. SCHEMES SPILLED OVER FROM 2014-15										
A 400 kV SUB STATIONS										
1	THERVAIKANDIGAI	2X315+ 1X200	57619	7/10.02.12	03.03.14/ 03.03.15	3000.00	3000.00	To connect all the private power plants which can be used as an evacuation hub with connectivity to major 400 kV substations for power evacuation, to meet out the rapidly increaing load demand of Chennai city and for effective load management.,	REC	Works are under progress. Initially, it is proposed to commission the SS at 230 kV level by 31.03.16.
Total						3000	3000			

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
B	230 kV SUB STATIONS									
1	SINGAPURAM	2X100	3254	145/29.10.10	14.09.13/ 31.03.16	500.00	500.00	To avoid overloading, to feed the proposed and sanctioned 110 kV substations, to accommodate future load growth in Salem area and to reduce over loading of 110 kV Salem - Deviakurichi feeder - I &II.	REC	Works are under progress. One no. 100 MVA auto transformer erected and P&C testing is under progress. SAS panel awaited. Programmed to be commissioned by 31.03.16
2	ULUNDURPET	2X100	4009.46	87/30.04.05	31.03.15	500.00	500.00	To cater the loads of Ko.Poovanur, Ulundurpet, Thiagadurgam,T.V.Nallur,Pillayarkuppam and Veppur 110 kV substations which are fed from Neyveli S-I-Deviakurichi feeders - I &II by T off arrangement.	PFC	Works completed . SAS testing is under progress. Programmed to be commissioned by 31.01.16.
	TOTAL					1000	1000			

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
C	110 kV SUB STATIONS									
1	THIRUMANGALAM SOUTH (METRO ZONE)	2x25+ 2x16	2832.39	20/30.04.12	2015-16	700.00	700.00	To improve the voltage regulation, reduce the line loss, provide load relief to the existing substations, to meet the future load growth in and around the area , to provide 33 kV source to new 33kV Substations and to extend EHT/HT Supply.	TNIPP	Works are under progress. Programmed to be commissioned by 31.03.16.
2	AMARAVATHIPUDUR	1x16	1190.28	4/09.01.14	31.03.15	500.00	500.00		PFC	Works are under progress.
3	POOSALAKUDI	1x10	847.16	3/09.01.14	31.03.15	300.00	300.00		PFC	Works are under progress.
4	M.G.PUDUR	2x16	1746.94	20/13.01.14	31.03.15	500.00	500.00		REC	Works are under progress.
5	NADAIKAVU	1x10	518.36	235/13.12.07	31.03.15	500.00	500.00		PFC	SS Work completed. Line work under ROW issue.
6	RACE COURSE	2x10	1610.19	20/08.02.10	31.03.15	100.00	100.00		PFC	Control room works awarded and commenced. Alternate route is under finalisation for 110 kV line work due to long pending railway crossing approval.
	Total					2600	2600			

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
II	SCHEMES PROGRAMMED FOR COMMISSIONING DURING 2015-16									
A	400 kV SS OTHER THAN JICA SCHEMES									
1	Thappagundu	3X200	9311	59/ 3.12.12	04.12.14	2500.00	2500.00	For evacuation of wind power in Madurai region	PFC	Works are under progress.
2	Anikadavu	2X315+ 2X200	50640		04.12.14	10000.00	10000.00	For evacuation of wind power in Coimbatore region	PFC	Works are under progress and programmed to commission by 31.03.16.
3	Rasipalayam	2X315+ 3X200	63046	59/ 03.12.12	15.11.15	9000.00	8000.00	For evacuation of wind power in Coimbatore region	PFC	Works are under progress.
4	Kanarpatty with associated 400 kV & 110 kV (55 Kms.)lines	2X500 + 4x200	24760	107/ 06.07.13	10.06.15	15000.00	11500.00	For evacuation of wind power in Tirunelveli region	REC	Works are under progress. Programmed to commission by 31.03.16
5	Dharmapuri (Palavady)	2x315+ 2x200	98185.83	19/ 13.01.14	25.12.15	25000.00	22000.00	To cater the proposed SEZ loads in Krishnagiri District , future load growth and to feed the new Gurubarapalli and Uddanapalli 230 kV substations	NABARD	Works are under progress Programmed to commission by 31.03.16
	Rasipalayam - Palavadi								KfW	Works are under progress
	LILO MTPS - Thiruvallam (35 kms)								REC	LILO portion completed. Linking with take off will be taken up and completed after completion of SS works
	230 kV SC line on DC - 125kms								NABARD	Works are under progress
	110 kV lines - 106 kms									Works are under progress
	Total 400 kV SS					61500.00	54000.00			

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
B	400 kV SS -JICA SCHEMES									
1	Sholinganallur (Ottiyambakkam) (JICA)	2x315 MVA + 1x200 MVA	14860	76/ 11.04.07	18.06.15	*	*	To meet the bulk industrial loads coming up in Sholinganallur and Siruseri areas.	JICA	Works are under progress in respect of sub station and lines.
2	Karamadai (JICA)	3x315 MVA	41576.56	05/03.03.12	19.11.15	*	*	To meet the rapidly increasing load demand of Coimbatore region for effective load management, to avoid overloading of existing 400/230 kV ICTs at Myvadi and Arasur during nil Hydro and nil Wind generation.	JICA	Substation works completed and back charged at 230 kV on 09.12.15. 400 kV line works are under progress.
C	230 kVSS - NON JICA SCHEMES									
1	Omega	3x100	11555.27	58/ 30.11.12	18.05.15	4000.00	4000.00	To extend supply to the integrated Township near Mahabalipuram. Line loss savings 0.718 MW.	TNIPP	Substation works are completed and P&C testing is under progress. 230 kV line energised. Programmed to commission by 31.03.16.
2	Vysarpadi	2x100	6849.06	134/16.08.20 13	25.05.15	3000.00	3000.00	To avoid overloading of 110 kV feeders, drawl of power at high cost, and to meet the future load growth	PFC	Substation works are completed and P&C testing is under progress. Cable work completed. Programmed to commission by 31.03.16.

Item No.	Location	Capacity for SubStation/ Length for EHT Lines	Initial Approved capital Cost (Rs.Lakhs.) with B.P. No.		Date of Completion (Actual/ Anticipated)	TANTRANSCO Provision Rs. In Lakhs	Commission's Approval Rs. in Lakhs	Justification	Funding	Present status
			Scheme cost	B.P.No.						
						2015-16	2015-16			
3	Tiruverkadu	2x100	11392.6	04/04.02.13	12.10.15	6000.00	6000.00	To provide load relief to Korattur and Sriperumbudur substations and to cater the future load growth.	TNIPP	Charged on 08.10.15
4	Kurukuthi	2x100	12861.62	53/16.08.13	31.03.16	5800.00	4800.00	To provide load relief to Palladam, Ingur and Ponnapuram 230 kV substations and to facilitate operational flexibilities and alternate feeding arrangement to the existing substations.	REC	Control room works completed. Equipment erection works are under progress. 230 kV line works are under progress. ROW issues involved in line work.
5	Jambunathapuram	2x100	5478.15	23/22.05.13	31.03.16	500.00	500.00	To meet the EHT demand of 32 MVA at Jambunathapuram for the upcoming Steel Rolling Mill and to provide load relief to Trichy, Perambalur, Samayapuram and Budansandhai 230 kV substations.	REC	Control room works commenced. Line works are under progress.
6	Muthuramaligapuram	2x100	4751	84/06.11.13	31.03.16	2200.00	2200.00	To evacuate solar power from solar power promoters in Virudhunagar District.	PFC	Works are under progress. Programmed to commission by 31.03.16.
7	Kancheepuram	2x100+1x16	4389.7	22/15.06.11	2016-17	50.00	50.00	In order to provide uninterrupted power supply to HT Industries and multinational companies at Kanchipuram and to evacuate power from Kalpakkam Atomic power station.	Sub station-REC; Lines - JICA	Control room works commenced. Tender under process for all other works. 230 kV and 110 kV line works are under progress.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
8	Savasapuram	2x100	3687.23	30/05.09.11	2016-17	50.00	50.00	In order to provide alternate supply to nearby substations and to evacuate 450MW power from Ind Bharath (Karwar) Plant.	Sub station-REC; Lines - JICA	Tender under process for control room. SSE works awarded and to be taken up.
	Total (230 kV SS)					21600.00	20600.00			
D	230 kVSS - UNDER JICA FUNDING									
1	Thiruppur (JICA)	2x100	7554.28	39/25.10.11	2016-17	*	*	In order to feed the proposed 110 kV new substations and to meet the future load growth in and around Tiruppur area and to reduce the continuous overloading of 110 kV Palladam - Tiruppur feeder.	JICA	Control room works commenced. 230 kV line works are under progress.
2	Shenbagapudur (JICA)	2x100	7766.03	21/14.06.11	2016-17	*	*	In order to avoid overloading of nearby 110 kV Feeders and to accommodate future load growth in Gobi area.	JICA	Work commenced. 230 kV line works are under progress.
3	Karuvalur(JICA)	2x100	5342.09	19/30.04.12	20.08.15	*	*	To provide load relief to Arasur, Gobi 230 kV substations and to avoid overloading of 110 kV feeders and to meet the future load growth in and around Karuvalur area.	JICA	Substation works are nearing completion. 230 kV line works awarded and being commenced.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
4	Poiyur (JICA)	2x100	3470.89	131/05.10.10	20.08.15	*	*	To meet the future load growth in Ariyalur area, to provide uninterrupted power supply to EHT consumers especially for the Railway Traction and to provide the alternate supply to the existing Substations.	JICA	Substation works are nearing completion and Transformer testing under progress. 230 kV line works awarded and being commenced.
5	CMRL Central (JICA)	2x100	17062.57	54/25.10.12	18.08.15	*	*	To provide reliable supply to CMRL	JICA	Control room roof completed. 230 kV and 110 kV GIS equipments erection completed. Auto Transformer I&II erection works are under progress. Retender to be floated for 230 kV and 110 kV cable work.
6	Kinnimangalam (JICA)	3x100	4755.15	12/14.03.12	19.08.15	*	*	To provide load relief to existing Pasumalai 230 kV SS, to evacuate the wind generation in Theni district and to feed the proposed 110 kV new substations.	JICA	All substaion works are completed. GRT Testing is under progress. Tender finalised and under perusal for 230 kV and 110 kV line works.
7	Kumbakonam (JICA)	2x100	5790.72	06/04.02.13	19.08.15	*	*	To meet the future load growth and to extened supply to proposed 110 kV new substations.	JICA	Substation works are completed and Tender finalised and under perusal for 230 kV and 110 kV line works.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
8	Purisai (JICA)	2x100	4552.78	07/04.02.13	18.09.15	*	*	To improve the voltage profile of Purisai and surrounding areas . There will be a saving of 3 MW on establishment of the SS.	JICA	Control room, plinth and structure erection works are completed. Equipment erection works are under progress. 230 kV line works are under progress.
9	Ambattur 3rd main road (JICA)	2X100+2X25,110/33+2X16, 110/11	8389.79	53/25.10.12	02.03.15	*	*	To meet the future load growth, development in Ambattur and surrounding area and to ensure reliability of supply to the essential upcoming infrastructure loads of Chennai city	JICA	Control room, Plinth and cable laying works are under progress.
10	R.A.Puram (JICA)	2x100	16007.3	60/05.04.13	23.07.15	*	*	To provide load relief to Tharamani 230 kV SS, to provide alternate supply and to accommodate the enhancement of transformer capacity fed off by the substation.	JICA	Substaion works are held up due to court case and next heraing will be on 04.02.16. Work awarded for cable laying and route survey completed.
E	110 kV Substations - 40 nos.				2015-16	24475.00	24475.00	To improve the voltage regulation, reduce the line loss, provide load relief to the existing substations, to meet the future load growth in and around the area , to provide 33 kV source to new 33kV Substations and to extened EHT/HT Supply.	REC/PFC	Works are under progress
1	Srimoolakarai	2x16+1x8	1142	11/10.01.14						
2	Velayuthapuram	2x16	1237.74	10/10.01.14						
3	Nidur	1x16+2x8	565.83	60/21.09.13						
4	K.G.Kandigai	2x16	1331.27	184/25.10.13						

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
5	Pasur	1x16+1x16	947.57	13/13.01.14						
6	Maravamangalam	1x10	1490.04	13/18.01.14						
7	Valandur	1x16+2x8	939.95	21/13.01.14						
8	Punnai	2x16	1471.42	18/22.01.14						
9	Narignapuram	2x16+2x8	1818.11	109/07.12.13						
10	Nallambakkam	3x16	868.88	57/28.06.14						
11	Nattarmangalam	1x16+2x8	635.75	53/27.06.14						
12	Nilakottai	2x10	942.98	68/22.07.14						
13	Thoppur	2x16	687.23	43/12.05.14						
14	Veerapandy	3x16	890.75	42/12.05.14						
15	Adari	2x16+1x8	709.32	55/28.06.14						
16	Potheri (Intro)	1x25	255.5	94/20.06.14						
17	Kalivelampatty (Intro)	1x10	161.58	212/25.11.14						
18	Vallamvadugal (Indoor)	2x16	1002.13	61/21.07.14						
19	Maduranthagam (UG)	2x16	1279.53	68/26.04.13						
20	Ellapalayam	2x16	991.12	66/21.09.13						
21	Othakadai	1x10	396.35	88/07.11.13						
22	Bhavani Barrage	2x10	700.91	67/21.09.13						
23	Anupankulam (Intro)	1x16	479.78	57/03.04.14						

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
24	Mampakkam (Intro)	2x25 MVA	457.13	83/05.06.14						
25	Kandamanurvilaku	1x16 MVA	1889.12	2/09.01.14						
26	Pakkudy	2x16+1x8 MVA	1562.53	83/04.09.14						
27	Devanur Pudur	2x16 MVA	692.88	107/28.10.14						
28	Vendipalayam	2x16 MVA	716.85	66/22.07.14						
29	Alamthy (intro)	2x25 MVA	477.26	97/23.06.14						
30	Kumbakonam (intro)	1x25 MVA	239.13	160/20.11.15						
31	L.Valayapatty	1x10 MVA	1277.34	04/06.01.15						
32	Uthangarai	2x25 MVA	968.54	141/11.08.14						
33	Manikandam	1x10 MVA	741.73	89/04.10.14						
34	Sannathupudukudy	1x10 MVA	1341.16	65/22.07.14						
35	K.K.nagar	3x16 MVA	609.06	189/08.10.14						
36	Poochampally sipcot	1x25+2x16 MVA	1079.46	16/08.01.15						
37	Thervaikandigai	1x25+2x16 MVA	2231.71	44/12.05.14						
38	Kadaiyur	2x16 MVA	649.47	13/07.01.15						
39	Perundurai Sipcot	2x16 MVA	646.55	36/23.03.15						
40	Amaravathipudur	1x16 MVA	1190.28	4/09.01.14						
	Total					24475.00	24475.00			

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
III SCHEMES PROGRAMMED FOR COMMISSIONING IN SUBSEQUENT YEARS										
A 765 kV SS										
1	Ariyalur	2X1500	212145	91/07.11.13	2018-19	0	0	For Transferring power either way which have been pooled at North Chennai Pooling station and Udangudi Pooling station to the Load centers.	REC	Fencing 100% completed. Specification is under preparation for floating Tenders.
Total										
B 400 kV SS										
1	Manali (JICA)	2x315 MVA + 2x200 MVA	59986	55/25.10.12	2016-17	*	*	For providing connectivity to the proposed Thervoikandigai 400 kV SS for evacuation purpose and for disposal of power locally, so that 400 kV network can be formed in Chennai area.	JICA	Work under progress
2	Korattur (JICA)	2x315 MVA + 2x200 MVA	51131	55/25.10.12	2018-19	*	*		JICA	Tender to be floated
3	Guindy (JICA)	2x315 MVA	75652	55/25.10.12	2018-19	*	*		JICA	Tender floated with due date for tender opening on 13.01.16. Tender to be floated for 400 kV UG cable works.
4	Thennampatty (Pavoorchatram)	2x315 MVA + 2x200 MVA	41888	190/08.10.14	2017-18	0	0		KfW	Tender finalised and concurrence of KfW awaited for awarding of contract. Tender under process for 400 kV line work.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
5	Kolappalur		Sanction awaited			0	0			Sanction awaited
6	Vellalavidudhi (Pudukkottai)	2x315 MVA + 2x200	90918.68	80/11.12.15	2018-19	0	0	For Solar power evacuation		Tender to be floated
7	Pulianthope	3x315 MVA	55800	83/06.11.13	2017-18	0	0	For evacuation of power from NCTPS Stage-II and to provide stability in North and Central EDCs.	REC	Technical bid opened on 28.09.15. Technical bid evaluation submitted to Accounts Branch and approval is under process.
8	Edayarpalayam	2x315 MVA + 3x200 MVA	77282	16/13.01.14	2018-19	0	0	For System strengthening for disposal of power received from Chattisgarh	PFC	Revised administrative approval is to be accorded for conversion from GIS to AIS
9	Kamuthi	2x315 MVA + 3x200 MVA	43550	84/06.11.13	2016-17	15000	12700	For Solar power evacuation	PFC	Work under progress
	Total					15000.00	12700.00			
C	230 kvSS								JICA	
1	TNEB HQtrs (JICA)	2x100	7139	68/11.04.07	2017-18	0.00	0.00	To augment the power needs of Chennai city and to strengthen the 230 kV and 110 kV network	JICA	Re tender is to be floated. TANTRANSCO building works are under progress
2	Mambalam	2x100	12270	36/06.03.14	2016-17	0	0	To accommodate the future load growth and to provide load relief to 33/11 kV Substations in Mambalam area	TNIPP	Work awarded and to be commenced.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
3	Porur	2x100	24734	23/01.02.14	2016-17	0	0	In order to provide load relief to 110 kV Sriperumpudur - Porur feeder I and II and to accommodate future load growth.	REC	Tender is under process.
4	Valayapatty	2x100	8869.18	12/13.01.14	2015-16	5000	4000	To provide load relief to Pugalur and Pudanchandai 230 kV Substaions. To meet the future load growth in and around Namakkal area and to provide operational flexibilities and alternate feeding arrangements to the existing substaions, so as to maintain uninterrupted power supply.	PFC	Substation and line works are under progress.
5	Gurubarapally	2x100	3434.92	17/13.01.14	2015-16	1000	1000	To provide load relief to Hosur 230 kV SS and Shoolagiri 230 kV SS. To provide 33kV and 11 kV load relief to Krishnagiri 110/33-11 kV SS.	REC	Control room, plinth and structure erection works are completed. Transformer erected. 230 kV and 110 kV line works completed.
6	Udanapally	2X100	16806.78	109/28.10.14	2017-18	0	0	To meet the future load growth of Krishnagiri District due to formation of SEZ and Hokennakkal Combined water scheme.	PFC	Estimate is under preparation for floating tender.

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
7	Thuvakudi	2x100	11700.3	50/21.05.15	2017-18	0	0	In order to give load relief to Trichy, Thanjavur and Alundur 230 kV substations, to extend supply to the intending HT consumers and to meet the future load growth in and around Thuvakudy.	To be tiedup	Site taken over. Estimate is under scrutiny. Survey under progress for line works.
8	Alagapuram	Sanction awaited				0	0			Sanction awaited
9	Avadi					0	0			
10	Thalaiyuthu					0	0			
11	Samayanallur	2x100MVA	8388.93	59/23.07.15	2017-18	0	0	In order to give load relief to the existing 230 kV substations at Alagerkoil and Pasumalai and to meet the future load growth in and around Madurai area, establishment of a new 230/110 kV SS is very much essential.	To be tiedup	Estimate is under preparation for floating tender.
12	Nanguneri SEZ , Muppendal,Pattapiram, Thindivanam,EPKadai, Usilampatty	Sanction awaited				0	0			Sanction awaited.
	Total 230 kV SS					6000.00	5000.00			

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
ii	LINE WORKS 2015-16									
A	POWER EVACUATION LINES -2015-16									
a	400 kV LINES- 2015-16									
1	LILO of one circuit of Thappagundu-Anaikadavu 400 kV DC line at Udumalpet 400/230 kV PGCIL SS with 2 Nos. bay extension	30	4052	209/26.12.2013	2015-16	0	0	For wind power evacuation.		Tender floated with due date for opening on 13.01.16
b	230kV LINES -2015-16									
1	Erection of 230 kV DC line on DC towers with Zebra conductor including OPGW cable from the proposed 230/110 kV Muthuramalingapuram 230/110-33 kV SS near Muthuramalingapuram to the existing Kavanoor 230 kV SS via proposed Kamuthi 400 kV SS	130	6459	185/30.10.2013	2015-16	8500	8500	For solar power evacuation		Works are under progress.
2	Erection of 230 kV DC line on DC tower with Zebra conductor from Kavanoor 230 kV SS to Karaikudi 230 kV SS with 6 nos. 230 kV bay extension at Kavanoor and Karaikudi	170.0	9617	185/30.10.2013	2015-16			For solar power evacuation		Works are under progress

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
B	Link Lines 2015-16									
1	Erection of 230 kV SC line on DC towers with Zebra conductor between Palladam and Ingur instead of LILO of 230 kV Myvadi-Pugalur line at Palladam 230 kV SS	62.0	3463	73/02.11.2011	2015-16			Link line of Palladam 230 kV SS		Works are under progress
2	Replacement of aged Kundah conductor in the existing 230 kV Neyveli - Eachangadu feeder SC line on SC tower by 230 kV SC line on DC tower with Zebra conductor	39.90	1779	255/26.06.2010	2015-16			To strengthen the existing aged conductor with higher capacity conductor to carry more power		Works are under progress
3	Laying of 230 kV DC feeder cable with 1x1200 Sqmm XLPE cable from Mylapore - Taramani .	25.00	4639	203/30.04.2005	2015-16			To conversion of Mylapore substation as Grid substation and strengthening 230 kV Network in Chennai Metro Area.		Cable laying in 21/26 sections completed.
	Total 230 kV					8500.00	8500.00			
	TOTAL of 400 kV and 230 kV Lines					8500.00	8500.00			
B	110 kV Improvement lines					20000.00	20000.00			
	TOTAL (400kV, 230 kV, 110 kV)					28500.00	28500.00			

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			Scheme cost	B.P.No.						
						2015-16	2015-16			
V	Schemes under KfW funding		142484	190/08.10.14		28700.00	28700.00			
	Package I	400kV SS at Thennampatti (Pavoorchatram)								Tender finalised and concurrence of KfW awaited for awarding of contract.
	Package II	400 kV DC Line connecting Kayathar & Koilpatty and 4 Nos 400 kV bays								Tender under process for 400 kV line work.
	Package III	400 kV DC Line connecting Rasipalayam & Singarapet and 2 Nos 400 kV bays								Work awarded and to be commenced
	Package IV	230 kV transmission lines connecting various sub-stations in Tirunelveli, Madurai, Coimbatore region & 13 Nos 230 kV bays								Works are under progress
	Package V	Augmentation of transformation capacity at 6 sub-stations								Works are under progress
VI	OTHERS									
	1	ADDITIONAL / ENHANCEMENT OF TRANSFORMERS				19920.00	19920.00			
	2	TRANSCO BUILDING				500.00	500.00			
	3	CAPACITOR BANK								
	4	R-APDRP				1000.00	1000.00			
	5	GRID SECURITY SYSTEM (P&C)								
	6	BUDGET FOR JICA SCHEMES (*)				72880.00	70000.00			
		Total				94300.00	91420.00			
		Total of SS and Lines				294675	279995			

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			Scheme cost	B.P.No.						
						2015-16	2015-16			