GUIDELINES FOR FORMULATION OF SUPPLEMENTARY PROJECTS UNDER RGGVY FOR PROVIDING ACCESS TO ELECTRICITY TO ALL RURAL HOUSEHOLDS IN ELECTRIFIED VILLAGES IN THE PROJECTS AREAS FOR WHICH PROJECTS WERE SANCTIONED DURING 2004-05 UNDER THE SCHEME "ACCELERATED ELECTRIFICATION OF ONE LAKH VILLAGES AND ONE CRORE HOUSEHOLDS"

(Applicable to 111 projects sanctioned to the states of West Bengal, Bihar, Uttar Pradesh and Rajasthan during 2004-05)

CONTENTS

	SECTIONS	Page No.
1.	INTRODUCTION	1
2.	THE GUIDELINES	1
3.	OBJECTIVES OF THE PROJECT	1
4.	SCOPE OF PROJECTS	2
5.	STRUCTURE OF DPR	4
6.	DESIGN OF THE PROJECT	6
7.	PROJECT IMPLEMENTATION	6
8.	BACK-UP GRID AND POWER SUPPLY ARRANGEMENTS	8
9.	PROJECT FINANCING	8
10.	DISBURSEMENT OF FUNDS	9
11.	REVISED COST ESTIMATES	10
12.	PROJECT SUBMISSION	10
13.	PROJECT COMPLETION REPORTS	10
14.	FRANCHISEE	10
15.	REVENUE SUSTAINABILITY	10
16.	MONITORING AND CONCURRENT EVALUATION	11

Enclosures

1. **Appendix– 1:** Copy of Guidelines issued by Ministry of Power, Govt. of India vide No. 44/19/2004-D(RE) dated 18th March 2005
2. **Appendix– 2:** Structured format of letter (to be addressed to REC) for submission of formal request for approval of the DPRs and sanction of financial assistance by REC.
3. **Appendix –3:** Addresses and telephone numbers of REC Project Offices
4. **Appendix –4:** Formulae for loss calculations
5. **Appendix –5:** Formulae for Voltage Regulation calculations
6. **Appendix –6:** Voltage Regulation Constant Charts
7. **Appendix –7:** Parameters for determination of capacity and number of DTs
8. **Appendix –8** :Certificates
9. **Appendix –9** :Quarterly schedule for electrification of villages and households
10. **Annexure A to G:** Project formats
11. **Other Attachments** like Maps, Single line diagrams, PERT Charts, Detailed cost estimates etc.

GUIDELINES FOR FORMULATION OF PROJECTS UNDER RAJIV GANDHI GRAMEEN VIDYUTIKARAN YOJNA (RGGVY) – SCHEME FOR RURAL ELECTRICTY INFRASTRUCTURE AND HOUSEHOLD ELECTRIFICATION (GRID SUPPLY SYSTEMS) *FOR ELECTRIFIED VILLAGES IN SELECTED STATES FOR ELECTRIFIED VILLAGES IN THE PROJECTS AREAS (DISTRICTS) OF 111 PROJECTS SANCTIONED FOR UNELECTRIFIED VILLAGES IN 2004-05*

1. INTRODUCTION

The Government of India has approved a new scheme "Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) – Scheme for Rural Electricity Infrastructure and Household Electrification and the guidelines were issued by Ministry of Power, Govt. of India vide letter No. 44/19/2004-D (RE) dated 18th March 2005 [copy enclosed as Appendix-I]. The scheme would be implemented through the Rural Electrification Corporation (REC). This scheme merges the existing "Accelerated Electrification of one lakh Villages and one crore Households" and the "Minimum Needs Programme" for rural electrification.

2. THE GUIDELINES

These guidelines cover project formulation and appraisal of ***supplementary projects*** for funding under RGGVY scheme for the ***projects areas (districts) of 111 projects in the four states of West Bengal, Bihar, Uttar Pradesh and Rajasthan, sanctioned during 2004-05, under the scheme "Accelerated electrification of one lakh villages and one crore households" for unelectrified villages & households which has since been merged with the RGGVY scheme.*** The projects would be submitted by the concerned state governments which are intended to cover the followings within the district(s).

(a) Electrified villages and their habitations; and

(b) Access to electricity for households in the above categories of villages/habitations including Majras, Tolas, Karas, Hamlets, Dhanis, Dalit Bastis etc.

The project will be categorized as ***P: RHhE- C*** i.e. **Project: Rural Household Electrification in electrified villages.**

3. OBJECTIVES OF THE PROJECT

The major objectives of the project(s) shall be:

i. The project(s) shall provide for access to electricity to all rural households in the project area within the stipulated timeframe of five years.

ii. All BPL households in all rural habitations in the villages should be covered for electrification under the project as per the Kutir Jyoti norms

iii. Apart from the universal obligation to provide electricity to all consumers on demand, the project shall provide for electric connection to unelectrified public places like schools, panchayat office, community/ govt. health centres/ dispensaries etc. The project(s) would need to make provisions for extension of electricity supply to all pending & expected applicants in the near future.

iv. The process of creating facility for access to electricity to rural households / habitation under the project would also cover the incidental but not exclusive requirements of agriculture and other activities and the provision for creating new infrastructure may be restricted accordingly in the concerned DPR.

v. The project(s) may also have provision of 33/11 KV (or 66/11 KV) sub-stations of adequate capacity and lines in blocks where these do not exist.

vi. The project(s) shall have provisions for setting-up of at least one distribution transformer (DT) in the village where these do not exist.

vii. Electrification project(s) based on grid extension covered under these guidelines would be eligible for capital subsidy under the scheme.

viii. (a) State Government shall ensure that in the management of rural distribution through franchisee who could be Non-Governmental Organisations (NGOs), Users Association, Cooperatives or individual entrepreneurs, the Panchayat institutions would be associated. The franchisee arrangements could be for system beyond and including feeders from sub-station or from and including distribution transformer(s).

(b) The project will be considered for sanction subject to prior commitment from the state government regarding: -

(i) Determination of bulk supply tariff (BST) for franchisees in a manner that ensures commercial viability
(ii) Provision of requisite revenue subsidy by the state government to the state power utility as required under the Electricity Act.

(c) The utility will have a proper monitoring mechanism in place, throughout the project life, to keep track of the progress being made by the franchisees for establishing a system that would facilitate sustainable provision of electricity.

(d) The franchisee arrangement may preferably cover at least one block or all the villages within the jurisdiction of a substation and should cover both households being electrified under the ***project sanctioned by REC for the same project area in 2004-05 under the earlier GOI scheme for unelectrified villages and those being electrified/ already electrified in electrified villages under the present supplementary project.***

ix. State Government shall ensure that there is no discrimination in hours of supply between rural and urban households.

4. SCOPE OF PROJECT(S)

4.1 Jurisdiction of a project

(a) The project should normally be co-terminus with an administrative district, ***and for those projects areas for which 111 projects were sanctioned by REC in 2004-05 for unelectrified villages***, with appropriate block wise identification as the case may be, in order to provide access to electricity to all rural households in all the villages

(b) The project may also cover unelectrified habitations in electrified villages such as karas, majras, tolas, hamlets, dhanis etc and dalit bastis also and the name of these habitation should be specifically mentioned together with the correct information and data (as per 2001 census) regarding population, number of

households, BPL households and the revenue villages (census: 2001) & block and villages in which these habitations are identified for revenue purposes. In case of dalit bastis similar data and information regarding dalit households and the revenue villages shall be submitted.

(c) However, in larger districts, where a significant proportion of rural households are yet to have access to electricity, a group of contiguous community development blocks, in the same district and preferably within the jurisdiction of the same back-up grid power arrangement may be considered.

(d) However, the adequacy of the 33/11 kV substation and network (or substations with secondary voltage of 22 or 11 KV, depending on the voltage system adopted by the state), whether existing or proposed, should be substantiated by data for system requirements and the demand on them based on system status at (i) without the proposed project and (ii) and with the proposed project (s). The load demands anticipated should be at the end of the next 5 years (horizon load demand).

(e) The system status should also take into consideration (a) tail-end voltage regulation of all 33 KV feeders catering to the scheme area (b) tail-end voltage regulation of all 11 KV feeders from 33/11 KV substations catering to the scheme area (c) the maximum demands on all 33/11 KV Substations and associated 11 KV feeders and (d) annual energy losses in the system both with & without the project.

4.2 Provision of works

To meet the electrification needs for providing access to electricity to all rural households, following works are eligible to be covered under the project for financing. All or a part of the following provisions, as may be necessary, may be covered under the project: -

(a) Rural Electricity Distribution Backbone (REDB)

The project has provision of 33/11 KV (or 66/11 KV) sub-stations of adequate capacity and lines in blocks where these do not exist and not covered under projects sanctioned under the earlier project under “Accelerated Electrification of one lakh villages and one crore households”.

Establishment of new 33/11 or 66/11 KV sub-stations along with associated 33 or 66 KV feeders, terminal arrangements etc. and augmentation of existing 33/11 or 66/11 KV power sub-stations, if necessary, and provisions for necessary 33 or 66 KV lines required to link the proposed new 33/11 or 66/11 KV substation to the back-up or source EHV Substation may also be made.

However, cost for creation of new 33/11 or 66/11 KV sub-station and associated 33 or 66 KV line works in the blocks where these facilities already exist, shall not be eligible for capital subsidy and the cost of such additional facilities shall have to be met by the project sponsoring agencies either from their own resources or through financial institutions including REC, which needs to be indicated separately while formulating projects. However, necessary augmentation of the existing substation may be considered to be covered, under the financing on furnishing suitable justification for such augmentation indicating supporting technical details.

(b) Creation of Village Electrification Infrastructure (VEI) for

- Electrification of un-electrified habitations.
- Provision of distribution transformers of appropriate capacity in electrified villages / habitation(s).

Provision of the following type of works may be considered on the basis of technical justification and anticipated demand on the distribution system.

i. Erection of 11 KV feeders, main and spur lines to cater to additional new distribution transformers (DTS). Bifurcation, alignment and augmentation of existing heavily loaded 11 KV feeders.

   However, HVDS (High Voltage Distribution System) involving smaller sized distribution transformers (maximum upto 25 KVA) with minimum LT line should be preferred in order to minimize technical as well as commercial losses.

ii. Installation of energy efficient distribution transformer (DTS) of appropriate capacity, in villages, for putting into place a less LT system with provision of reliable protection and metering on LT side of distribution transformers

iii. Erection of LT feeders and lines to cater to load demand of rural households to be electrified. Regrouping of loads, bifurcation, alignment and augmentation of existing heavily loaded LT feeders, if necessary.

iv. Provisions for necessary arrangements for railway/ river/ road crossings if required for new overhead lines, with Four-Pole or Three –pole structures with extensions if necessary. Such crossing arrangements involving use of fabricated towers used for 132 or 220 KV lines or expensive cabling works shall not be eligible for capital subsidy under the scheme and the cost of such additional facilities shall have to be met by the project sponsoring agencies from other sources.

v. Provision of controlling equipment such as circuit breakers, isolators etc. for the existing 11 KV trunk feeders, if necessary.

vi. Electrification of all un-electrified Below Poverty Line (BPL) households as per norms of Kutir Jyoti Programme in all rural habitations. Households above poverty line would be paying for their connections at prescribed connection charges and no subsidy would be available for this purpose.

vii. Provision for metering arrangements, if necessary, on selected 11 KV trunk feeders and at each distribution transformer on LT side.

viii. Metering at all consumer connections is essential in project area.

(c) Requirement of upstream electricity network (Grid back-up)

The project will also have to provide the details of the upstream EHV back-up arrangements existing/ proposed for the project to transmit adequate power to the project area to cater to both the existing demand as well as the anticipated demand (to be created under the project) at the horizon year (5th year). Thus during formulation of project(s), the additional requirement of upstream system (110, 132 , 220 KV) also needs to be identified. However, cost of such requirement shall not be eligible for capital subsidy and shall have to be met by the project sponsoring agencies either from their own resources or through financial institutions including REC, which needs to be indicated separately while formulating projects.

5. STRUCTURE OF DPR

5.1 At the beginning of each Project Report (s), a brief write up on the following may be placed sequentially:

(a) **Background**: This section should provide a brief description of the sector / sub-sector, the national priority, strategy and policy framework as well as a brief description of the existing situation.

b) **Project Objectives**: This section should indicate the objectives proposed to be achieved. The deliverables/ outputs for each development objective should be spelt out clearly. This section should also provide a general description of the project.

(c) **Beneficiaries**: There should be a clear identification of target beneficiaries and stakeholder analysis should be undertaken, including consultation with stakeholders at the time of project formulation. Options regarding beneficiary participation should be explored and incorporated in the project. Benefit of the project accruing to weaker sections of society should be assessed.

(d) **On-going initiatives**: This section should provide a description of ongoing initiatives (projects) and the manner in which duplication will be avoided.

(e) **Technology**: This section should elaborate on technology choices, if any, as well as the basis for choice of technology for the proposed project.

(f) **Management arrangements**: Responsibilities of different agencies for project management and implementation should be elaborated. The organization structure at various levels as well as monitoring and coordination arrangements should be spelt out.

(g) **Cost Estimates**: The basis for this should be the latest available competitive costs available in the market. This section should focus on cost estimates and phasing of expenditure. Options for cost recovery (user charges) should be considered and built into the total project cost under separate head(s).

(h) **Time frame**: This section should indicate the proposed 'Zero' date for commencement and also PERT / CPM chart should be enclosed.
The schedule should be framed in such a manner so as to clearly indicate the quaterwise, yearwise target of villages and no. of households that would be electrified under the project and details of the same to be furnished in format attached in Appendix-9.

(i) **Success criteria**: Success criteria to assess whether the objectives have been achieved should be spelt out in measurable terms.

(j) **Sustainability**: Issues relating to sustainability, including stakeholders' commitment, operation and maintenance of assets after project completion, and other related issues should be indicated.

5.2 In addition to above, the DPR should contain requisite formats as enclosed with these guidelines as Annexure (A to G) alongwith other attachments like Maps, Single line diagrams, PERT Charts, detailed cost estimates etc.

5.3 The pages of the project report should be of **A–4** size and the charts/ distribution maps, showing electrical network, should be furnished in imperial sized sheets [Scale 1inch = 4 Mile or 1: 2, 50,000.

5.4 A soft copy of the contents of the project report in English should also be provided with the project report, in a CD Rom or Floppy discs, with formats prepared in "Excel worksheets" and write–ups in 'Word".

6. DESIGN OF THE PROJECT

The infrastructure requirements in the project shall be such that the same is able to meet the universal obligation to provide electricity to all consumers on demand as well as public places and also be based on providing access of electricity to all unelectrified households and extending connections to all BPL households free of charge. The process of creating facility for access to electricity to rural households / habitation under the project would also cover the incidental but not exclusive requirements of agriculture and other activities and the provision for creating new infrastructure may be restricted accordingly in the concerned DPR. However, for irrigation pumpsets, the status of ground water level shall have to be taken in to consideration and shall be appropriately evidenced from the relevant authorities.

7. PROJECT IMPLEMENTATION

The State Government may implement the project(s) through their State Power Utilities or in association with CPSUs, through turnkey contract, as per the prescribed procurement and bidding conditions.

7.1 Project Period

Execution of each project(s) shall be completed within an implementation period of two years.

7.2 Association of CPSUs

The State Government, if they so desire, may implement the programme through their state power utility and execute the projects through turnkey projects.

However, with a view to augmenting implementation capacities for the programme, REC has already concluded Memoranda of Understanding (MOUs) with NTPC, POWERGRID, NHPC and DVC to make available the project management expertise and capabilities of these organizations to states wishing to use their services. States, if they so desire to use the services of CPSUs, may choose from amongst the options mentioned below:-

(a) Project formulation, development and implementation involving system planning, design, engineering and procurement of goods and services and construct/implement/ commission the projects covered under the programme.

OR

(b) Formulation and preparation of reports, project approvals, advisory support for procurement and project monitoring and supervision of quality of works.

OR

(c) Project monitoring and supervision of quality of works during construction.

The expenditure to be incurred, for such services, shall form part of the project cost. The terms and conditions of these services will be prescribed in the four-party agreement to be entered into by REC, State Govt., State Power Utility and CPSU(s).

7.3 Agreements

(a) Quadripartite Agreement

For utilising the services of CPSUs by the State Government/ State Power utility for implementation of their projects, a four-party agreement will be entered into amongst REC, the State Government, State Power Utility and the concerned CPSU. The agreement prescribes the terms and conditions under which the services will be provided, the type of services, terms of payment etc. The State Government/ State Power Utility at their discretion may avail full services or part services.

(b) Tripartite Agreement

To facilitate effective implementation of the project by state power utility(s), tripartite agreement shall have to be concluded amongst REC, State Govt. and the State Power Utility. The agreement prescribes the terms and conditions of the fund flow as also implementation modalities etc.

7.4 REC specifications and standards

The technical specifications of REC for procurement of equipment & materials and the construction standards of REC for erection/ construction/ installation shall be adopted for implementation of the project(s).

7.5 REC guidelines procurement of goods and services

For procurement of goods and services, the standard guidelines of REC for the purpose shall be adopted, including the standard bidding procedure, which involves the following for turnkey contracts: -

(i) Invitation to bid

(ii) Instruction to bidders

(iii) General terms and conditions of contract

(iv) Erection conditions of contract

(v) Special conditions of contract

7.6 Indian Electricity Rules

The implementing agency shall adhere to the conditions stipulated in the relevant sections of Indian Electricity Rules and relevant rules under Electricity Act 2003 in regard to construction, erection and commissioning of electric supply lines (overhead and underground), systems and apparatus for low, medium, high voltage and EHV systems and for supply of power. However, as per REC norms, for 11 KV overhead lines, the permissible voltage regulation shall not be more than (-) 8% on the lower side.

8. BACK-UP GRID AND POWER SUPPLY ARRANGEMENTS

8.1 Back-up grid arrangement

The project will also have to provide the details of the upstream EHV back arrangements existing/ proposed for the project to transmit adequate power to the project area to cater to both the existing demand as well as the anticipated demand (to be created under the project) at the horizon year (5th year). Thus during formulation of project(s), the additional requirement of upstream system (110, 132, 220 KV) also needs to be identified

In case of inadequacies, the action being taken for meeting the load growth should be indicated.

8.2 Power supply arrangements

The State Power Utility should also clearly indicate the details of the power supply arrangements in and around the project area from the generating stations of state, share from central sector generating stations & purchase of power from other sources and their adequacy to cater to needs of the existing and proposed Power Substations (at EHV and HV) in the project area, for their demands for the next 5 years. State Government shall ensure that there is no discrimination in hours of supply between rural and urban households. In case of inadequacies, the action being taken for meeting the load growth should be indicated.

9. PROJECT FINANCING

Funds for the project(s) shall be made available by REC to concerned State Governments only as under: -

(a) Capital subsidy (90% of eligible project cost) for eligible projects under the scheme would be given through REC
(b) Loan component to be provided by REC, subject to prescribed terms and conditions of the grant and loan
(c) These eligible projects shall be implemented fulfilling the conditionalities indicated in the guidelines issued by Ministry of Power, Govt. of India vide letter No. 44/19/2004-D(RE) dated 18th March 2005. In the event the projects are not implemented satisfactorily in accordance with the conditionalities in the guidelines, the capital subsidy could be converted into interest bearing loans.

However, it may be mentioned that:

i. Financial sanction of the project(s) shall be subject to the allocation and availability of capital subsidy from Ministry of Power, Govt. of India, in this regard.

ii. The cost for creation of new 33/11 or 66/11 KV sub-station and associated 33 or 66 KV line works in the blocks where these facilities already exist, shall not be eligible for capital subsidy and the cost of such additional facilities shall have to be met by the project sponsoring agencies either from their own resources or through financial institutions including REC, which needs to be indicated separately while formulation of projects.

iii. Electrification of all un-electrified Below Poverty Line (BPL) households shall necessarily be covered and would be financed with 100% capital subsidy as per norms of Kutir Jyoti Programe in all rural habitations. Households above poverty line and also public places like schools, panchayat office, community/govt. health centres/dispensaries etc., would be paying for their connections at prescribed connection charges of the utility and no subsidy would be available for this purpose.

iv. For development of sustainable franchise in the project area for effective supply of power to rural area an amount of Rs. 2.50 per household of the project area may be provided to the project sponsor and shall be part of the project cost but the same shall not be considered for computing service charges of CPSUs (if involved) or overhead charges of state power utility and shall also not to be covered under the concerned turn-key package(s).

9.2 Release of funds from REC would commence after : -

(a) conclusion of the four-party/ three-party agreement and

(b) acceptance of the terms and conditions of the sanction of the project.

9.3 The project outlay to be financed shall be guided by the **(a)** size of project area (preferably one administrative district) **(b)** works provision that would be required to electrify the unelectrified households and **(c)** the new definition of village electrification issued by MOP, vide their letter No. 42/1/2001-D(RE) dated 5th February 2004 and its corrigendum vide letter no. 42/1/2001-D(RE) dated 17th February 2004.

As per the new definition, a village would be declared as electrified, if

(i). Basic infrastructure such as Distribution Transformer and Distribution lines are provided in the inhabited locality as well as the Dalit Basti/ hamlet where it exists.
(ii). Electricity is provided to public places like Schools, Panchayat Office, Health Centres, Dispensaries, Community centers etc. and
(iii). The number of households electrified should be at least 10% of the total number of households in the village.

9.4 The project outlay to be financed may also include the cost towards services sought for by the State Government/ State Power Utility from CPSUs for implementation of the project as per terms and conditions prescribed in the quadripartite agreement to be entered into by REC, State Govt., State Power Utility and CPSU(s). All statutory taxes, levies, duties etc shall also be eligible for financing.

9.5 However, in respect of the LT distribution system, the eligible funding under the project shall be for the required minimum portion of the LT system for creating LT feeders to enable creation of basic LT infrastructure for facilitating access of electricity to the rural households as may be dispersed within a village. Estimation for the last mile connection to the consumer premises shall not be covered under the project, which however shall be indicated in the DPR separately in a structured format.

10. DISBURSEMENT OF FUNDS

Funds for execution of the project(s) sanctioned by REC under the scheme shall be made available by REC to the concerned State Governments in the manner as per terms and conditions prescribed in the sanction letter of REC for the concerned project and as per provisions in the concerned four-party / three-party agreements.

11. REVISED COST ESTIMATES

While implementing the project, in the event of any variation in the project parameters or increase or decrease in the project cost, the implementing agency shall submit the revised cost estimate (RCE) to REC, through the State Govt. for consideration of revised sanction from REC. However, subject to technical suitability, REC may consider revised sanction of the cost estimates under the following circumstances: -

- **i.** Change in scope
- **ii.** Change in statutory levies
- **iii.** Price escalation
- **iv.** Time overrun (beyond the control of project executing agency)
- **v.** Underestimation

12. PROJECT SUBMISSION

The State Govt. or it's Power Utility (on behalf of State Govt.) shall pose all projects reports (DPRs) to the concerned Project Office of REC in the State **(in triplicate)**. The formal request for consideration of approval of the DPRs and sanction of financial assistance by REC shall be made as per the structured format enclosed as **Appendix–2.** The Addresses and telephone numbers of REC Project Offices in various States is enclosed as **Appendix–3**.

Every project submitted to REC for consideration, should have an aplha-numerical serial code number of eight digits. The first two digits will be alphabets indicating the name of the State, the next two digits will be the serial number of the project (in order of submission) and the last four digits the financial year of submission e.g. the first scheme of West Bengal submitted in the FY 2005-06 will be coded WB-01-0506.

13. PROJECT COMPLETION REPORTS

The Project Completion Report (PCR) shall be furnished by the Project Authority in accordance with the format as may be prescribed by REC before release of the final instalment of the funding under the project.

14. FRANCHISEES

State Government shall ensure that in the management of rural distribution through franchisee who could be non-governmental organisations (NGOs), users association, cooperatives or individual entrepreneurs, the Panchayat institutions would be associated. The franchisee arrangements could be for system beyond and including feeders from sub-station or from and including distribution transformer(s).

For development of suitable franchisee, REC's relevant Guidelines for Franchisee Development shall be followed by the project sponsoring authorities.

15. REVENUE SUSTAINABILITY

Based on the consumer mix and the prevailing consumer tariff and likely load, the Bulk Supply Tariff (BST) for the franchisee would be determined after ensuring commercial viability of the franchisee. Wherever feasible, bidding may be attempted for determining the BST. This Bulk Supply Tariff would be fully factored into the submissions of the State Utilities to the State Electricity Regulatory Commissions (SERCs) for their revenue requirements and tariff determination. The State Government under the Electricity Act is

required to provide the requisite revenue subsidies to the State Utilities if it would like tariff for any category of consumers to be lower that the tariff determined by the SERC. In this regard, the State Governments shall have to ensure: –

(a) Determination of bulk supply tariff for franchisees in a manner that ensures their commercial viability.

(b) Provision of requisite revenue subsidy by the State Government to the State Utilities as required under the Electricity Act.

The Project would be eligible for sanction if it demonstrates generation of revenue stream that results in sustainable operations as in the analysis to be submitted in the formats in Annexures (F-1 to F-4) of the scheme formulation guidelines.

16. MONITORING AND CONCURRENT EVALUATION OF PROJECTS

The project(s) would be subject to monitoring and concurrent evaluation during implementation and also post implementation.

(***Ministry of Power Office Memorandum No. 44/19/2004 -D(RE) dated 18th March 2005)***

Sub: Rajiv Gandhi Grameen Vidyutikaran Yojna – Scheme of Rural Electricity Infrastructure and Household Electrification

Approval of the President is conveyed for the "Rajiv Gandhi Grameen Vidyutikaran Yojna – Scheme of Rural Electricity Infrastructure and Household Electrification" for the attainment of the National Common Minimum Programme (NCMP) goal of providing access to electricity to all households in five years.

2. The scheme would be implemented through the Rural Electrification Corporation (REC).

3. Ninety per cent capital subsidy would be provided for overall cost of the projects under the scheme.

4. The present approval is for implementation of Phase I of the scheme for capital subsidy of Rs.5000 crores during the 10th Plan period.

5. States must make adequate arrangements for supply of electricity and there should be no discrimination in the hours of supply between rural and urban households.

6. For projects to be eligible for capital subsidy under the scheme, prior commitment of the States would also be obtained before sanction of projects under the scheme for :

   i. deployment of franchisees for the management of rural distribution in projects financed under the scheme, and
   ii. the provision of requisite revenue subsidies to the State Utilities as required under the Electricity Act, 2003.

7. SCOPE OF THE SCHEME

Under the scheme, projects could be financed with capital subsidy for provision of –

7.1 Rural Electricity Distribution Backbone (REDB)

- Provision of 33/11 KV (or 66/11 KV) sub-stations of adequate capacity and lines in blocks where these do not exist.

7.2 Creation of Village Electrification Infrastructure (VEI)

- Electrification of un-electrified villages.
- Electrification of un-electrified habitations.
- Provision of distribution transformers of appropriate capacity in electrified villages / habitation(s).

7.3 Decentralised Distributed Generation (DDG) and Supply

- Decentralised generation-cum-distribution from conventional sources for villages where grid connectivity is either not feasible or not cost effective provided it is not covered under the programme of Ministry of Non-conventional Energy Sources for providing electricity from non-conventional energy sources under their remote village electrification programme of 25000 villages.

7.4 REDB, VEI and DDG would also cater to the requirement of agriculture and other activities including

- irrigation pumpsets
- small and medium industries
- khadi and village industries
- cold chains
- healthcare
- education and IT

This would facilitate overall rural development, employment generation and poverty alleviation.

7.5 Rural Household Electrification of Below Poverty Line Households :

Electrification of un-electrified Below Poverty Line (BPL) households would be financed with 100% capital subsidy as per norms of Kutir Jyoti Programe in all rural habitations. Households above poverty line would be paying for their connections at prescribed connection charges and no subsidy would be available for this purpose.

The over-all subsidy of components from paras 7.1, 7.2, 7.3, 7.5 taken together should be kept within 90% of the over-all project cost. The over-all cost estimate of different components for all villages and household are at the **Annexure-I.**

7.6 The project covers the entire country. The details of the un-electrified villages and households access to electricity as per census 2001 is in the **Annexure-II** and **Annexure-III**.

8. Franchisees :

In the management of rural distribution through franchisees who could be Non-Governmental Organisations (NGOs), Users Association, Cooperatives or individual entrepreneurs, the Panchayat institutions would be associated. The franchisees arrangement could be for system beyond and including feeders from substation or from and including Distribution Transformer(s).

9. Revenue Sustainability

Based on the consumer mix and the prevailing consumer tariff and likely load, the Bulk Supply Tariff (BST) for the franchisee would be determined after ensuring commercial viability of the franchisee. Wherever feasible, bidding may be attempted for determining the BST. This Bulk Supply Tariff would be fully factored into the submissions of the State Utilities to the State Electricity Regulatory Commissions (SERCs) for their revenue requirements and tariff determination. The State Government under the Electricity Act is required to provide the requisite revenue subsidies to the State Utilities if it would like tariff for any category of consumers to be lower that the tariff determined by the SERC. While administering the scheme, prior commitments may be taken from the State Government regarding –

a) Determination of bulk supply tariff for franchisees in a manner that ensures their commercial viability.

b) Provision of requisite revenue subsidy by the State Government to the State Utilities as required under the Electricity Act.

10. The capital subsidy for eligible projects under the scheme would be given through REC. These eligible projects shall be implemented fulfilling the conditionalities indicated above. In the event the projects are not implemented satisfactorily in accordance with the conditionalities indicated above, the capital subsidy could be converted into interest bearing loans.

11. The services of Central Public Sector Undertakings (CPSUs) have been offered to the states for assisting them in the execution of Rural Electrification Projects as per their willingness and requirement. With a view to augment the implementation capacities for the programme, REC has entered into Memorandum of Understanding (MOUs) with NTPC, POWERGRID, NHPC AND DVC to make available CPSUs' project management expertise and capabilities to states wishing to use their services. This is being operationalised through a suitable Tripartite Agreement.

12. Upto 1 per cent of the total subsidy under the scheme would be used for associated works / efforts of the programme linked to research, technology development, capacity building, information system development, awareness and other administrative and associated expenses and undertaking of pilot studies and projects complimentary to this rural electrification scheme.

13. This scheme merges the existing "Accelerated Electrification of one lakh Villages and one crore Households" and the Minimum Needs Programme for rural electrification.

14. The scheme will be subject to evaluation and a view on modification required for implementation during 11th Plan will be taken after a comprehensive review towards the end of 10th Plan.

15. The expenditure involved on above scheme would be debitable to the following Head under Grant No. 73 – Ministry of Power for the year 2004-05 and corresponding head of account for the subsequent years.

2801 Power (Major Head)
06.796 Rural Electrification -
3-. Rural Electrification
03.00.33 - Subsidies

16. This issues with the concurrence of Finance Wing vide their diary No. 3766/2055-JS&FA dated the 18th March, 2005.

- sd -
(Ajay Shankar)
Additional Secretary to the Government of India
Tel:23715378

To,

1. The Chief Secretaries of all States
2. The Secretary, Power/Energy of all States
3. Chairman of all States (Utilities)
4. Chairman & Managing Director, REC Scope Complex, New Delhi.

Copy to:

1. Prime Minister's Office, South Block, New Delhi.
2. Cabinet Secretary, Cabinet Sectt. Rashtrapati Bhawan, New Delhi.
3. Ministry of Finance, Deptt. of Expenditure (Plan Finance), New Delhi.
4. Chairman, Central Electricity Authority, R.K. Puram, New Delhi.
5. Secretary, Planning Commission, New Delhi.
6. Secretary, Ministry of Non-conventional Energy Sources, New Delhi.
7. Secretary, Ministry of Rural Development, Krishi Bhawan, New Delhi.
8. Secretary, Department of Panchayati Raj, New Delhi.
9. Secretary, Ministry of Programme Implementation, New Delhi.
10. Department of Development of North Eastern Region, New Delhi.
11. CMDs of NHPC, NTPC, POWERGRID, DVC.
12. PPS to Secretary (P)/PS to SS (P)/ AS(GC)
13. All JSs / All Directors / DS in the Ministry of Power.

- sd -
(Ajay Shankar)
Additional Secretary to the Government of India
Tel:23715378

SCHEME ON RURAL ELECTRICITY INFRASTRUCTURE AND VILLAGE ELECTRIFICATION

COST ESTIMATES OF THE SCHEME

Rs. In crore

1.	Electrification of 125,000 un-electrified villages which includes interalia development of backbone network comprising Rural Electricity Distribution Backbone (REDB) and Village Electrification Infrastructure (VEI) and last mile service connectivity to 10% Households in the village @ Rs. 6.50 lakh/village	**8,125**
2.	Rural Households Electrification (RHE) of population under BPL i.e. 30% of 7.8 crore. Un-electrified Households/ i.e. 2.34 crore households @ Rs.1500/H/H as per Kutir Jyoti dispensation	**3,510**
3.	Augmentation of backbone network in already electrified villages having un-electrified inhabitations @ Rs./1 lakh/ village for 4.62 lakh villages	**4,620**
	Total (1 + 2 + 3)	**16,255**
	Outlay for the scheme	**16,000**
	Subsidy component @ 90% for items 1 & 3 and 100% for item 2	**14,750**
	Component of subsidy to be set aside for enabling activities including technology development @ 1% of outlay	**160**

Annexure -II

Status of Village Electrification as on 31.3.2004

Sl. No.	State	Total No. of inhabited villages as per 1991 census	Total No. of villages electrified	Balanc Balance unelectified Unelec villages	% age of electrified villages
1	Andhra Pradesh	26586	26565	$	100
2.	Arunachal Pradesh	3649	2335	1314	64
3.	Assam	24685	19081	5604	77.30
4.	Bihar	38475	19251	19224	50
5.	Jharkhand	29336	7641	21695	26
6.	Goa	360	360	-	100
7.	Gujarat	18028	17940	$	100
8.	Haryana	6759	6759	-	100
9.	Himachal Pradesh	16997	16891	106	99.38
10	J&K	6477	6301	176	97.28
11.	Karnataka	27066	26771	295	98.91
12.	Kerala	1384	1384	-	100
13.	Madhya Pradesh	51806	50474	1332	97.43
14.	Chattisgarh	19720	18532	1188	94
15.	Maharashtra	40412	40351	-	100
16.	Manipur	2182	2043	139	93.63
17.	Meghalaya	5484	3016	2468	55
18.	Mizoram	698	691	7	99
19.	Nagaland	1216	1216	-	100
20.	Orissa	46989	37663	9326	80.15
21.	Punjab	12428	12428	-	100
22.	Rajasthan	37889	37276	613	98.38
23.	Sikkim	447	405	42	90.60
24.	Tamil Nadu	15822	15822	-	100
25.	Tripura	855	818	37	95.67
26.	Uttar Pradesh	97122	57042	40080	58.73
27.	Uttaranchal	15681	13131	2550	83.73
28.	West Bengal	37910	31705	6205	83.63
	Total (States)	586463	47382	11241	80.80
	Total UTs	1093	1090	$	100%
	All India	587556	474982	112401	80.80%

$ Balance villages are not feasible for electrification.

* As per the new definition of village electrification (effective from 2004-05) total number of unelectrified villages is estimated to be around 1,25,000.

Annexure -III

RURAL HOUSEHOLDS ELECTRIFICATION - 2001 CENSUS

S. No.	STATE	TOTAL NO. OF RURAL HOUSEHOLDS	HOUSEHOLDS HAVING ELECTRICITY	% electrified House-holds	% un-electrified Households
1	Andhra Pradesh	12,676,218	7,561,733	**59.65**	40.35
2	Arunachal Pradesh	164,501	73,250	**44.53**	55.47
3	Assam	4,220,173	697,842	**16.54**	83.46
4	**Bihar**	**12,660,007**	**649,503**	5.13	**94.87**
5	**Chhattisgarh**	**3,359,078**	**1,548,926**	46.11	**53.89**
6	Delhi	169,528	144,948	85.50	14.50
7	Goa	140,755	130,105	**92.43**	7.57
8	Gujarat	5,885,961	4,244,758	**72.12**	27.88
9	Haryana	2,454,463	1,926,814	**78.50**	21.50
10	Himachal Pradesh	1,097,520	1,036,969	**94.48**	5.52
11	Jammu & Kashmir	1,161,357	868,341	**74.77**	25.23
12	**Jharkhand**	**3,802,412**	**379,987**	9.99	**90.01**
13	Karnataka	6,675,173	4,816,913	**72.16**	27.84
14	Kerala	4,942,550	3,238,899	**65.53**	34.47
15	Madhya Pradesh	8,124,795	5,063,424	**62.32**	37.68
16	Maharashtra	10,993,623	7,164,057	**65.17**	34.83
17	Manipur	296,354	155,679	**52.53**	47.47
18	Meghalaya	329,678	99,762	**30.26**	69.74
19	Mizoram	79,362	35,028	**44.14**	55.86
20	Nagaland	265,334	150,929	**56.88**	43.12
21	**Orissa**	**6,782,879**	**1,312,744**	19.35	**80.65**
22	Punjab	2,775,462	2,482,925	**89.46**	10.54
23	Rajasthan	7,156,703	3,150,556	**44.02**	55.98
24	Sikkim	91,723	68,808	**75.02**	24.98
25	Tamil Nadu	8,274,790	5,890,371	**71.18**	28.82
26	Tripura	539,680	171,357	**31.75**	68.25
27	**Uttar Pradesh**	**20,590,074**	**4,084,288**	19.84	**80.16**
28	Uttaranchal	1,196,157	602,255	**50.35**	49.65
29	**West Bengal**	**11,161,870**	**2,262,517**	20.27	**79.73**
Union Territories					
1	A.& Nicobar Islands	49,653	33,807	68.09	31.91
2	Chandigarh	21,302	20,750	97.41	2.59
3	D.& Nagar Haveli	32,783	27,088	82.63	17.37
4	Daman & Diu	22,091	21,529	97.46	2.54
5	Lakshadeep	5,351	5,337	99.74	0.26
6	Pondicerry	72,199	58,486	81.01	18.99
	ALL INDIA	**138,271,559**	**60,180,685**	**43.52**	**56.48**

Appendix - 2

(ON LETTER HEAD OF STATE GOVERNMENT OR STATE POWER UTILITY)

No. _____ Date: _____

The Chief Project Manager,
Rural Electrification Corporation Ltd.,
Project Office,
_____
_____
_____

Sub: Request for sanction of financial assistance for Rural Electrification Project(s) under 'RGGVY' for electrification of _____ households in _____ electrified villages in _____ selected block(s) of _____ district(s) in _____State, bearing code No. _______**

Sir,

Enclosed please find the Detailed Project Report(s), in triplicate, each containing _____ volume(s), for consideration of approval and sanction of financial assistance of Rs _____ lakhs (estimated project cost), for the RE project(s), indicated below: -

Sl. No.	Name of the Project	Number of Villages covered for intensification		households covered for electrifcn	Estimated cost of Project (Rs. Lakhs)	DPR prepared by (name of Agency)	Project Implementation Agency	Project completion date (FY)
		Electrified villages	Unelectrified habitations					
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1.								
2.								
3.								
	TOTAL							

The above projects(s) has been posed to REC with the consent of the State Government and necessary approval in this regard is available from the Govt. of _____ .

Yours faithfully,

(Signature)
Name of signatory
[Authorised signatory on behalf of the Government of _____ / Power Utility of the State]

Please Strike out whichever is not applicable
[Note : Pl. see section 12 of Guidelines regarding Code No. of scheme]**

FORMULAE FOR VOLTAGE REGULATION CALCULATIONS, etc.

VOLTAGE REGULN. = (P x L) / (Rc x Df)

Where :- P : is max demand in KVA (or MVA)
Rc : is regulation constant in KVA-Km (or MVA-Km) per 1 % drop.
L : is feeder length in Km

NOTE 1. : The basic formula above is for one section only and the VR for a particular feeder has to be calculated on sectional moment method.

For 11 KV & 22 KV lines however Load Distribution Factor (LDf) has to be considered as it would be very difficult to calculate on the sectional moment method for all the 11 / 22 KV feeders. The formula will accordingly be as under :-

VR for 11 KV (or 22 KV) Feeders = (1.06 x L x P x Pf) / (LDf x Df x Rc)

Where :-
P : is max demand in KVA / MVA
Rc : is regn. constant in KVA-Km / MVA-Km per 1 % drop.
L : is feeder length in Km
LDf : is (P x L) / (KVA-Km) based on sample calculations of two or three representative feeders
Df : is the diversity factor in p.u.
Pf : is the power factor in p.u.

NOTE 2. : The value of the regulation constant (Rc) at each voltage level varies as per values of the following parameters : -

a. Conductor size and Resistance (R)
b. Power Factor (Pf)
c. Conductor Spacing
d. Temperature considered

Voltage Reg. (per unit)

$$= \frac{(R \cos\theta + X \sin\theta) \times KVA\text{-}KM \times 10^2 \times 10^3}{(KV^2 \times 10^6)}$$

Therefore KVA-Km for 1 % voltage drop li.e. Regulation Const.(Rc) is :-

$$Rc = \frac{(KV^2 \times 10)}{(R \cos\theta + X \sin\theta)}$$

<u>Load Distribution Factor (LDf)</u>

<u>LDf</u> (11 & 22 KV lines)

(a) For uniformly distributed load on a feeder, LDf is = 2
(b) If load is skewed towards the PSS , LDf is greater than 2
(c) If load is skewed towards the tail end of feeder, LDf is between 1 and 2

VOLTAGE REGULATION CONSTANT CHART

Appendix - 6

11 KV.SYSTEM

SL. NO.	CONDUCTOR NAME AND SIZE (Al + St, Diam in mm)		COSQ	SINQ	CONDR. PARAMETERS RESIST. OHMS / KM. At 60 Deg.C R	REACT. OHMS / KM X	VOLT-AGE CLASS KV	KVA- KM FOR 1 % DROP	KVA- KM FOR 8 % DROP	P.F.
1	2		3	4	5	6	7	8	9	10
1	SQUIRR.	6/2.11+ 1/2.11	0.70	0.71	1.59384	0.39000	11	869	6951	0.70
	SQUIRR.		0.75	0.66	1.59384	0.39000	11	833	6663	0.75
	SQUIRR.		0.80	0.60	1.59384	0.39000	11	802	6415	0.80
	SQUIRR.		0.85	0.53	1.59384	0.39000	11	775	6199	0.85
	SQUIRR.		0.90	0.44	1.59384	0.39000	11	753	6027	0.90
	SQUIRR.		0.95	0.31	1.59384	0.39000	11	740	5920	0.95
2	WEASEL	6/2.59+ 1/2.59	0.70	0.71	1.05746	0.38200	11	1196	9570	0.70
	WEASEL		0.75	0.66	1.05746	0.38200	11	1158	9261	0.75
	WEASEL		0.80	0.60	1.05746	0.38200	11	1125	9003	0.80
	WEASEL		0.85	0.53	1.05746	0.38200	11	1099	8790	0.85
	WEASEL		0.90	0.44	1.05746	0.38200	11	1081	8644	0.90
	WEASEL		0.95	0.31	1.05746	0.38200	11	1077	8620	0.95
3	RABBIT	6/3.35+ 1/3.35	0.70	0.71	0.63208	0.43200	11	1615	12921	0.70
	RABBIT		0.75	0.66	0.63208	0.43200	11	1594	12751	0.75
	RABBIT		0.80	0.60	0.63208	0.43200	11	1582	12656	0.80
	RABBIT		0.85	0.53	0.63208	0.43200	11	1579	12633	0.85
	RABBIT		0.90	0.44	0.63208	0.43200	11	1594	12754	0.90
	RABBIT		0.95	0.31	0.63208	0.43200	11	1648	13181	0.95
4	RACCOON	6/4.09+ 1/4.09	0.70	0.71	0.42410	0.44200	11	1981	15851	0.70
	RACCOON		0.75	0.66	0.42410	0.44200	11	1984	15874	0.75
	RACCOON		0.80	0.60	0.42410	0.44200	11	2002	16014	0.80
	RACCOON		0.85	0.53	0.42410	0.44200	11	2034	16276	0.85
	RACCOON		0.90	0.44	0.42410	0.44200	11	2100	16801	0.90
	RACCOON		0.95	0.31	0.42410	0.44200	11	2241	17929	0.95

VOLTAGE REGULATION CONSTANT CHART

22 KV.SYSTEM

SL. NO.	CONDUCTOR NAME AND SIZE (Al + St, Diam in mm)		COSQ	SINQ	CONDR. PARAMETERS RESIST. OHMS / KM. At 60 Deg.C R	REACT. OHMS / KM X	VOLT-AGE CLASS KV	KVA- KM FOR 1 % DROP	KVA- KM FOR 8 % DROP	P.F.
1	2		3	4	5	6	7	8	9	10
1	SQUIRR.	6/2.11+ 1/2.11	0.70	0.71	1.59384	0.39000	22	3476	27804	0.70
	SQUIRR.		0.75	0.66	1.59384	0.39000	22	3332	26652	0.75
	SQUIRR.		0.80	0.60	1.59384	0.39000	22	3207	25658	0.80
	SQUIRR.		0.85	0.53	1.59384	0.39000	22	3100	24797	0.85
	SQUIRR.		0.90	0.44	1.59384	0.39000	22	3014	24109	0.90
	SQUIRR.		0.95	0.31	1.59384	0.39000	22	2960	23681	0.95
2	WEASEL	6/2.59+ 1/2.59	0.70	0.71	1.05746	0.38200	22	4785	38282	0.70
	WEASEL		0.75	0.66	1.05746	0.38200	22	4631	37045	0.75
	WEASEL		0.80	0.60	1.05746	0.38200	22	4502	36013	0.80
	WEASEL		0.85	0.53	1.05746	0.38200	22	4395	35158	0.85
	WEASEL		0.90	0.44	1.05746	0.38200	22	4322	34578	0.90
	WEASEL		0.95	0.31	1.05746	0.38200	22	4310	34479	0.95
3	RABBIT	6/3.35+ 1/3.35	0.70	0.71	0.63208	0.43200	22	6460	51683	0.70
	RABBIT		0.75	0.66	0.63208	0.43200	22	6375	51002	0.75
	RABBIT		0.80	0.60	0.63208	0.43200	22	6328	50623	0.80
	RABBIT		0.85	0.53	0.63208	0.43200	22	6317	50533	0.85
	RABBIT		0.90	0.44	0.63208	0.43200	22	6377	51018	0.90
	RABBIT		0.95	0.31	0.63208	0.43200	22	6590	52724	0.95
4	DOG	6/4.72+ 7/1.57	0.70	0.71	0.31842	0.42900	22	9176	73405	0.70
	DOG		0.75	0.66	0.31842	0.42900	22	9273	74183	0.75
	DOG		0.80	0.60	0.31842	0.42900	22	9451	75605	0.80
	DOG		0.85	0.53	0.31842	0.42900	22	9718	77747	0.85
	DOG		0.90	0.44	0.31842	0.42900	22	10182	81458	0.90
	DOG		0.95	0.31	0.31842	0.42900	22	11114	88912	0.95

VOLTAGE REGULATION CONSTANT CHART

33 KV.SYSTEM

SL. NO.	CONDUCTOR NAME AND SIZE (Al + St, Diam in mm)		COSQ	SINQ	CONDR. PARAMETERS RESIST. OHMS / KM. At 60 Deg.C R	REACT. OHMS / KM X	VOLT-AGE CLASS KV	MVA- KM FOR 1 % DROP	MVA- KM FOR 8 % DROP	P.F.
1	2		3	4	5	6	7	8	9	10
1	RABBIT	6/3.35+ 1/3.35	0.70	0.71	0.63208	0.43200	33	14.536	116.288	0.70
	RABBIT		0.75	0.66	0.63208	0.43200	33	14.344	114.755	0.75
	RABBIT		0.80	0.60	0.63208	0.43200	33	14.238	113.903	0.80
	RABBIT		0.85	0.53	0.63208	0.43200	33	14.212	113.700	0.85
	RABBIT		0.90	0.44	0.63208	0.43200	33	14.349	114.790	0.90
	RABBIT		0.95	0.31	0.63208	0.43200	33	14.829	118.628	0.95
2	RACCOON	6/4.09+ 1/4.09	0.70	0.71	0.42410	0.44200	33	17.832	142.658	0.70
	RACCOON		0.75	0.66	0.42410	0.44200	33	17.858	142.868	0.75
	RACCOON		0.80	0.60	0.42410	0.44200	33	18.015	144.124	0.80
	RACCOON		0.85	0.53	0.42410	0.44200	33	18.310	146.483	0.85
	RACCOON		0.90	0.44	0.42410	0.44200	33	18.901	151.205	0.90
	RACCOON		0.95	0.31	0.42410	0.44200	33	20.170	161.359	0.95
3	DOG	6/4.72+ 7/1.57	0.70	0.71	0.31842	0.42900	33	20.645	165.161	0.70
	DOG		0.75	0.66	0.31842	0.42900	33	20.864	166.911	0.75
	DOG		0.80	0.60	0.31842	0.42900	33	21.264	170.111	0.80
	DOG		0.85	0.53	0.31842	0.42900	33	21.866	174.930	0.85
	DOG		0.90	0.44	0.31842	0.42900	33	22.910	183.280	0.90
	DOG		0.95	0.31	0.31842	0.42900	33	25.006	200.051	0.95

Appendix - 7

Parameters for determination of capacity and number of distribution transformers for electrification of rural households in electrified villages under the present project

(A sample calculation)*

Average connected load per household	=	0.5 KW	
Diversity Factor (DF)	=	1.5	
Utlisation Factor (UF)	=	0.75	
Power Factor (PF)	=	0.8	
Average demand per household	=	$\frac{(0.5\ KW \times UF)}{(DF \times PF)}$	= 0.3125 KVA
Maximum Transformer Loading	=	90% of Capacity	

*** Power Utility may have to identify the value of these parameters depending on specific system conditions.**

Appendix - 8

CERTIFICATE

It is certified that :

1. All the villages included in the project, for electrification of rural households, are revenue villages, which have been duly identified by the corresponding census code number.

2. The proposed project covers electrification of the following : -

   (a) Project covers electrified villages including unelectrified habitations in electrified villages such as karas/ majras/ tolas/ hamlets/ dhanis etc and dalit bastis, and the name of these habitations have been specifically identified by name and listed under the main revenue villages (census : 2001) of which they are a part, together with correct information and data (as per 2001 census) regarding population, number of households, BPL households. In case of dalit bastis similar data and information have been separately listed.

   (b) The proposal also covers electrification of all BPL rural households in the electrified villages as on 31st March, 2004 and these households are in revenue villages which have been duly identified by the corresponding census code number. These electrified villages have been essentially listed in the relevant format of the project report.

3. Financial assistance for electrification of rural households, included in this project for electrification being funded by Rural Electrification Corporation Ltd., has not been taken from any other sources like MNES, PMGY, MNP, State Plan, NABARD, other FIs etc. It is also certified that no finance will be obtained from any other source in future for this project.

4. The project has been formulated in accordance with the REC's "Guidelines for formulation of projects under the RGGVY scheme for rural electricity infrastructure & household electrification for grid supply systems" [Part-B] for "ELECTRIFIED VILLAGES" in States with 100% village electrification level and required information, as desired in the relevant formats, charts, diagrams, map etc. have been furnished.

5. The project will be implemented as per prescribed procedure / guidelines of REC.

(Signature of the Authorised officer)
Name of officer
Designation
Name of Utility
Official Seal
Date

Appendix-9

Quarterly schedule for electrification of villages and households

State :

Name of District & Census Code :

Date of preparation of DPR: **Expected date of work commencement:**

Sr.No.	Name of Block	Census Code (2001)	No. of villages and households to be electrified in first year								No. of villages and households to be electrified in second year								Grand Total for villages	Grand Total for households
			I quarter		II quarter		III quarter		IV quarter		I quarter		II quarter		III quarter		IV quarter			
			No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH	No. of villages	No. of HH		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*
1																				
2																				
3																				
...																				
	Total																			

Annexure

List of Formats for formulation of projects under AREP
(Ref. : Section 5 of Guidelines)

A Executive Summary – *Abstract of the project proposal indicating total coverage of the project in respect of electrification of habitations in electrified villages, rural households, BPL households and public places/services, and existing status of electrification of villages, households and other category of services as well as ongoing initiatives/ projects in the project area under other programmes..*

B Scope of Work and estimated cost – *Item wise abstracts of scope of work, unit cost, quantity involved, estimated cost, together with phasing of works and estimated expenditure in 2 years (implementation period)*

C Present status of rural electrification – *This section includes blockwise villagewise details about existing level of rural electrification in the project area along with details of electrified villages, habitations and rural households etc.*

C – 1a Blockwise Details On Present Status of electrification of villages and habitations – *Blockwise details of existing level of electrification of villages and habitations and number of villages electrified from off-grid energy sources*

C – 1b Blockwise Details On Present Status of rural households electrification – *Blockwise details of existing level of electrification of rural households, BPL households*

C – 2 Blockwise Details of Existing Consumers – *Blockwise, categorywise details of existing consumers in the project area in order to have fair assessment of the existing status and trend of anticipated load development, energy consumption, anticipated revenue etc. after implementation of present project*

C – 3 Blockwise Details of sub-stations and lines located within the block - *Blockwise details of existing 132/33 KV substations, 33/11 kV substations, distribution substations and length of associated 33 KV lines, 11 KV and LT lines/network available at the block level to assess the adequacy of the existing installed capacity/network for both the sub-transmission and distribution system and assess the system augmentation/ strengthening needs pf the project area.*

C – 4 Villagewise (blockwise) details of present status of electrification of habitations, households and public places / services - *Blockwise villagewise status of electrification of habitations, households, BPL households & public places / services and basic details of electrified villages like population & area in order to assess quantum of work required for providing access to electricity to all households*

C – 5 Villagewise (blockwise) details of existing infrastructure - *Details about existing infrastructure like 11 KV lines, LT lines, Distribution transformers etc.*

C – 6 Villagewise (blockwise) details of categorywise number of existing connections - *Categorywise details of existing consumers in the project area in order to have fair assessment about anticipated load, energy consumption, anticipated revenue etc. after implementation of present project*

D Project Proposals - *This section includes blockwise as well as villagewise details of project proposals about electrification of habitations, rural households, BPL households, public places/services and proposed augmentation of existing 33/11 kV substations & village electricity infrastructure in electrified villages*

D – 1 Blockwise electrification of habitations, rural households and BPL households and Public places / services proposed under present project - *blockwise project proposals about electrification of habitations, rural households, BPL households and public places/services*

D – 2 Blockwise proposed infrastructure - sub-stations and line) - *Blockwise project proposals for augmentation of existing 33/11 kV substation and existing 33 KV line & village electricity infrastructure*

D – 3 Villagewise (blockwise) details of electrification of rural households, BPL households and public services - *Villagewise project proposals about electrification of habitations, rural households, BPL households and public places/services*

D – 4 Villagewise (blockwise) proposed Infrastructure - *Project proposals for augmentation of existing 33/11 kV substation & Village Electricity Infrastructure*

D – 5 Villagewise (blockwise) category-wise proposed no. of connections – *Categorywise no. of connections to be released under the project in electrified villages*

E Technical Data - *This section includes all technical details about existing as well as proposed sub-stations and lines along with calculation of voltage regulation and energy loss in the existing/proposed system, in order to evaluate technical feasibility of the proposed project*

Existing system

E – 1 Details of existing EHV sub-stations feeding the project area – *Power transformer capacity and existing / anticipated demand at existing 220 KV and 132 KV sub-stations, in order to ensure backup capacity*

E – 2 Details of 33 KV feeders emanating from EHV sub-stations – *Section wise details of 33 KV feeders along with calculation of voltage regulation and energy loss, in order to evaluate existing capacity of the 33 KV network*

Proposed system

E – 3 Details of 11 KV feeders of proposed augmentation of existing 33/11 KV Sub-stations -*Details of augmentation of existing 33/11 KV sub-stations and concerned 11 KV feeders proposed to be fed from existing 33/11 KV sub-stations along with calculation of voltage regulation and energy loss*

System status before and after modifications under the project with horizon load demand

E – 4 Details of 11 KV feeders of existing 33 /11 KV sub-stations (existing Status - Before implementation of present project) - *Details of existing 11 KV feeders emanating from existing 33/11 KV sub-stations in the project area along with calculation of voltage regulation and energy loss*

E – 5 Details of 11 KV feeders of existing 33 /11 KV sub-stations (Modified Status - After implementation of present project) - *Details of modified 11 KV feeders of the project area along with calculation of voltage regulation and energy loss*

E – 6 Details of augmentation of conductor size of existing 33 KV lines proposed under present project

E – 7 Details of proposed new 11 KV feeders from existing substations under present project.

E – 8 Details of augmentation of conductor size of existing 11 KV lines proposed under present project

E – 9 Details of Existing distribution system - Before implementation of the project - *Details of existing LT system of the project area along with calculation of average voltage regulation and energy loss for each type of distribution transformer for arriving at total energy loss in existing LT system*

E – 10 Details of Proposed distribution system - After implementation of the project - *Details of proposed LT system of the project area along with calculation of average voltage regulation and energy loss for each type of distribution transformer for arriving at total energy loss in proposed LT system*

E – 11 Energy Loss Status – *To evaluate incremental energy loss in the system due to creation of new sub-stations and lines for electrification of villages and households under the project*

F Business Plan and Financial analysis - *This section includes details about categorywise no. of consumers, connected load, anticipated sale of energy, anticipated revenue, cost of bulk power, revenue subsidy, O & M expenses, revenue stream etc. for next 15 years of operations, in order to evaluate sustainability of the proposed project.*

F – 1 Categorywise Anticipated no. of Consumers, Connected Load, Proposed Tariff Structure and Anticipated Revenue

F – 2 Categorywise details of anticipated Revenue from other sources like registration charges, service connection charges etc.

F – 3 Cost of Bulk Power

F – 4 Financial Analysis

G Detailed Cost Estimates

Other Attachments

H **Single line diagrams for existing and proposed distribution network**

I **Sample calculations along with formulae used for %VR, Annual energy loss etc.**

J **Existing and proposed distribution network superimposed on Geographical map**

K **PERT Chart for execution of project**

SECTION - A

Executive Summary

Executive Summary

Scheme Code No. : **A**

Amount in Rs. Lakhs

State		Total Project Cost	
Name of Power Utility		Capital Subsidy	
Name of District		Loan	
No. of Blocks		Other source of funding, if any	
Total Population of the area		Revenue Subsidy, (if any, committed by State Govt.)	
Total Geographical Area (SqKm)		Scheme Implementation Period	
Whether in Forest Area (Yes/No)		(a) Start (Proposed) (b) Completion (Proposed)	

Mode of Implementation : Turnkey
Implementing Authority / Agency :
Consultant :

Status of Village Electrification

Total No. of Inhabited Villages	No. of villages electrified as on _____	% Electrification	Balance no. of villages to be electrified as on _____
1	*2*	*3*	*4*

Status of Electrification of Village Habitations(Hemlets/Dhani/Tola/Majra/Kara)

Total No. of Village Habitations	No. of Village Habitations electrified as on _____	% Electrification	Balance no. of Village Habitations to be electrified as on _____
1	*2*	*3*	*4*

Status of Rural Household Electrification (Including BPL households)

Total No. of Households	No. of Households electrified as on _____	% Electrification	Balance no. of households to be provided access to electrycity under the present project
1	*2*	*3*	*4*

Status of BPL (Below Poverty Line) Household Electrification

Total No. of BPL Households	No. of BPL Households electrified as on _____	% Electrification	Balance no. of BPL households to be electrified under the present project
1	*2*	*3*	*4*

Electrification of Public places / services

Public places / services	Total	Proposed to be electrified under present scheme	Balance
Schools			
Pachayat Office			
Health Centres			
Dispensaries			
Community Centres			
Others like street lights etc. (Pl. specify)			

Proposed number of connections to be released under present project

Category -->	Domestic (other than BPL)	Domestic (BPL)	Commercial	Agriculural	Small Industrial	Water Works	Others (Pl. Specify)
No. of Services							

Details of on-going initiatives (projects) in the present project area

(Ref. : Para 5.1 (d) of Guidelines for project formulation)

Sr. No.	Name of Project	District	No. of Blocks Covered	No. of un-electrified villages to be electrified, if any	No. of rural households to be electrified	Project Cost	Name of Programme *	Funding Agency **	Date of Start of project	Scheduled Date of Completion
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1										
2										
3										
…..										
	Total									

* e.g. PMGY / MNP/ MNES / State Plan etc.

** State Govt. / Central Govt. / REC / Nabard etc.

SECTION - B

Scope of Work
and
Estimated Cost

Abstract - Scope of work and estimated cost

REC Ltd

State :

Name of District & Census Code : **Scheme Code No. :** **B**

Abstract - Scope of work and estimated cost

Sr.No.	Item of Work	Specifications	Unit	Ref. No. for detailed cost data	Unit Cost Rs.Lakh	Total Quantity	Total Cost Rs.Lakh	Phasing of Quantity Year 1	Phasing of Quantity Year 2	Phasing of Cost Year 1	Phasing of Cost Year 2
1	2	3	4	5	6	7	8	9	10	11	12
A.	**33 KV Works**										
1	New 33/11 KV Sub-stations **[For new 33/11 KV Substations & lines in blocks where these do not exist]**	Specify no. of 33 KV & 11 KV CBs & panels	Nos.			0	0.000	0.000	0.000	0.000	0.000
	(a) 1 x 3.15 MVA					0	0.000	0.000	0.000	0.000	0.000
	(b) 1 x 1.6 MVA					0	0.000	0.000	0.000	0.000	0.000
	(c) 1 x 5 MVA					0	0.000	0.000	0.000	0.000	0.000
	(d) 2 x 3.15 MVA					0	0.000	0.000	0.000	0.000	0.000
2	Augmentation of Ex. 33/11 KV S/S.	Specify size to size	Nos.			0	0.000	0.000	0.000	0.000	0.000
3	Addl. 11 KV Circuit breakers at existing Substation	Details to be provided separately	Nos.			0	0.000	0.000	0.000	0.000	0.000
4	R & M of Ex. 33/11 KV sub-stations	Specify works	LS			0	0.000	0.000	0.000	0.000	0.000
5	**New 33 KV Lines**	Specify type of support	Kms			0	0.000	0.000	0.000	0.000	0.000
	(a) With Dog ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(b) With Raccoon ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(c) With Rabbit ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
6	Reconductoring of 33 KV Lines	Specify size to size	Kms			0	0.000	0.000	0.000	0.000	0.000
7	Renovation of Ex. 33 KV lines	Specify works	LS			0	0.000	0.000	0.000	0.000	0.000
	Sub-Total (A)					0	0.000	0.000	0.000	0.000	0.000
B.	**11 KV Works**										
1	**New Distribution sub-stations**		Nos.								
	(a) 10 KVA (1 ph)	11/ 0.25 KV				0	0.000	0.000	0.000	0.000	0.000
	(b) 16 KVA (1 ph)	11/ 0.25 KV				0	0.000	0.000	0.000	0.000	0.000
	(c) 16 KVA (3 ph)	11/ 0.4 KV				0	0.000	0.000	0.000	0.000	0.000
	(d) 25 KVA (3 ph)	11/ 0.4 KV				0	0.000	0.000	0.000	0.000	0.000
						0	0.000	0.000	0.000	0.000	0.000
2	Augmentation of DTs	Specify	Nos.			0	0.000	0.000	0.000	0.000	0.000
3	**New 11 KV Lines**	Specify type of support	Kms								
	(a) With Rabbit ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(b) With Weasel ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(c) With Squirrel ACSR- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(d) With Squirrel ACSR- 1 Ph					0	0.000	0.000	0.000	0.000	0.000
	(e) With Rabbit equiv AAAC- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(f) With Weasel equiv AAAC- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(g) With Squirrel equiv AAAC- 3 Ph					0	0.000	0.000	0.000	0.000	0.000
	(h) 11 KV ABC cable	Specify				0	0.000	0.000	0.000	0.000	0.000
4	Reconductoring of 11 KV Lines	Specify size to size	Kms			0	0.000	0.000	0.000	0.000	0.000
5	Renovation of 11 KV lines	Specify works	LS			0	0.000	0.000	0.000	0.000	0.000
	Sub-Total (B)					0	0.000	0.000	0.000	0.000	0.000
C.	**LT Works**										
1	**New LT Lines**	Specify type of support	Kms								
	(a) 3 Ph 5W with Ant AAC					0	0.000	0.000	0.000	0.000	0.000
	(b) 3 Ph 5 W with Gnat AAC					0	0.000	0.000	0.000	0.000	0.000
	(c) 3 Ph 4W with Ant AAC					0	0.000	0.000	0.000	0.000	0.000
	(f) 1 Ph 2W with Ant AAC					0	0.000	0.000	0.000	0.000	0.000
	(d) 3 Ph 4 W with Weasel ACSR					0	0.000	0.000	0.000	0.000	0.000
	(e) 3 Ph 4W with Squirrel ACSR					0	0.000	0.000	0.000	0.000	0.000
	(f) 1 Ph 2W with Weasel ACSR					0	0.000	0.000	0.000	0.000	0.000
	(f) 1 Ph 2W with Squirrel ACSR					0	0.000	0.000	0.000	0.000	0.000
						0	0.000	0.000	0.000	0.000	0.000
	Sub-Total (C)					0	0.000	0.000	0.000	0.000	0.000
D.	**Service Connections**	Cable Size, Meter Type	Nos.								
	(a) Domestic					0	0.000	0.000	0.000	0.000	0.000
	(b) Commercial					0	0.000	0.000	0.000	0.000	0.000
	(c) Agricultural					0	0.000	0.000	0.000	0.000	0.000
	(d) Small Industrial					0	0.000	0.000	0.000	0.000	0.000
	(e) Water Works					0	0.000	0.000	0.000	0.000	0.000
	(f) Street Lights					0	0.000	0.000	0.000	0.000	0.000
	(g) BPL beneficiaries					0	0.000	0.000	0.000	0.000	0.000
	Sub-Total (D)					0	0.000	0.000	0.000	0.000	0.000

Abstract - Scope of work and estimated cost

REC Ltd

State :

Name of District & Census Code : **Scheme Code No. :** **B**

Abstract - Scope of work and estimated cost

Sr.No.	Item of Work	Specifications	Unit	Ref. No. for detailed cost data	Unit Cost Rs.Lakh	Total Quantity	Total Cost Rs.Lakh	Phasing of Quantity Year 1	Phasing of Quantity Year 2	Phasing of Cost Year 1	Phasing of Cost Year 2
E.	**Metering**	Type, Current Rating etc.	Nos.								
	(a) At 11 KV Feeders					0	0.000	0.000	0.000	0.000	0.000
	(b) At Distribution Transformers					0	0.000	0.000	0.000	0.000	0.000
	[On LT side of transformers					0	0.000	0.000	0.000	0.000	0.000
	if not provided with DTCs]										
	Sub-Total (E)					0	0.000	0.000	0.000	0.000	0.000
F.	Other Innovative Equipments										
	(a) Switched Capacitors	KVAR	Nos.			0	0.000	0.000	0.000	0.000	0.000
	(b) Fixed Capacitors	KVAR	Nos.			0	0.000	0.000	0.000	0.000	0.000
	(c) Others (Pl. Specify)										
	Sub-Total (F)					0	0.000	0.000	0.000	0.000	0.000
G.	**Computerisation and other automations**										
	(a) Computer Hardware	Pl.Specify				0	0.000	0.000	0.000	0.000	0.000
	(b) Computer Software	Pl.Specify				0	0.000	0.000	0.000	0.000	0.000
	(c) Handheld Billing Machine	Pl.Specify				0	0.000	0.000	0.000	0.000	0.000
	(d) Consumer indexing	Pl.Specify				0	0.000	0.000	0.000	0.000	0.000
	(e) Others (Pl. specify)	Pl.Specify				0	0.000	0.000	0.000	0.000	0.000
	Sub-Total(G)					0	0.000	0.000	0.000	0.000	0.000
H.	**Total (A+B+C+D+E+F+G)**					0	0.000	0.000	0.000	0.000	0.000
I.	**Overheads : 10% of H (applicable State Power Utlities only) OR**					0	0.000	0.000	0.000	0.000	0.000
	Service Charge : 12% of H or as may be applicable to CPSUs only					0	0.000	0.000	0.000	0.000	0.000
J.	**Total (H + I)**										
K.	**Cost of Franchisee Development**										
	Grand Total (J + K)					0	0.000	0.000	0.000	0.000	0.000

Note: The item of works shown above are only indicative and may charge as per requirement and in line with the guidelines.Please delete what is not required.

SECTION - C

Present status of rural electrification

Blockwise Details On Present Status of Electrification of Villages & Habitations

C - 1a

State :

Name of District & Census Code : **Scheme Code No. :**

Sr.No.	Name of Block	Census Code (2001)	Total Population	Total Area	Status of Electrification of Vllages				Status of Electrification of Habitations (Hamlet/Dhani/Tola/Majra/Kara)				No. of villages electrified with non-conventional energy sources, if any
					Total No. of villages	No. of villages electrified as on _____	% Electrification	Balance no. of villages to be electrified	Total No. of Village Habitations	No. of Village Habitations electrified as on _____	% Electrification	Balance no. of Village Habitations to be electrified as on _____	
			Nos.	Sq.Km	Nos.	Nos.	%	Nos.	Nos.	Nos.	%	Nos.	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1													
2													
3													
...													
	Total												

Note : 1. The above informatiom is required only for RURAL AREA

2. The above informatiom is required for all the blocks in a district

C - 1b

Blockwise Details On Present Status of Rural Household Electrification

State :

Name of District & Census Code : **Scheme Code No. :**

Sr.No.	Name of Block	Census Code (2001)	Status of Rural Households (RHH) Electrification - As per Census 2001 (Including BPL households)				Status of Below Powerty Line Households (BPL HH) Electrification			
			Total No. of RHH	No. of RHH electrified as on _____	% Electrification	Balance no. of RHHs to be electrified	Total No. of BPL HH	No. of BPL HH electrified as on _____	% Electrification	Balance no. of BPL HH to be electrified
			Nos.	Nos.	%	Nos.	Nos.	Nos.	%	Nos.
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1										
2										
3										
...										
	Total									

Note : 1. The above informatiom is required only for RURAL AREA

2. The above informatiom is required for all the blocks in a district

Blockwise Details of Existing Consumers

REC Ltd. **C - 2**

State :

Name of District & Census Code :

Scheme Code No. :

Sr.No.	Name of Block	Census Code (2001	Category wise no. of consumers and connected load									Categorywise average sale of energy (Kwh) and revenue per annum								
			Dom.	Kutir Jyoti / BPL HH	Comm.	Ag.	Small Ind.	Water Works	Street Lights	Others _____	Total	Dom.	Kutir Jyoti / BPL HH	Comm.	Ag.	Small Ind.	Water Works	Street Lights	Others _____	Total
			No./KW	No./KW	No./KW	No./KW	No./KW	No./KW	No./KW	No./KW	No./KW	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs	Kwh / Rs
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*
1																				
2																				
3																				
….																				
	Total																			

Note : 1. The above informatiom is required only for RURAL AREA

2. The above informatiom is required for all the blocks in a district

Blockwise Details of Sub-stations and Lines located in the block

C - 3

State :

Name of District & Census Code :

Scheme Code No. :

Sr. No.	Name of Block	Census Code (2001)	Existing Sub-stations and Lines located in each block										
			132/33 KV Sub-stations		33/11 KV Sub-stations		Length of 33 KV Line	Total No. of 11 KV feeders	Length of 11 KV Lines	Distribution Sub-stations		Total No. of LT feeders	Length of LT Lines
			No. of sub-stations	Total Power Transformer Capacity	No. of sub-stations	Total Power Transformer Capacity				No. of sub-stations	Total Dist. Transformer Capacity		
			Nos.	MVA	Nos.	MVA	Kms	No.	Kms	No.	MVA	No.	Kms
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1													
2													
3													
...													
	Total												

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be changed appropriately as obtaining in the project area like 66 kV etc.

2. The above informatiom is required only for RURAL AREA

3. The above informatiom is required for all the blocks in a district

Blockwise Villagewise details of present status of electrification of habitations, households and public places / services

C - 4

State

Name of District and Census Code

Scheme Code No. :

Sr.No. (Block)	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village	Census Code (2001)	Status of Electrification of Village Habitation (hamlet/Dhani/Tola/Majra/Kara)			Status of Rural Households (RHH) Electrification - As per Census 2001 (Including BPL households)				Status of Below Powerty Line Households (BPL HH) Electrification				Status of Public Places / Services - No. of				Population	Area (Sq. Km.)
						Total No. of Village Habitations	No. of Village Habitations electrified as on	Balance no. of Village Habitations to be electrified as on	Total No. of RHH	No. of RHH electrified as on _____	% Electrification	Balance no. of RHH to be electrified	Total No. of BPL HH	No. of BPL HH electrified as on _____	% Electrification	Balance no. of BPL HH to be electrified	Schools	Panchayat Office	Health Centres	Others (Pl. specify)		
						Nos.	Nos.	Nos.	Nos.	Nos.	%	Nos.	Nos.	Nos.	%	Nos.	Total / Electrified	Total / Electrified	Total / Electrified	Total / Electrified		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*
1	Block - 1		1	Village - 1 (Block-1)																		
			(i)	Habitation - 1 (Vill-1)		-	-	-														
			(ii)	Habitation - 2 (Vill-1)		-	-	-														
				Sub-Total(Village-1)																		
			2	Village - 2 (Block-1)																		
			(i)	Habitation - 1 (Vill-2)		-	-	-														
			(ii)	Habitation - 2 (Vill-2)		-	-	-														
				Sub-Total(Village-2)																		
			…..																			
	Sub-Total (Block - 1)																					
2	Block - 2		1	Village - 1 (Block-2)																		
			(i)	Habitation - 1 (Vill-1)		-	-	-														
			(ii)	Habitation - 2 (Vill-1)		-	-	-														
				Sub-Total(Village-1)																		
			2	Village - 2 (Block-2)																		
			(i)	Habitation - 1 (Vill-2)		-	-	-														
			(ii)	Habitation - 2 (Vill-2)		-	-	-														
				Sub-Total(Village-2)																		
			…..																			
	Sub-Total (Block - 2)																					
…..																						
	Grand Total																					

Blockwise Villagewise details of existing infrastructure

C - 5

State

Scheme Code No. :

Name of District and Census Code

Sr.No.	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village / habitation (Hamlet/Dhani/Tola/ Majra/Kara/Dalit Basti)	Census Code (2001)	Existing infrastructure									Name of feeding 33/11 KV sub-stations	Name of concerned 11 KV Feeder
						33/11 KV SS	Length of 33 KV Line	Distribution Sub-stations			Length of 11 KV Lines	No. of LT Feeders	Length of LT Lines			
								Transformer Capacity	1-ph or 3ph	No. of Transformers			Configuration (1-ph, 3-Ph etc.)	Length of LT Lines		
						Nos./MVA	Kms	KVA		No.	Kms	Nos.		Kms		
1	*2*	*3*	*4*	*5*	*6*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1	Block - 1		1	Village - 1 (Block-1)												
			(i)	Habitation - 1 (Vill-1)												
			(ii)	Habitation - 2 (Vill-1)												
				Sub-Total(Village-1)												
			2	Village - 2 (Block-1)												
			(i)	Habitation - 1 (Vill-2)												
			(ii)	Habitation - 2 (Vill-2)												
				Sub-Total(Village-2)												
			…..													
	Sub-Total (Block - 1)															
2	Block - 2		1	Village - 1 (Block-2)												
			(i)	Habitation - 1 (Vill-1)												
			(ii)	Habitation - 2 (Vill-1)												
				Sub-Total(Village-1)												
			2	Village - 2 (Block-2)												
			(i)	Habitation - 1 (Vill-2)												
			(ii)	Habitation - 2 (Vill-2)												
				Sub-Total(Village-2)												
			…..													
	Sub-Total (Block - 2)															
…..																
	Grand Total															

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be changed appropriately as obtaining in the project area like 66 kV etc.

2.. Habitation wise details are required to be furnished only for the existing distribution transformers in col. 6,7 & 8

3. All other details may be furnished for the village as a whole.

Block-wise Village-wise category-wise existing no. of connections

C - 6

State

Scheme Code No. :

Name of District and Census Code

Sr.No.	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village/ habitation (Hamlet/Dhani/Majra/ Kara/Dalit Basti)	Census Code (2001)	Existing No. of Connections and Connected Load													
						Domestic (Other than BPL)		Domestic (BPL)		Commercial		Agriculture		Small Industries		Others (Pl. Specify)		Total	
						No.	KW	No.	KW	No.	KW	No.	KW	No.	KW	No.	KW	No.	KW
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
1	Block - 1		1	Village - 1 (Block-1)															
			(i)	Habitation - 1 (Vill-1)															
			(ii)	Habitation - 2 (Vill-1)															
				Sub-Total(Village-1)															
2			2	Village - 2 (Block-1)															
			(i)	Habitation - 1 (Vill-2)															
			(ii)	Habitation - 2 (Vill-2)															
				Sub-Total(Village-2)															
…..			…..																
	Sub-Total (Block - 1)																		
	Block - 2		1	Village - 1 (Block-2)															
			(i)	Habitation - 1 (Vill-1)															
			(ii)	Habitation - 2 (Vill-1)															
				Sub-Total(Village-1)															
			2	Village - 2 (Block-2)															
			(i)	Habitation - 1 (Vill-2)															
			(ii)	Habitation - 2 (Vill-2)															
				Sub-Total(Village-2)															
			…..																
	Sub-Total (Block - 2)																		

SECTION - D

Scheme Proposal

Scheme Proposal : Blockwise electrification of habitations, rural households and BPL households and Public places / services proposed under present scheme

D - 1

State :

Scheme Code No. :

Name of District & Census Code :

Sr. No.	Name of Block	Census Code (2001)	Electrification of Habitations (Hamlet/Dhani/Tola/Majra/Kara)			Rural Households (RHH) Electrification (including BPL households)			Below Powerty Line Households (BPL HH) Electrification			Electrification of Public places / services			
			Balance no. of habitations to be electrified	Proposed No. of habitations to be electrified	Balance no. of habitations to be electrified in future	Balance no. of RHH to be provided access to electriicty	Proposed No. of connections to be released to RHH	Balance no. of RHH to be connected in future	Balance no. of BPL HH to be electrified	Proposed No. of connections to be released to BPL HH	Balance no. of BPL HH to be connected in future, if any (Pl. also indicate reasons)*	Schools	Panchayat Office	Health Centres	Other _____ (Pl. Specify)
			Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
1															
2															
3															
….															
	Total														

*** As per guidelines all balance BPL households are to be electrified. However, in case of any difficulty in electrifying all BPL HH, the reasons for the same may be indicated.**

Scheme Proposal : Blockwise proposed infrastructure - sub-stations and line)

D - 2

State :

Name of District & Census Code :

Scheme Code No. :

Sr. No.	Name of Block	Census Code (2001)	Proposed Infrastructure											
			Augmentation of existring 33/11 KV S/S (N0 x MVA)		Length of 33 KV Line	Total No. of 11 KV feeders	Total Length of 11 KV Lines (feeders)	Distribution Sub-stations				Total No. of LT feeders	Total Length of LT Lines (feeders)	
								Transformer Capacity	1-ph or 3-ph	No. of sub-stations	Total Dist. Transformer Capacity		Configuration (1-ph, 3-Ph etc.)	Length of LT Lines
			From	To	Kms	No.	Kms	KVA		No.	MVA	No.		Kms
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1								10	1-ph				1-ph*	
								16	3-ph					
								25	3-ph				3-ph*	
2								10	1-ph				1-ph*	
								16	3-ph					
								25	3-ph				3-ph*	
3								10	1-ph					
…								16	3-ph					
								25	3-ph					
	Total													

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be changed appropriately as obtaining in the project area like 66 kV etc.

*** Please indicate actual as obtaining.**

Scheme Proposal : Blockwise Villagewise details of electrification of rural houseolds, BPL households and public services

D - 3

State

Scheme Code No. :

Name of District and Census Code

Sr.No. (Block)	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village/ Habitation (Hamlet/Dhani/Majra/Kara/Dalit Basti)	Census Code (2001)	Electrification of Habitations			Rural Households (RHH) Electrification			Below Powerty Line Households (BPL			Electrification of Public places / services			
						Balance no. of habitations to be electrified	Proposed No. of habitations to be electrified	Balance no. of habitations to be electrified in future	Balance no. of RHH to be provided access to electriicty	Proposed No. of connections to be released to RHH	Balance no. of RHH to be connected in future	Balance no. of BPL HH to be electrified	Proposed No. of connections to be released to BPL HH	Balance no. of BPL HH to be connected in future, if any (Pl. also indicate reasons)*	Schools	Panchayat Office	Health Centres	Other _____ (Pl. Specify)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*
1	Block - 1		1	Village - 1 (Block-1)														
			(i)	Habitation - 1 (Vill-1)		-	-	-										
			(ii)	Habitation - 2 (Vill-1)		-	-	-										
				Sub-Total(Village-1)														
			2	Village - 2 (Block-1)														
			(i)	Habitation - 1 (Vill-2)		-	-	-										
			(ii)	Habitation - 2 (Vill-2)		-	-	-										
				Sub-Total(Village-2)														
			.....															
	Sub-Total (Block - 1)																	
2	Block - 2		1	Village - 1 (Block-2)														
			(i)	Habitation - 1 (Vill-1)		-	-	-										
			(ii)	Habitation - 2 (Vill-1)		-	-	-										
				Sub-Total(Village-1)														
			2	Village - 2 (Block-2)														
			(i)	Habitation - 1 (Vill-2)		-	-	-										
			(ii)	Habitation - 2 (Vill-2)		-	-	-										
				Sub-Total(Village-2)														
			.....															
	Sub-Total (Block - 2)																	
	Grand Total																	

Scheme Proposal : Villagewise Proposed Infrastructure

D - 4

State

Scheme Code No. :

Name of District and Census Code

Sr.No.	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village/ Habitation (Hamlet/Dhani/Majra/Kara/Dalit Basti)	Census Code (2001)	Proposed infrastructure									Name of feeding 33/11 KV sub-stations	Name of concerned 11 KV Feeder
						Augmentation of existring 33/11 KV S/S (N0 x MVA)		Distribution Sub-stations			Length of 11 KV Lines	No. of LT Feeders	Length of LT Lines			
								Transformer Capacity	1-ph or 3ph	No. of Transformers			Configuration (1-ph, 3-Ph etc.)	Length of LT Lines		
						From	To	KVA		No.	Kms	Nos.		Kms		
1	*2*	*3*	*4*	*5*	*6*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1	Block - 1		1	Village - 1 (Block-1)												
			(i)	Habitation - 1 (Vill-1)		-	-				-	-	-	-	-	-
			(ii)	Habitation - 2 (Vill-1)		-	-				-	-	-	-	-	-
				Sub-Total(Village-1)												
			2	Village - 2 (Block-1)												
			(i)	Habitation - 1 (Vill-2)		-	-				-	-	-	-	-	-
			(ii)	Habitation - 2 (Vill-2)		-	-				-	-	-	-	-	-
				Sub-Total(Village-2)												
			.....													
	Sub-Total (Block - 1)															
2	Block - 2		1	Village - 1 (Block-2)												
			(i)	Habitation - 1 (Vill-1)		-	-				-	-	-	-	-	-
			(ii)	Habitation - 2 (Vill-1)		-	-				-	-	-	-	-	-
				Sub-Total(Village-1)												
			2	Village - 2 (Block-2)												
			(i)	Habitation - 1 (Vill-2)		-	-				-	-	-	-	-	-
			(ii)	Habitation - 2 (Vill-2)		-	-				-	-	-	-	-	-
				Sub-Total(Village-2)												
			.....													
	Sub-Total (Block - 2)															
	Grand Total															

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be replaced appropriately as obtaining in the project area like 66 kV etc.

2.. Habitation wise details are required to be furnished only for the proposed distribution transformers in col. 6,7 & 8

3. All other details may be furnished for the village as a whole.

Scheme Proposal : Village-wise category-wise proposed no. of connections

State

D - 5

Scheme Code No. :

Name of District and Census Code

Sr.No.	Name of Block	Census Code (2001)	Sr.No. (Village)	Name of Village/ Habitation (Hamlet, Majra, Dhani,Kara, Dalit Basti)	Census Code (2001)	Proposed No. of Connections and Connected Load													
						Domestic (Other than BPL)		Domestic (BPL)		Commercial		Agriculture		Small Industries		Others (Pl. Specify)		Total	
						No.	KW	No.	KW	No.	KW	No.	KW	No.	KW	No.	KW	No.	KW
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
1	Block - 1		1	Village - 1 (Block-1)															
			(i)	Habitation - 1 (Vill-1)															
			(ii)	Habitation - 2 (Vill-1)															
				Sub-Total(Village-1)															
			2	Village - 2 (Block-1)															
			(i)	Habitation - 1 (Vill-2)															
			(ii)	Habitation - 2 (Vill-2)															
				Sub-Total(Village-2)															
			…..																
	Sub-Total (Block - 1)																		
2	Block - 2		1	Village - 1 (Block-2)															
			(i)	Habitation - 1 (Vill-1)															
			(ii)	Habitation - 2 (Vill-1)															
				Sub-Total(Village-1)															
			2	Village - 2 (Block-2)															
			(i)	Habitation - 1 (Vill-2)															
			(ii)	Habitation - 2 (Vill-2)															
				Sub-Total(Village-2)															
			…..																
	Sub-Total (Block - 2)																		
	Grand Total																		

SECTION - E

Technical Data

DETAILS OF EXISTING EHV SUB STATIONS FEEDING THE SCHEME AREA
(220 KV and 132 KV)

E - 1

State :

Scheme Code No. :

Name of District and Census Code :

Sl. No.	Name of Existing EHV S/Stn.	Name of Block and Census Code	Voltage Ratio KV	Transformer capacity			Maximum Demand (Existing) MVA	Additional Demand due to present sch. MVA	Anticipated Maximum Demand after impl. of scheme MVA	Remarks *
				No.	Cap in MVA	Total MVA				
1	2	3	4	5	6	7	8	9	10	11
1			220/132 132/33 132/11 33/11							
2										
3										
4										
.										
.										
	TOTAL									

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be replaced appropriately as obtaining in the project area like 66 kV etc.

*** Please indicate proposal for load shifting or augmentation, if any.**

Details of existing 33 KV Feeders Emanating from EHV sub-stations

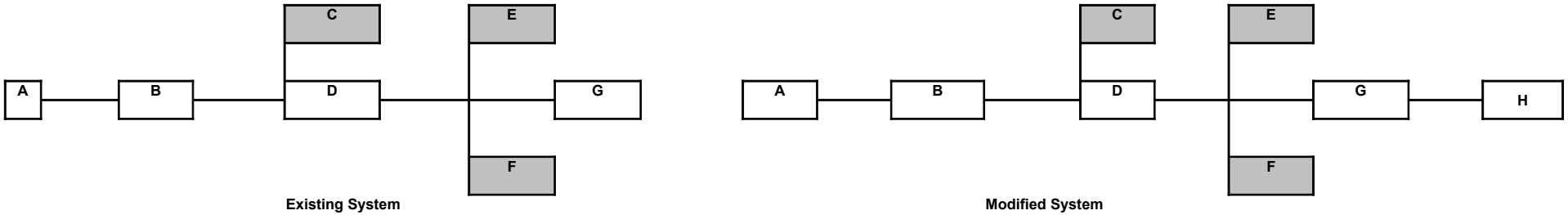
E - 2

State **Scheme Code No. :**

Name of District and Census Code

Name of EHV sub-station and voltage level (132 or 220 KV)

Sr. No.	Name of 33 KV Feeder	33 KV Line Section (Existing system with Existing Load)								33 KV Line Section (Modified system with Anticipated Load)							
		Line Section	Name of Originating sub-station	Name of Terminating sub-station	Type and Size of Conductor	Length of Section	Maximum Demand on section	% Voltage Regulation at Terminating sub-station	Annual Energy Losses in Section	Line Section	Name of Originating sub-station	Name of Terminating sub-station	Type and Size of Conductor	Length of Section	Maximum Demand on section	% Voltage Regulation at Terminating sub-station	Annual Energy Losses in Section
						(Km.)	(MVA)	(%)	(LU)					(Km.)	(MVA)	(%)	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Feeder-1	A-B	A	B						A-B	A	B					
		B-D	B	D						B-D	B	D					
		D-G	D	G						D-G	D	G					
		Sub-Total (Feeder - 1)					-	-		G-H	G	H					
										Sub-Total (Feeder - 1)					-	-	
2	Feeder-2																
		Sub-Total (Feeder - 2)					-	-		Sub-Total (Feeder - 2)					-	-	
		Grand Total (All feeders)					-	-		Grand Total (All feeders)					-	-	



Typical single line diagram of a 33 KV Feeder

Spur lines to be lumped at trunk feeder node.

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be replaced appropriately as obtaining in the project area like 66 kV etc.
2. Separate sheet may be used for each of the EHV sub-station in a district.

E - 3

Details of proposed augmentation of existing 33 /11 KV Sub-stations and existing & proposed 11 KV feeders from these Substations

State **Scheme Code No. :**

Name of District and Census Code

Sr. No.	Name of Block, Census Code and Longitude & Latitude	Sr.No. (Sub-station)	Name of Existing 33 KV sub-station to be augmented	Power Transformer Capacity (No x MVA) before and after augmentation				Total Anticipated Max. Demand	11 KV Feeders								Distribution Transformer Capacity (Feeder wise)		
				Voltage Ratio	From (No x MVA)	To (No x MVA)	Toal MVA Capacity added		Feeder No.	Name of Feeder	Length of Feeder	Conductor Type, Name & Size	Anticipated Max. Demand on feeder	% Voltage Regulation	Annual Energy Loss	No. of Connected Villages	Capacity in KVA	No. of DTs	Total KVA Capacity
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
1	Block : ……..	1							1								10* 16* 25*		
	Census Code : ……																		
	Longitude : ……..								2								10* 16* 25*		
	Latitude : ……																		
									3								10* 16* 25*		
		2							1										
									2										
									3										
2	Block : ……..	1							1										
	Census Code : ……																		
	Longitude : ……..								2										
	Latitude : ……																		
……																			

Details of 11 KV feeders of Existing 33 /11 KV Sub-stations (Existing Status - Before implementation of present scheme)

E - 4

State **Scheme Code No. :**

Name of District and Census Code

Sr. No.	Name of Block, Census Code and Longitude & Latitude	Sr.No. (Sub-station)	Name of 33 KV sub-station	Existing Power Transformer Capacity				Total Max. Demand (Existing)	11 KV Feeders								Distribution Transformer Capacity (Feeder wise)		
				Voltage Ratio	No. of Power Transformers	Capacity in MVA	Toal MVA Capacity		Feeder No.	Name of Feeder	Length of Feeder	Conductor Type, Name & Size	Max. Demand on feeder (Existing)	% Voltage Regulation	Annual Energy Loss	No. of Connected Villages	Capacity in KVA	No. of DTs	Total KVA Capacity
1	*2*	*3*	*4*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Block : ……..	1							1								10* 16* 25*		
	Census Code : ……																		
	Longitude : ……..								2								10* 16* 25*		
	Latitude : ……																		
									3								10* 16* 25*		
		2							1										
									2										
									3										
2	Block : ……..	1							1										
	Census Code : ……																		
	Longitude : ……..								2										
	Latitude : ……																		
……																			

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be replaced appropriately as obtaining in the project area like 66 kV etc.

Details of 11 KV feeders of Existing 33 /11 KV Sub-stations (Modified Status - After implementation of present scheme)

E - 5

State

Scheme Code No. :

Name of District and Census Code

Sr. No.	Name of Block, Census Code and Longitude & Latitude	Sr.No. (Sub-station)	Name of 33 KV sub-station	Existing Power Transformer Capacity				Total Max. Demand (Existing)	11 KV Feeders								Distribution Transformer Capacity (Feeder wise)		
				Voltage Ratio	No. of Power Transformers	Capacity in MVA	Toal MVA Capacity		Feeder No.	Name of Feeder	Length of Feeder	Conductor Type, Name & Size	Max. Demand on feeder (Existing)	% Voltage Regulation	Annual Energy Loss	No. of Connected Villages	Capacity in KVA	No. of DTs	Total KVA Capacity
1	*2*	*3*	*4*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Block : ……..	1							1								10* 16* 25*		
	Census Code : ……																		
	Longitude : ……..								2								10* 16* 25*		
	Latitude : ……																		
									3								10* 16* 25*		
		2							1										
									2										
									3										
2	Block : ……..	1							1										
	Census Code : ……																		
	Longitude : ……..																		
	Latitude : ……								2										
……																			

Note : 1. Voltage level of the sub-transmission system viz. 33 kV may be replaced appropriately as obtaining in the project area like 66 kV etc.

Augmentation of conductor size of existing 33 KV feeders proposed under present project

E - 6

State

Scheme Code No. :

Name of District and Census Code

Sr. No.	Name of Block and Census Code	Name of new line/Section		Source Sub-station	Connecting sub-station	Conductor Size/ Name	Length (Km)
		From (Location)	To (Location)				
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Block : ……..						
	Census Code : ……						
	Sub-Total						
2	Block : ……..						
	Census Code : ……						
	Sub-Total						
……							
	Grand Total						

Details of new 11 KV lines proposed for erection under present project

E - 7

State

Name of District and Census Code

Scheme Code No. :

Sr. No.	Name of Block and Census Code	Name of 33/11 KV Substation	Name of 11 KV Feeder	Section of feeder		Conductor Size and Name	Addl. Length of line to be erected (KM)
				From Location	To Location		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Block : …….. Census Code : ……						
	Sub-Total						
2	Block : …….. Census Code : ……						
	Sub-Total						
	Grand Total						

Augmentation of conductor size of existing 11 KV feeders proposed under present project

E - 8

State

Name of District and Census Code

Scheme Code No. :

Sr. No.	Name of Block and Census Code	Name of Feeder		Voltage Level (KV)	Augmentation of conductor		Length involved (Ckt.Km)	Remarks
		From Location	To Location		From (Name/Size)	To (Name/Size)		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Block : …….. Census Code : ……							
	Sub-Total							
2	Block : …….. Census Code : ……							
	Sub-Total							
	Grand Total							

Details of Existing distribution system - Before implementation of the scheme

E - 9

State

Scheme Code No. :

Name of District and Census Code

Sl. No.	Name of Block and Census Code	Name of Existing HV S/Stn.	Voltage Ratio	Name of 11KV Feeder	Total Connected Load KVA	Length of 11 KV line	DTs connected		No. of Connected Villages	Total LT line length	HT/LT ratio col 6/ col 9	Average LT line per transformer (Km/T/F)	Ratio of CL to DT capacity	Max. VR of LT feeder	Total LT losses Lus
							No.	KVA							
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
				1				**10***							
								16*							
								25*							
				2				**10***							
								16*							
								25*							
				3				**10***							
								16*							
								25*							
								10*							
				4				**16***							
								25*							
				1											
				2											
				3											
				4											

*** Please indicate actual as obtaining.**

Details of Proposed distribution system - After implementation of the scheme

E - 10

State

Scheme Code No. :

Name of District and Census Code

Sl. No.	Name of Block and Census Code	Name of Existing HV S/Stn.	Voltage Ratio	Name of 11KV Feeder	Total Connected Load KVA	Length of 11 KV line	DTs connected		No. of Connected Villages	Total LT line length	HT/LT ratio col 6/ col 9	Average LT line per transformer (Km/T/F)	Ratio of CL to DT capacity	Max. VR of LT feeder	Total LT losses Lus
							No.	KVA							
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
				1				10*							
								16*							
								25*							
				2				10*							
								16*							
								25*							
				3				10*							
								16*							
								25*							
								10*							
				4				16*							
								25*							
				1											
				2											
				3											
				4											
				1											
				2											
				3											

*** Please indicate actual as obtaining.**

Energy Loss Status

E - 11

State **Scheme Code No. :**

Name of District and Census Code

Sl. No.	Name of Block and Census Code	System Voltage Level	Annual Energy Loss (LU)		
			Existing System with Existing Demand	Proposed System with Anticipated Demand	Incremental Loss on implementation of scheme (4-3)
1		2	3	4	5
1		66			
		33			
		11			
		LT			
Sub-Total					
2		66			
		33			
		11			
		LT			
Sub-Total					
Grand Total					

SECTION - F

Business Plan and Financial Analysis

Business Plan - Categorywise Anticipated no. of Consumers, Connected Load, Proposed Tariff Structure and Anticipated Revenue

F - 1

State **Scheme Code No. :**

Name of District and Census Code

Category * : Domestic / Commercial / Agriculture / Small Industries / Water Works / Street Light etc.

For Base Year

Energy Charges per Kwh (Rs.) :

Fixed Charges per month per consumer :
(Meter Rent, Service charges etc.)

Billing Frequency (Monthly / Bi-monthly) :

Tariff Revision Frequency (Annual / After 2 years) :

Anticipated increase in tariff on revision (%) :
(% increase over previous year)

Assumptions :

Average Connected Load (KW) :

Diversity Factor ;

Hourse of usage :

Sr.No.	Year --> Item Particulars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	No. of Consumers															
2	Total Conncted Load (MW)															
3	Total Demand (MW)															
4	Total Energy Demand (Lus)															
5	Total Fixed Charges (Rs. Lakh)															
6	Total Energy Charges (Rs. Lakh)															
7	Total Revenue (Rs. Lakh)															

*** The above information is to be provided for each category of consumers separately and a abstract of all categories.**

Business Plan - Categorywise details of anticipated Revenue from other sources like registration charges, service connection charges etc.

F - 2

Scheme Code No. :

State

Name of District and Census Code

Category * : Domestic / Commercial / Agriculture / Small Industries / Water Works / Street Light etc.

For Base Year

Registration charges per Consumer (Rs.) :

Service Connection Charges per Consumer (Rs.) :

Security Deposit per Consumer (Rs.) :

Other charges, if any (Pl. Specify) :

Sr.No.	Year --> Item Particulars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	No. of Consumers															
2	Total Registration Charges (Rs. Lakh)															
3	Total Connection Charges (Rs. Lakh)															
4	Total Security Deposit (Rs. Lakh)															
5	Total Revenue (Rs. Lakh)															

*** The above information is to be provided for each category of consumers separately and a abstract of all categories.**

Note : Anticipated increase in above charges over 15 years, if any, may also be cosnidered.

Business Plan - Cost of Bulk Power

F - 3

Scheme Code No. :

State

Name of District and Census Code

Sr.No.	Year --> Item Particulars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Total Energy Demand (Lus)															
2	T & D Loss (Lus)															
3	Total Input Energy (Lus)															
4	Bulk Supply Tariff (Rs./Kwh)															
5	Total Cost of Bulk Power (Rs.Lakh)															

Note : Anticipated increase in bulk supply tariff over 15 years, if any, may also be cosnidered.

Business Plan - Financial Analysis

Scheme Code No. : **F - 4**

		Year->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**(I) Initial Capital Investment**																
	(a) Capital Subsidy																
	(b) Loan																
	(ii) Expansion of network in future																
	(iii) Total Cumulitive investment																
2	**Interest**																
3	**Loan Installment**																
4	**Insurane**																
5	**Depreciation**																
6	**O & M Expenses**																
7	**Cost of Billing and Revenue Collection**																
8	**Total Cost of Operation(2 to 7)**																
9	**Input Power**	Lus															
10	**Cost of Operation per Unit**	Rs./Kwh															
11	**Cost of Bulk Power (Input)**																
	(a) Energy input	Lus															
	(b) Tariff	Rs./Kwh															
	(c) Total Cost																
12	**Total Cash Outflow (8+11)**																
13	**Revenue from Sale of power to consumers**																
	(a) Domestic	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(b) Commercial	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(c) Agricultural	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(d) Small Industries	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(e) Water Works	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(f) Street Lights	Nos.															
		KW															
		Lus															
		Tariff															
		Amount															
	(g) Total	Nos.															
		KW															
		Lus															
		ARRR															
		Amount															
14	Other Revenues																
15	Revenue Subsidy																
16	**Total Cash inflow (13+14+15)**																
17	**Net Cash Flow (16-12)**																

G

Detailed cost estimate for each of the item* covered under the project

(Ref. : Project Formats - Section 'B' and Other Attachments - G)

Name and description of item :

Ref. No. :
(Please refer Section 'B')

Sr. No.	Particulars	Unit	Unit Rate	Quantity	Amount
1	*2*	*3*	*4*	*5*	*6*
A.	**Material ****				
1					
2					
3					
……					
	Sub-Total (A)				
B.	**Installation/ Construction/ Erection and Commissioning**				
1					
2					
3					
……					
	Grand Total (A+B)				

*** Items like 11 KV line, LT line, Distribution Transformer (DTS), 33/11 KV sub-station etc.in separate sheets.**

**** Including sales tax, excise duty, freight & insurance, octroi and other levies etc.**