

ELECTRICITY DEPARTMENT
Division VI

I.D. NOTE

Sub: ED-Div. VI-Implementation of IPDS in the
U.T. of Pudukcherry- Distribution Reforms
Committee approval – Requested --Reg.

This proposal relates to seek the approval of the distribution reforms committee to implement the Integrated Power Development Scheme in Pudukcherry Union Territory. The outline of the scheme is detailed below.

2. There is a consistent increase in electricity demand, particularly in urban areas, due to increase in customer base, changes in lifestyle and consumption pattern, which requires continual up-gradation and creation of infrastructure for electricity distribution. However, the poor financial health of the distribution utilities has resulted in inadequate investment in the distribution network.

3. Keeping in view the present financial condition of Discoms/Power Dept., GOI has launched the Integrated Power Development Scheme (IPDS) to extend financial assistance against capital expenditure to address the gaps in sub transmission & distribution network and metering in Urban areas to supplement the resources of DISCOMs/Power Department, Govt. of India has launched Integrated Power Development Scheme (IPDS) for the Urban areas with the following components:

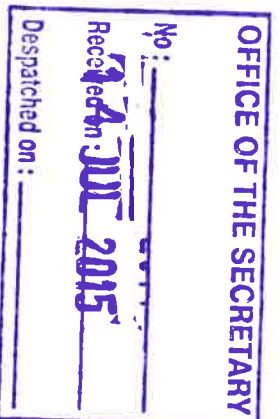
Strengthening of Sub-transmission and Distribution network in urban areas including provisioning of Solar panels on Govt. buildings including Net-metering.

- (i) Metering of feeders / distribution transformers / consumers in urban areas and,
 - (ii) IT enablement of distribution sector and strengthening of distribution network, as per CCEA approval dated 21.06.2013 for completion of the targets laid down under R-APDRP for 12th and 13th Plans by subsuming R-APDRP in IPDS and carrying forward the approved outlay for R-APDRP to IPDS.
- The projects under the scheme shall be formulated for **urban areas** (Statutory Towns) **only** and will cover works relating to strengthening of sub-transmission & distribution network, including provisioning of solar panels on Govt. buildings including Net-metering, metering of feeders /distribution transformers / consumers and IT enablement of distribution sector. Scope of IT enablement extended to the statutory towns having population upto 5000 as per Census 2011.

4. The details of scope of works covered along with works eligible under the scheme are as under:

a) Strengthening of sub-transmission and distribution network

- (i) Creation of new sub-stations including Gas Insulated Sub-station along with associated 66 KV / 33 KV/ 22 KV/ 11 KV lines
- (ii) Augmentation of existing sub-stations capacity by installation of higher capacity/additional power transformer along with associated equipment/ switchgear etc.



- (iii) Erection of HT lines for reorientation/ re-alignment including augmentation of existing lines
- (iv) Installation of new distribution transformers and augmentation of existing distribution transformers along with associated LT lines
- (v) Installation of capacitors
- (vi) Renovation and Modernization of existing sub-stations and lines
- (vii) Laying of under-ground cables in densely populated areas and areas of tourism and religious importance
- (viii) High voltage distribution system (HVDS)
- (ix) Aerial Bunched Cable for theft prone areas
- (x) IT Applications:
 - (a) ERP
 - (b) Additional hardware in towns, GPS based GIS survey of assets, and integration with DC/DR and Customer Care Centre, Incremental up-gradation at DC/DR excluding revenue expenditure

b) Metering

The installation of meters at sub-stations, feeders, distribution transformers and consumers is important to ensure seamless accounting and auditing of energy at all levels in the distribution system. Accordingly, metering of all feeders and distribution transformers including metering at all input points to the utility shall be ensured under this scheme. The metering component under the scheme shall cover the following:

- (i) Installation of suitable static meters for feeders, distribution transformers and all categories of consumers for un-metered connections, replacement of faulty meters & electro-mechanical meters.
- (ii) Installation of Pillar Box for relocation of meters outside the premises of consumers including associated cables, service cables and accessories
- (iii) Installation of prepaid / smart meters in Govt. establishment
- (iv) AMI, Smart meters in the towns where SCADA being established under R-APDRP.
- (v) Boundary meters for ring fencing of Non-RAPDRP Towns with population more than 5000
- (vi) AMR for feeders, Distribution transformer and high load consumers

- c) IT enablement of distribution sector and distribution network strengthening under R-APDRP” component as per ongoing RAPDRP scheme in accordance with CCEA approval dated 21.06.2013 for continuation of scheme in 12th and 13th Plan and applicable guidelines
- d) Completion of optical fiber missing links under the establishment of National Optical Fiber Network (NOFN)
- e) Establishment of National Power Data Hub at CEA
- f) Training & Capacity Building
- g) Provisioning of solar panels on Govt. buildings including Net-metering

5. DETAILED PROJECT REPORT: The Department will assess the need for strengthening the urban distribution network and will formulate the DPR for coverage under the scheme. The utility shall submit the DPR to the Nodal Agency online through web portal. One hard copy of the DPR, duly recommended by the DRC and duly signed by Utility shall be submitted to the Nodal Agency for record and reference. The eligible projects (DPR) will be approved by the Monitoring Committee.

6. Tripartite/ Bipartite agreement: A Tripartite agreement will be executed between PFC as the Nodal Agency on behalf of Ministry of Power, the State Government and the Discom for undertaking and agreeing to their stipulated roles/responsibilities as per provisions of the scheme guidelines. Bipartite agreement will be executed in case of State Power departments.

7. TIME SCHEDULE: Projects under the scheme shall be completed within a period of 24 months from the date of issue of Letter of Award (LoA) by the utility, in case of turnkey implementation. In case the Department is not able to complete the projects within the stipulated time period due to circumstances beyond their control, the proposed Monitoring Committee will be authorized to grant time extension based on merits in exceptional cases on a case to case basis.

In either mode of implementation (turnkey/partial turnkey/departamental), the maximum time limit for completion of the project viz award and implementation shall not be beyond thirty months from date of communication of the approval of the Monitoring committee. However, the upper limit for completion of award shall be nine months as defined in Chapter IV Funding mechanism, under para 15 i.e pre closure/recall of grant.

An appropriate Project Management Agency (PMA) will be appointed preferably utility-wise to assist them in project management ensuring timely implementation of the project. 100% grant will be provided by Government of India towards expenditure incurred on Project Management Agency (PMA) as per provision in the scheme i.e. up to 0.5% of cost of works. The utility has to bear any cost beyond 0.5% of the project cost, if any, from own resources for deployment of PMA. Utility can select any PMA from CPSUs or through open bidding as per their policy/guidelines. The separate Guidelines specifying duties, responsibilities and disbursement conditions for of their fees & other aspects shall be circulated separately.

8. **Power Finance Corporation Limited (PFC) shall be the Nodal Agency** for operationalization and implementation of the scheme under the overall guidance of the Ministry of Power (MoP). The Nodal Agency will be paid 0.5% of the total project cost approved by Monitoring Committee or award cost, whichever is lower, as their fee.

9. **Funding Mechanism**

1.1 **Categorization of States:** The states have been categorized in two groups (i) Special Category States (All North Eastern States including Sikkim, J&K, Himachal Pradesh, Uttarakhand) and (ii) Other than Special Category States (all other states).

1.2 The financial support under the scheme shall be as under:

Agency	Nature of support	Quantum of support(Percentage of project cost)	
		Other than Special Category States	Special Category States
Govt. of India	Grant	60	85
Discom Contribution*	Own Fund	10	5
Lender(FIs/Banks)/Discom's own	Loan/Own fund	30	10
Additional Grant from GOI on achievement of prescribed milestone	Grant	50% of total loan/own fund(30%) i.e.15%	50% of total loan/own fund (10%) i.e. 5 %
Maximum Grant by GOI/Maximum Grant by GOI on achievement of prescribed milestones)	Grant	75%	90%

*Minimum contribution by Discom(s) shall be 10% (5% in case of Special Category States). However, Discom(s) contribution can go up to 40% (15% in case of Special Category States), if they do not intend to avail loan. In case, the Discom(s) do not avail loan, the maximum eligible additional grant would still be 15% (5% in case of Special Category States) on achievement of prescribed milestones. The loan component would be provided by PFC or by other FIs / Banks.

Note: 100% grant will be provided by GOI towards expenditure incurred on activities for bridging the missing links of National Optical Fibre Network (NOFN), Training & Capacity Building, Establishment of National Power Data Hub at CEA and Project Management Agency (PMA) as per provision in the scheme.

1.3 The grant support from budget of Ministry of Power shall be as follows:

Insta lmen t No	Condition for release	Release of Grant Component of Gol
1	(i) Approval of Projects by Monitoring Committee. (ii) Bipartite/Tripartite agreement amongst Utilities, State Govt. & PFC (on behalf of Mop)	10%
2	Placement of letter of Award (LoA) by the Utility	20%
3	Utilization of 90% of 1st & 2nd instalment and 100% release of Utility contribution	60%
4	After completion of works	10%
	Total	100%

1.4 Additional grant (50% of loan /own fund i.e. 5% for special category states and 15% for other states) under the scheme will be released subject to achievement of following milestones:

- (i) Timely completion of the scheme as per laid down milestones.
- (ii) Reduction in AT&C losses as per trajectory finalized by MoP in consultation with State Governments (Discom-wise)
- (iii) Upfront release of admissible revenue subsidy by State Govt. based on metered consumption.

10. STATUTORY TOWN IN PUDUCHERRY U.T:

One of the main condition of the IPDS is, it shall be applicable to Statutory towns only.As per the Census 2011, the following places are declared as statutory towns and the total population is also appended.

Sl. No	Name of the town	District Population
1	Puducherry (M)	244377
2	Ozhukarai (M)	300104
3	Kurumbapet (GP + OG)	32871
4	Karaikal (T)	86838
5	Mahe	41816
6	Yanam	55626
TOTAL POPULATION OF IPDS AREA		761632

11. The AT & C losses details for the year 2013-14 for the project area is furnished below:

PROJECT AREA AT&C LOSSESDETAILS.

Energy Input	M Units	1219.08
Energy Sales	M Units	1031.72
Total Revenue Billed	Rs. Lac	38562.39
Total Revenue Collected (excluding arrears)	Rs. Lac	35590.61
Billing Efficiency	%	84.63%
Collection Efficiency	%	92.29%
AT&C Losses	%	21.89%

PUDUCHERRY REGION

Energy Input	M Units	1052.42
Energy Sales	M Units	883.84
Total Revenue Billed	Rs. Lac	36296.99
Total Revenue Collected (excluding arrears)	Rs. Lac	33526.87
Billing Efficiency	%	83.66%
Collection Efficiency	%	92.48%
AT&C Losses	%	22.53%

KARAKAL TOWN

Energy Input	M Units	71
Energy Sales	M Units	66.202
Total Revenue Billed	Rs. Lac	255.652
Total Revenue Collected (excluding arrears)	Rs. Lac	207.052
Billing Efficiency	%	93.24%
Collection Efficiency	%	80.99%
AT&C Losses	%	24.48%

MAHE REGION

Energy Input	M Units	40.15
Energy Sales	M Units	34.11
Total Revenue Billed	Rs. Lac	14.15
Total Revenue Collected (excluding arrears)	Rs. Lac	12.23
Billing Efficiency	%	83.71%
Collection Efficiency	%	86.43%
AT&C Losses	%	27.65%

YANAM REGION

Energy Input	M Units	54.91
Energy Sales	M Units	47.57
Total Revenue Billed	Rs. Lac	1995.59
Total Revenue Collected (excluding arrears)	Rs. Lac	1844.46
Billing Efficiency	%	86.063%
Collection Efficiency	%	92.43%
AT&C Losses	%	19.93%

12. The DPR for the works to be executed under the IPDS has been prepared by the department as per the prescribed format for an amount of Rs 22.05 Crore, and the same has also been submitted to District Electricity Monitoring Committee meeting, which was held under the chair of Hon'ble Power Minister of Puducherry on 24-06 -2015 and Hon'ble Member of Parliament (Lok Sabha) and the same has unanimously been approved for its implementation. The copy of the minutes of said meeting videlr. No. 866/ED/SE-I/Tech-I/F.49/2015-16, Dt.01-07-2015 is enclosed herewith for further reference.

13. This Project covers 6 statutory towns namely Puducherry, Oulgarate and Kurumbapet in Puducherry region in addition covering the Karaikal, Mahe and Yanam towns in U.T of Puducherry. The main focus of this project is to reduce AT&C losses by adapting the latest technologies in strengthening of Sub-transmission and Distribution networks. Adaptation of new IT enabled solution will also result in accurate & reliable energy accounting on sustainable basis, improvement in quality and reliability in power supply. Besides, this will also pave ways for greater controllability and better predictability on behaviour of distribution networks.

14. The AT&C losses of the project area for the FY 2013-14 was 21.89 % and after the implementation of this project will facilitate us to achieve the target of 20.29% at the end of 12th plan period (FY 2016-17) and 17.88% at the end of 13th plan periods (FY 2021-22). In view of this, it is proposed to take up the following work in the project area of the six statutory towns in U.T. of Puducherry.

S N	Particular	Qty. proposed	Project Cost Rs. In Lac
1	New 22 KV feeders	15 kms	200.18
2	22 kV Line Bay Extension at EHV station at Puducherry	3 nos	61.01
3	Provision of 11 KV bay equipment only at Kkl& Yanam	2 nos.	10.27
4	Provision of 11 KV Indoor type VCB Feeder panel	1 no.	17.60
5	11 KV Cable Feeder: New UG Cable	14 kms	479.75
6	Arial Bunched Cable, LT	8 Kms.	56.45
7	Installation of New Distribution Transformer		
	New 22/0.433 KV, 315 KVA	20 nos.	209.73
	New 11/0.433 KV, 200 KVA	30nos.	251.19
8	Capacitor Bank	5 nos.	63.74
9	HVDS, 63 KVA	15nos.	29.25
10	Metering		
	Single phase Electronic Energy Meter with LPRF	30000 nos.	400.80
	Three phase Electronic Energy Meter with LPRF	5000 nos.	190.25
11	Provisioning of Solar panel	300KW	209.50
12	Provision of RMU	3 nos.	25.36
	GRAND TOTAL		2205.08

15. The main objective of IPDS scheme is to improve the reliability in power supply to the consumer and to reduce losses, thereby to increase the financial viability of the utilities, it is proposed to replace all the existing electromechanical energy meters with electronic static meters with LPRF technology by replacing. One of the way to arrest losses is replacement of electromechanical meters, which tend to slowdown with passage of time due to provision of bearings for supporting the rotating disc and become sluggish. The measurement of energy by such meter is not reliable. Further, Hon'ble JERC has also directed to replace these meters without further delay. This will reduce commercial losses and increase the billing efficiency, Further manual intervention shall be eliminated completely and therefore the billing error shall be reduced considerably and billing accuracy will improve and lesser administration is required and these may reduce the manpower also.

16. It is further stated that the four region of U.T. of Puducherry are located on the coastal areas, the Puducherry, Karaikal and Yanam are on the coast of Bay of Bengal, the Mahe on the coast of Arabian Sea. Due to that they have suffered heavily during the recent cyclonic period. As the wind speed in this region has touches even above 180 Kmph, the first and foremost toll for this fury will be the sub-transmission and distribution network, which mainly comprises of HT and LT overhead lines. Therefore, it is proposed to lay 11KV UG cable system instead of Over Head Distribution system works, which will provide reliable power with least possible interruptions to the essential services like Hospitals, water tanks and cyclone shelters located in these regions. Further, the outer regions are being small areas, may encounter Right Of Way problems for erection of Over

Head HT lines and also it is difficult to maintain the horizontal/vertical clearances along the path of lines.

17. At present the HT: LT ratio is in the order of 1:5, due to lengthy LT lines and more voltage drop at the consumer end, higher I²R losses. Byrenovating/constructing new 22KV/11KV feeders, the HT:LT ratio shall be reduced to certain extent and thereby quality voltage can be supplied to the tailend of the consumers. By introducing the HVDS, the HT:LT ratio shall be reduced and the quality supply shall be provided to the tail end of the consumer.

18. It is proposed to provide LT Aerial bunched cable in the areas which are very close to the coastal, so as to improve the reliable power supply. It is also proposed to install 50 nos. of Distribution transformers to give relief to the over loading transformer and this will reduce the failure rate also.

19. It is proposed to provide totally 12.2 MVAR Capacitor banks in 4 nos. of 110KV Sub-stations. By providing capacitors, the distribution loss shall be reduced, MVA loading of the transformer is also reduced and quality power supply shall be provided.

20. It is proposed to install roof top Solar power generation initially in Government buildings to the tune of 300KW to fulfill the renewable energy purchase obligations to certain extent. It is proposed to take up the work on partially turn-key basis.

21. A copy of the DPR is enclosed herewith.

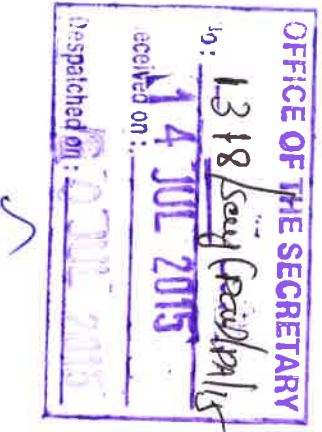
22. The approval of the Distribution reforms committee may be accorded to submit the proposal to the nodal agency.

23. The proposal is forwarded to the Committee, for further action.



I.D.No. 231/ED/EE-VI(AEE-EHV)
F. IPDS / 2015 -16, Dt. 10-07-2015.

Not recd
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EXECUTIVE ENGINEER- GENERAL *Shankar 10/7/15*
FINANCIAL CONTROLLER *P.C.S. J - 10/7/15*
SUPERINTENDING ENGINEER-III *myar*

SUPERINTENDING ENGINEER-II *Shankar*

SUPERINTENDING ENGINEER-I *S. E. I. 14/7*

SECRETARY TO GOVT. (POWER) *S. E. I. 21/7/15*