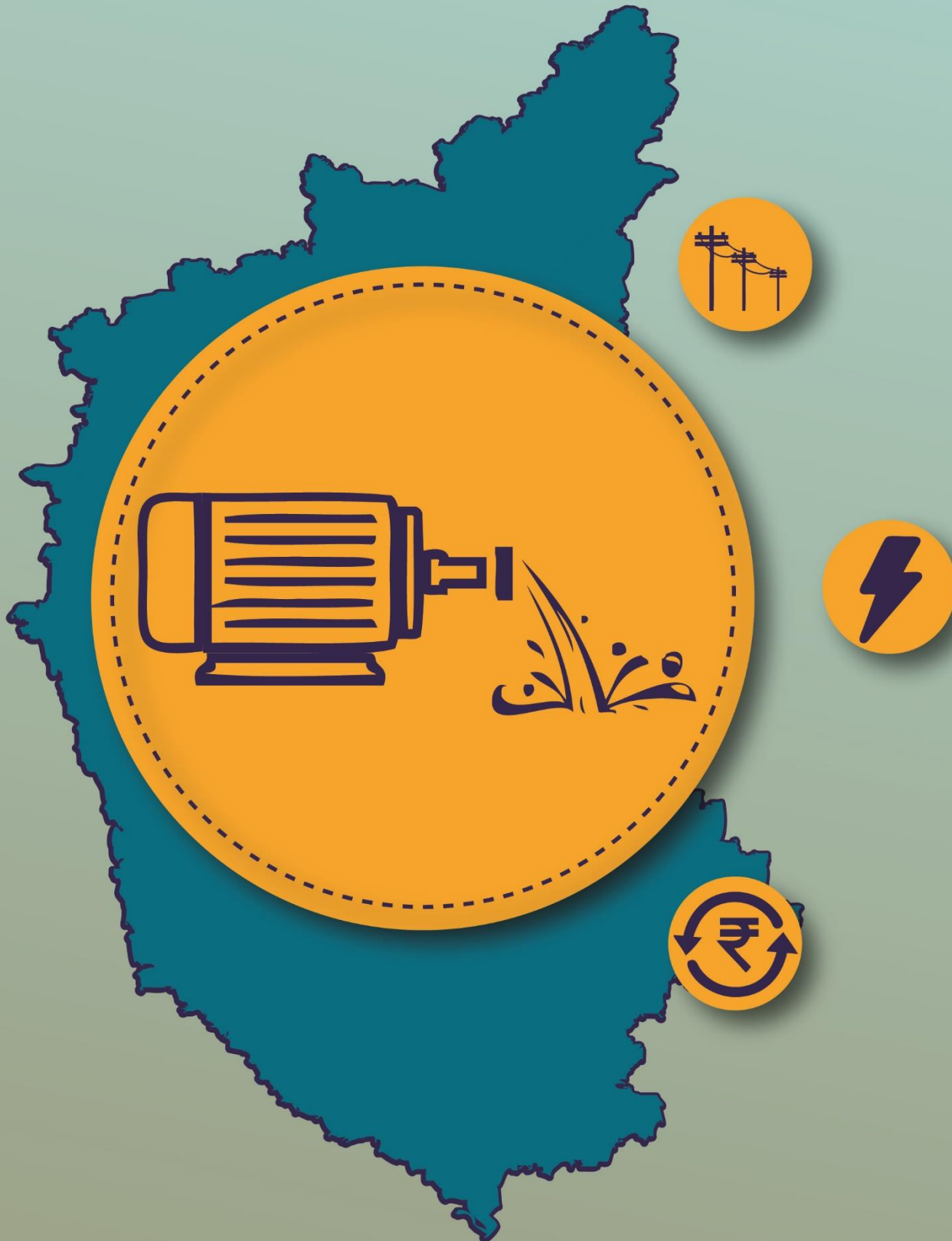


Energy Efficient Irrigation Pumps



ENERGY EFFICIENT IRRIGATION PUMPS

Final Report

Submitted by:

Center for Study of Science, Technology and Policy (CSTEP)

To:

Energy Department, Government of Karnataka

Funded by:

Planning Department, Government of Karnataka

Center for Study of Science, Technology and Policy (CSTEP)

August, 2018

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Designing and Editing by CSTEP

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August, 2018

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Acknowledgements

The authors are grateful to Shri. Ravi Kumar P., IAS, Additional Chief Secretary, Department of Energy for his support. The authors would like to thank Shri. Govindaraju K., Additional Director, EMC for his guidance and immense support. The authors thank the Managing Directors, Technical Directors and entire staff at BESCOM, CESC, GESCOM, HESCOM and MESCOM for facilitating data requirements for this study.

We would like to express our gratitude to EESL's Managing Director, Shri. Saurabh Kumar, for his inputs and valuable insights on this project. We would also like to thank Shri. Niranjana Aradhya R., Chief Executive, and Shri. Nithin N., Business Manager from S. Rudraradhya & Co. for the valuable information they shared on irrigation pump specifications and the pump market. We also received important information and feedback from executives of Kirloskar Brothers Limited.

The authors gratefully acknowledge the inputs and valuable suggestions by project advisors Shri. Sumanth Shankar Rao, Dr Krishnan S.S., Dr Gaurav Kapoor and Shri. Saptak Ghosh and the Quality Control team at CSTEP.

Last but not the least, this work would not have been possible without the valuable support and encouragement from Dr Anshu Bharadwaj, Executive Director; Dr Jai Asundi, Research Coordinator; and Thirumalai N.C., Project Manager.

Abbreviations and Acronyms

AgDSM	Agricultural Demand Side Management
BEE	Bureau of Energy Efficiency
BESCOM	Bangalore Electricity Supply Company Limited
BIS	Bureau of Indian Standards
CAGR	Compounded Annual Growth Rate
CDT	Commission Determined Tariff
CESC	Chamundeshwari Electricity Supply Company Limited
Cr	Crore
CSTEP	Center for Study of Science, Technology and Policy
DDUGJY	Deen Dayal Upadhyaya Gram Jyoti Yojana
DT	Distribution Transformer
EE	Energy Efficient
EESL	Energy Efficient Services Limited
EPA	Energy Performance Agreement
EPS	Electric Power Survey
ESCO	Energy Service Company
ESCOM	Electricity Supply Company
FY	Financial Year
GESCOM	Gulbarga Electricity Supply Company Limited
GIS	Geographic Information System
GoK	Government of Karnataka
GPS	Global Positioning System
GSDP	Gross State Domestic Product
GW	Giga Watt
HESCOM	Hubli Electricity Supply Company Limited
HP	Horse Power
HVDS	High Voltage Distribution System
INR	Indian Rupee
IoT	Internet of Things
IP	Irrigation Pump
IRR	Internal Rate of Return
ISI	Indian Standards Institute
KERC	Karnataka Electricity Regulatory Commission
km	Kilometre
kV	Kilo Volt
kVA	Kilo Volt Ampere
kW	Kilo Watt
lps	Litre per second
MESCOM	Mangalore Electricity Supply Company Limited
MU	Million Units
MWh	Mega Watt hour
NJY	Niranthara Jyothi Yojana
O&M	Operation and Maintenance
POWERGRID	Power Grid Corporation of India Limited

PPP	Public Private Partnership
RR	Revenue Register
tCO2e	Tons of Carbon dioxide equivalent
USAID	United States Agency for International Development
WENEXA	Water-Energy Nexus
WUID	WENEXA Unique Identification Number

Executive Summary

Karnataka is the second-most arid state in India, after Rajasthan. The decline in rainfall in recent years has seen an increased reliance on groundwater for fulfilling agricultural water needs in Karnataka. This requires significant power consumption since majority of Irrigation Pump (IP) sets, used to pump groundwater, are electrical. Most of the existing pump sets operate at a very low efficiency leading to high electricity consumption for the same unit of productivity. Moreover, none of the existing IP sets are metered and electricity is provided to farmers at a highly subsidised rate; which, in turn, puts a tremendous subsidy burden on the state government. Considering that the majority of IP sets are submerged, the actual pump capacity is harder to track. Various pilot projects were implemented for replacing existing inefficient IP sets with energy efficient IP sets, since 2009. However, these projects covered only 2,200 pumps in Karnataka and were not scaled up.

This study aims to assess the feasibility of replacing 5 lakh inefficient IP sets with energy efficient IP sets across the five Electricity Supply Companies (ESCOMs) in Karnataka. The ESCOMs provided feeder level energy consumption data for the year 2016-17. From the dedicated agricultural feeders, CSTEP selected about 5 lakh IP sets in the 5-10 HP category. Since agricultural IP sets are unmetered, feeder level electricity consumption is considered as the baseline for calculating energy-savings. Based on the pilot studies conducted in Karnataka, the efficiency of existing IP sets was found to be less than 30%. The current energy efficient IP sets have an efficiency ranging from 35%-55%, providing a huge potential for energy-savings on replacement.

By replacing 5 lakh IP sets, the Government of Karnataka could save about INR 900 Crore from subsidy outlays every year. The project shows an attractive payback period of three years, in spite of the cost of replacement being about INR 2,500 Crore. CSTEP suggests that the Government of Karnataka could solely invest in the project, or partner with an energy service company in order to finance the project.

Based on the findings of the study, CSTEP suggests a step-by-step implementable roadmap of the project, as well as recommendations on AgDSM measures to be adopted by ESCOMs.

The key recommendations are as follows:

- Install pumps with mobile operated smart pump control panel to measure the electricity consumption

- Complete accurate tagging of IP sets and Distribution Transformers to the feeders to assess and segregate the losses in a better manner
- Complete enumeration of IP sets for all ESCOMs by capturing the GPS coordinates of each live IP set
- Meter all IP sets so that energy consumption and energy savings can be accounted for
- Conduct stakeholder workshops with farmers to educate them about the benefits of using energy efficient pump sets

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1. Introduction

Agriculture plays a vital role in Karnataka's economy, accounting for 11% of its Gross State Domestic Product (GSDP), using current prices (DES, 2018). Out of the total 190.5 lakh hectares of agricultural land, 64% is cropped, of which only 30% is irrigated (KSDA, 2015). In terms of rainfall, Karnataka experiences consistent showers throughout the year with the South-West Monsoon winds contributing to 72% of the rainfall and the rest being covered by the North-Eastern Trade Winds (KSNDMC, 2018). This accounts for the diverse cropping pattern seen across the state (Figure 1), with a large proportion of land area constituting water-intensive crops. Nonetheless, recent years have seen a significant decline in rainfall, resulting in an increased demand for alternative sources of water for irrigation, such as bore and tube wells being the main water source.

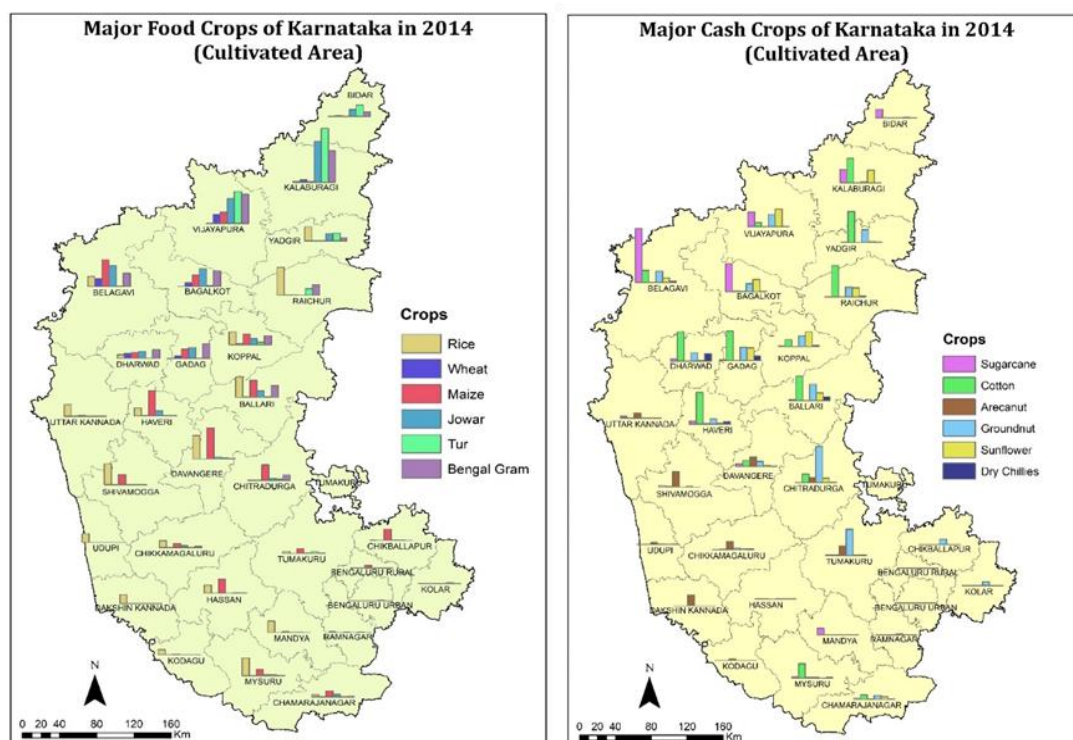


Figure 1: Karnataka's food & cash crops (by cultivated area) 2014

Data source: (District-wise, season-wise crop production statistics from 1997, 2014)

Overall, agriculture consumes 39% of the total power supply in Karnataka, also making it the highest consumer by sector (as shown in Figure 2). Across a span of seven years (2007-08 to 2016-17), the electricity consumption in this sector has grown at a Cumulative Annual Growth Rate (CAGR) of 8.9%. Within its ambit, there are around 25 lakh electric Irrigation Pump (IP) sets operating in the state as of 2016-17 (KERC, 2018). In 2017, these IP sets consumed around 20,000 MU and is projected to consume around 28,000 MU by 2022 and

35,000 MU by 2027 as per the 19th Electric Power Survey (EPS) (CEA, 2017). However, majority of these installed IP sets operate at a very low efficiency leading to high electricity consumption for the same unit of productivity. Given that the electricity provided to farmers is at a highly subsidised rate, it creates a burden on the state finances (as shown in Figure 3) (KERC, 2017). Additionally, owing to the low efficiency of the pumps, the rate of water-discharge is not as expected.

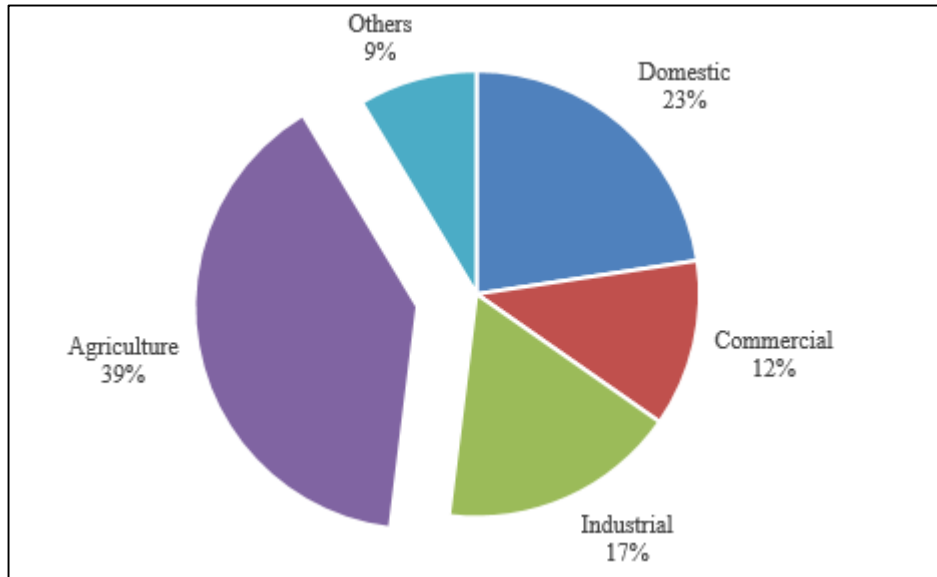


Figure 2: Sector-wise share of electricity consumption in Karnataka (2016-17)

Source: KERC Tariff Orders 2018

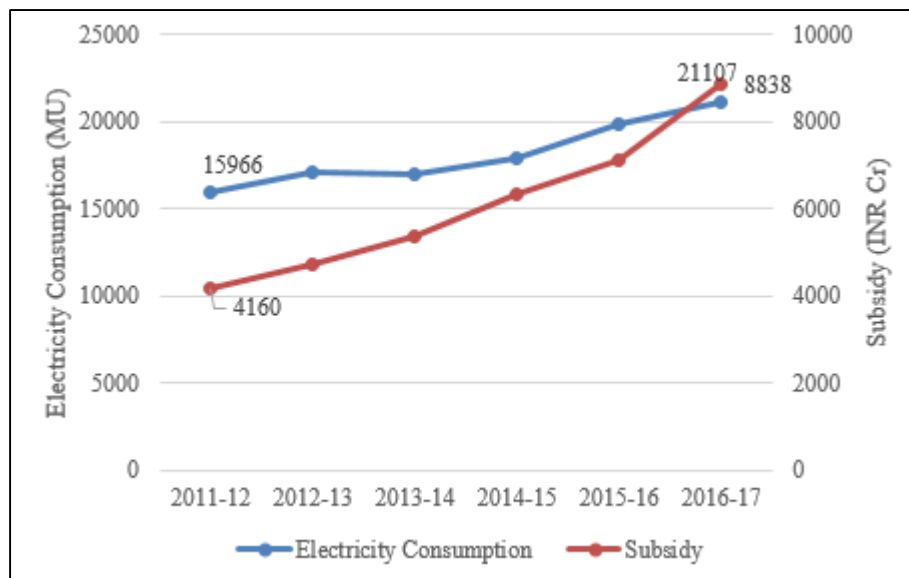


Figure 3: Electricity consumption & subsidy for agricultural sector

Source: KERC Tariff Orders 2013-2018

Therefore, it is very important to identify and implement solutions to maximise pump efficiency and consequently improve the water outflow.

Thus, there is a need to replace existing facilities with more energy efficient IP sets with a view of infrastructure development and easing the financial burden for the state.

IP replacements have been carried out at a pilot scale previously in Karnataka. These studies conducted in Mysuru, Doddaballapur and Hubballi have indicated that replacing inefficient IP sets with efficient ones can save about 23%-37% electricity (Ravindranath, 2016). However, these pilot projects have not led to a large-scale roll out of the policy.

This study explores whether there is a case for large-scale replacement of inefficient IP sets with more efficient pumps. The specific objectives of the study are the following:

- To assess the technical and economic feasibility of replacing five lakh inefficient IPs with highly efficient IPs, in Karnataka
- Develop baseline scenario to assess savings in energy
- Develop business models and policy framework for such an initiative
- Develop a roadmap for large-scale implementation of energy efficient IP sets

2. Log Frame/Theory of Change/Programme Theory

Table 1 details the overall and specific objectives, expected results and intervention logic.

Table 1: Logical Framework

	Intervention Logic	Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
Overall Objectives	<p>What are the overall broader objectives to which the activity will contribute?</p> <p><i>Energy savings in agricultural sector</i></p>	<p>What are the key indicators related to the overall objectives?</p> <p><i>a) Reduction of ESCOM wise electricity consumption by agricultural sector</i></p> <p><i>b) Reduction in specific energy consumption per IP set</i></p>	<p>What are the sources of information for these indicators?</p> <p><i>a) ESCOM tariff orders</i></p> <p><i>b) Feeder level data from ESCOMs</i></p>	
Specific Objectives	<p>What specific objective is the activity intended to achieve to contribute to the overall objectives?</p> <p><i>a) Replacement of five lakh pumps with EE smart pumps in select ESCOMs</i></p>	<p>Which indicators clearly show that the objective of the activity has been achieved?</p> <p><i>a) Progress report on actual implementation</i></p> <p><i>b) Energy savings for the five lakh IP sets</i></p>	<p>What are the sources of information that exist or can be collected? What are the methods required to get this information?</p> <p><i>a) Feeder level data on energy consumption</i></p>	<p>Which factors and conditions outside the Project Implementer's responsibility are necessary to achieve that objective? (external conditions)</p> <p>Which risks should be taken into consideration?</p>

	<p>b) <i>Reduction in specific energy consumption of replaced IP sets</i></p>		<p>b) <i>Data collection through field survey on pump capacity, water discharge and head</i></p>	<p>a) <i>Lack of proper co-ordination between farmers and utilities</i> b) <i>Data availability</i> c) <i>Depleting water table, drying up of bore wells</i> d) <i>Faulty substations, transformer replacement</i></p>
<p>Expected results</p>	<p>The results are the outputs envisaged to achieve the specific objective.</p> <p>What are the expected results? (enumerate them)</p> <p>a) <i>30-35% of cumulative energy-savings from agricultural sector</i></p> <p>b) <i>Reduction in subsidy to IP sets</i></p> <p>c) <i>Ease of farmer access to IP sets through SIM-based technology</i></p>	<p>What are the indicators to measure whether and to what extent the activity achieves the expected results?</p> <p>a) <i>Measured energy-savings in MU and in INR</i></p> <p>b) <i>Farmer can switch on and off IP set using his phone</i></p>	<p>What are the sources of information for these indicators?</p> <p>a) <i>Quarterly update reports</i></p> <p>b) <i>Farmer feedback</i></p>	<p>What external conditions must be met to obtain the expected results on schedule?</p> <p>a) <i>Farmer co-operation</i></p>

<p>Activities</p>	<p>What are the key activities to be carried out and in what sequence in order to produce the expected results?</p> <p>(group the activities by result)</p> <ul style="list-style-type: none"> a) <i>Survey and baseline assessment of five lakh IP sets</i> b) <i>Replacement with energy efficient IP sets</i> c) <i>Post-implementation monitoring</i> d) <i>Quarterly update reports</i> 	<p>Means:</p> <p>What are the means required to implement these activities, e. g. personnel, training, studies, etc.</p> <ul style="list-style-type: none"> a) <i>Creation of AgDSM IP fund</i> b) <i>Stakeholder consultation with farmers, utilities</i> c) <i>Contractual hiring of manpower for the project period</i> 	<p>What are the sources of information about action progress?</p> <ul style="list-style-type: none"> a) <i>Quarterly Update reports</i> 	<p>What pre-conditions are required before the action starts?</p> <p>What conditions outside the Project Implementer's direct control have to be met for the implementation of the planned activities?</p> <ul style="list-style-type: none"> a) <i>Discussions with ESCOMs</i> b) <i>GPS enumeration of IP sets for all ESCOMs to be completed</i> c) <i>100% feeder segregation</i>
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3. Progress Review

The current policy in Karnataka states that all new IP connections must use ‘BEE Standard Energy Efficient pump sets’ (Energy Department, 2016). In order to replace old inefficient IP sets, the Government of Karnataka (GoK) undertook a few pilot scale initiatives, as detailed below:

Water Energy Nexus (WENEXA) Project in Doddaballapur (2009)

A Public Private Partnership (PPP) model was devised to replace existing pump sets with energy efficient sets, at zero cost to the farming community. Bengaluru Electricity Supply Company Limited (BESCOM) selected Doddaballapur sub-division of Bengaluru (Rural) circle to conduct a pilot exercise at a cost of approximately INR 2.5 Crore, funded by United States Agency for International Development (USAID). BESCOM hired an Energy Service Company (ESCO), Enzen Global Solutions to survey a list of 604 IP sets from Melekote and Heggadihalli panchayats in Tubagere section and identify pump sets which required replacement. Out of the surveyed 604 IP sets, around 277 inefficient pumps, connected across four High Voltage Distribution System (HVDS) feeders, were selected and replaced. Each of these IP sets was accorded a WENEXA Unique Identification Number (WUID)¹ to track energy savings. This exercise yielded a saving of 23%².

Nippani and Byadgi Project (2013)

Energy Efficiency Services Limited (EESL) and Hubli Electricity Supply Company Limited (HESCOM) conducted a phased AgDSM exercise at Chikkodi Division (Nippani Circle) and Ranebennuru Division (Byadgi Circle). As per the agreement, 590 existing pumps were replaced with Bureau of Energy Efficiency (BEE) star rated IP sets in the first phase (200 at Nippani and 390 at Byadgi), accounting for 37% energy-savings.³

Malavalli Project (2014-15)

Chamundeshwari Electricity Supply Corporation Ltd. (CESC) and Energy Efficiency Services Limited (EESL) signed an Energy Performance Agreement (EPA) to replace 1337 existing inefficient pump sets with BEE star rated energy efficient IP sets in five selected feeders at the Malavalli sub-station of Mandya. Power Grid Corporation of India Limited

¹ Based on information shared by AgDSM department

² Based on information shared by AgDSM department

³ Based on information shared by EESL

(POWERGRID) was responsible for the project management component. The entire exercise started in August 2014 and was completed in March 2015. The net result was energy-savings of approximately 3,150 KW (37%) for the year of implementation and 36% for a year later.⁴

Status of Initiatives in Other States of India

Maharashtra

Maharashtra was one of the few states to put in place an AgDSM programme. In the year 2013, about 2,209 inefficient pump sets from Mangalwedha subdivision of Solapur circle were replaced with energy efficient sets. Though a 25% energy saving was observed, the initiative was not scaled up further (Nargundkar, 2017).

Andhra Pradesh

In Rajanagaram Mandal, East Godavari district, 2,496 IP sets were replaced with energy efficient pumps providing energy savings of approximately 21.3 MU (28%) (BEE, n.d.).

To take this further, the Andhra government in 2018 announced the replacement of 15 lakh inefficient pump sets with energy efficient ones with a budget of INR 6,000 Crore (at a pump cost of INR 40,000). In phase one (FY 2018-19), the AgDSM programme aims at replacing one lakh inefficient IP sets with BEE 5 star-rated energy efficient pump sets along with Internet of Things (IoT) enabled smart control panels. Farmers would be provided the pumps free of cost with a five-year warranty period; the government intends to achieve 25% energy saving in the process (Mohan, 2018).

A key feature of the new pump sets would be a mobile-operated smart control panel with a SIM card. This would enable the farmer to monitor the pump set from a remote location (The New Indian Express, 2018).

Uttar Pradesh

As per the state government's Kisan Udaya Yojana (2018), 10 lakh energy efficient IP sets of different capacities (5 and 7.5 HP) would be given to farmers free of cost, inclusive of a five-year maintenance period. These pumps guarantee around 35% increase in efficiency over the ones installed at present. Furthermore, these IP sets are to be embedded with a

⁴ Based on information shared by EESL

technology that would enable the pumps to be accessed remotely, giving farmers the convenience of operating the pumps using their smart phones (Sharda, 2017).

Gujarat

Gujarat was one of the pioneers in the feeder segregation programme in 2004. The Jyotigram Yojana ensured the availability of 24-hour three phase quality power supply to rural areas of the state. It also ensured power supply to farmers residing in scattered farm houses through feeders having specially designed transformers. Through this scheme, farmers could conserve more water through better irrigation scheduling, cut costs on pump maintenance and use labour more judiciously (CEPT, 2005).

Haryana

The Government of Haryana currently provides subsidy to farmers on changing to energy efficient pumps (a minimum 4-star rated set). Any farmer taking up a new tube-well connection or opting for an increased HP size of pump can avail this scheme. Farmers having old non-ISI motors and wanting to replace these with at least 4-star rated motors are also eligible to apply for the scheme. The individual farmer can avail INR 400 per HP of the pump set as subsidy (maximum limit up to INR 5000). The farmer can apply only once and for a single pump set (HAREDA, n.d.).

Chhattisgarh

The state government provides a reduction in the electricity bill for farmers who install star rated energy efficient pump sets (BEE, n.d.).

4. Problem Statement

Agriculture consumes 39% of the total electricity in Karnataka, making it a priority sector. The highly subsidised electricity for the irrigation sector, non-metering of existing IP sets, and absence of any incentive to farmers to reduce the electricity consumption per pump pose major barriers for implementation of AgDSM policies in the state. Currently, farmers use pump sets that are both inefficient and unreliable when compared to latest star-rated pumps, causing excessive energy consumption. Moreover, energy audit of IP sets is not possible since they are not metered. Therefore, technical losses and leakages through unauthorised connections go unaccounted.

Using energy efficient IP sets will reduce the energy required by pumps to discharge the same or more quantity of water. Though the pilot initiatives in Karnataka (as discussed under Section 3 of the document) provided energy savings, the sample size has been limited to only 0.05% of the total numbers of IP sets across the state. This study essentially focusses on scaling up this initiative to a relatively larger fraction of five lakh IP sets (i.e. 20% of the total IP sets in Karnataka).

5. Scope, Objectives and Study Questions

The overall scope of the study is to assess the technical and economic feasibility of replacing five lakh inefficient IP sets with highly efficient IP sets in Karnataka.

The specific objectives of the study are the following:

- To assess the technical and economic feasibility of replacing five lakh inefficient IPs with highly efficient IPs, in Karnataka
- Develop baseline scenario to assess savings in energy
- Develop business models and recommend a policy framework for such an initiative

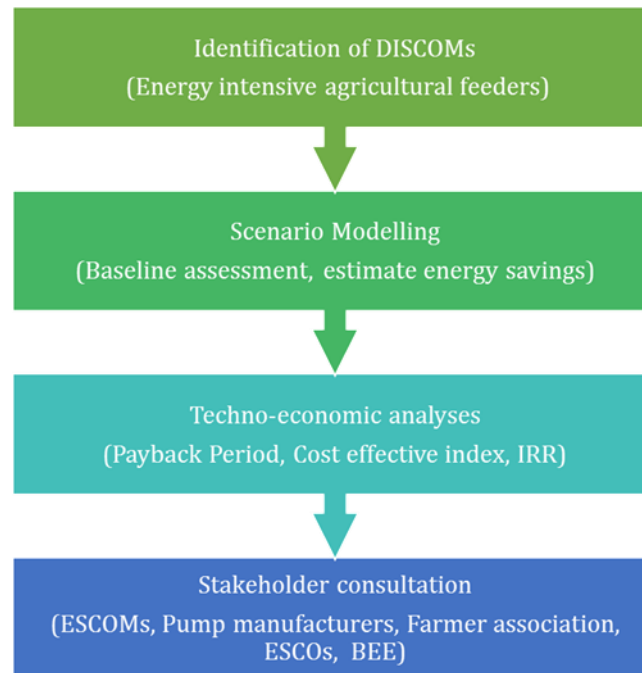
Study questions:

- What are the technical and financial benefits of replacing five lakh inefficient pump sets with energy efficient pump sets, especially in districts with dedicated feeders?
- What are the business models and policy framework required to implement this policy?

6. Methodology

In this study, CSTEP used an approach that combines development of a techno-economic model, with an assessment of specific energy consumption of IP sets. The overall methodology for the study is shown in Figure 4.

Figure 4: Methodology used in the study



- *Identification of target districts:* CSTEP identified the districts with highest specific energy consumption using data from ESCOM tariff orders
- *Baseline assessment:* A baseline scenario was developed against which savings in energy was estimated. This was conducted for the identified districts with separated feeders for the agricultural sector
- *Techno-economic analyses:* The economic feasibility of investments towards replacement of inefficient IPs and improvement in AgDSM practices was evaluated
- *Stakeholder consultation:* Inputs from periodic consultations with stakeholders such as KERC, pump manufacturers, ESCO and ESCOMs was taken into account for the study

7. Data Collection and Analysis

7.1 Primary Data Collection

Given that most of the irrigation pumps sets in Karnataka are unmetered and submersible, the actual pump capacity and electricity consumption by each IP set is unknown. As a result, there are various issues in data collection:

1. Number of unauthorised IP set connections is unknown
2. The Revenue Register (RR) number for the IP sets are absent in some cases or multiple pumps have the same RR number plates
3. The number of working IP sets in each feeder cannot be validated as GPS enumeration of IP sets has not been completed across all ESCOMs

In order to calculate the average capacity for each pump, CSTEP requested all five ESCOMs to provide data on:

- a) Average daily energy electricity sent out on the agricultural feeder
- b) Number of IP sets connected to those feeders

Table 2 shows the format in which the required data was requested from each ESCOMs for past five years.

Table 2: Data format

ESCOM	Name of the feeding Substation (220/110/66/33 kV)	Name of the 11 kV feeder	Feeder Type (Agricultural/ Non Agricultural)	Length of the feeder (km)	Percentage of feeder loss	No. of IP sets connected to the feeder	Average daily energy sent out on the feeder (in kWh) for the year 16-17)

Since, most of the ESCOMs provided data only for the year 2016-17, CSTEP restricted the analysis for one year to ensure consistency. The analysis was conducted on the data received from ESCOMs for 23 lakh IP sets. Furthermore, feeder level data was chosen instead of Distribution Transformer (DT) level as most of the DTs are unmetered.

7.2 Geographic Information System (GIS) Assessment

CSTEP conducted a GIS assessment and mapping for the state of Karnataka to understand the current status of electricity consumption by the irrigation sector across each district.

Although multiple factors such as rainfall, cropping pattern, etc. govern the electricity consumption per pump, for the purpose of this study, CSTEP restricted it to the single factor of electricity consumed per IP set in each ESCOM. Accordingly, each of the ESCOMs were ranked against a score range of 0-1 to indicate the zones with highest to lowest power consumption. Further, the scores were fed into the ArcGIS software⁵ to generate scoring maps.

Figure 5 shows the map generated by ArcGIS. Green indicates the top ranked zones in terms of power consumption per pump, yellow indicates average zones and red indicates the lowest ranked zones.

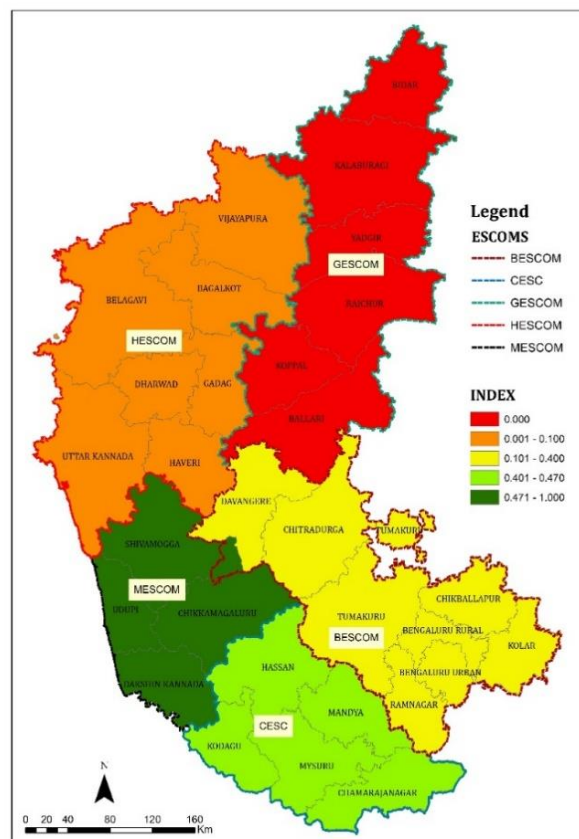


Figure 5: GIS Map of ESCOMs

Source: CSTEP Analysis

The dark and light green bands indicate circles under Mangalore Electricity Supply Company Limited (MESCOM) and CESC regions respectively. These areas receive a good amount of rainfall, thereby creating a reduced demand for pumping water in general and overall reduced consumption of existing irrigation pump sets. As for the yellow, orange and

⁵ ArcGIS is a map-making software that finds utility in conducting spatial analysis and bringing in pieces of information together to help arrive at decisions.

red zones for BESCOM, HESCOM and Gulbarga Electricity Supply Company Limited (GESCOM) respectively, low rainfall creates increased demand for use of irrigation pump sets.

7.3 Identify IP Sets for Replacement

The Centre's Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and Karnataka's Niranthara Jyothi Yojana (NJY) have begun separating agricultural feeders from feeders serving other consumers. These dedicated agricultural feeders were considered for the analysis. Based on the data provided by each ESCOM, the average pump capacity per feeder was calculated using Equation 1.

$$\begin{aligned} &\text{Average pump capacity per feeder(kW)} \\ &= \frac{\text{Average daily energy sent out on the feeder (kWh)} * (1 - \text{Feeder loss \%})}{(\text{Number of IP sets connected to the feeder}) * (\text{Number of hours of usage per day})} \end{aligned} \quad (1)$$

The number of hours of usage of a pump per day is taken as 7 hours since that is the maximum hours of power supplied to agricultural consumers⁶. For the purpose of this study, feeder loss is assumed to be 7% across all feeders⁷.

In order to identify five lakh IP sets for replacement, feeders with IP sets (power capacities in the range of 5 HP-10 HP) were considered. The range was chosen for the following reasons:

- IP sets of capacity higher than 10 HP are charged
- It is economical to replace IP sets at 5-10 HP as compared to lower capacities as they yield higher savings

For MESCOM, given that the feeders are not segregated, all feeders having 200-300 IP set connections were considered for the analysis.

7.4 Baseline Assessment

The baseline energy for the selected pump sets was taken as the sum of average daily energy sent out on the feeder multiplied with the number of days (365 days⁸). Based on the methodology outlined in Section 7.3, approximately 5.16 lakh IP sets were selected for

⁶ Based on information from the Energy Department, GoK

⁷ Based on the discussions with experts and the Energy Department, GoK. A sensitivity analysis was conducted on the T&D loss and the results did not vary significantly.

⁸ Based on discussions with the Energy Department, GoK

replacement. The current baseline energy for the selected 5.16 lakh IP sets was found to be **6861 MU**.

7.5 Techno-economic Analysis

This section provides the cost assessment of the project and the economic feasibility of replacing the inefficient IP sets with energy efficient IP sets, based on the following metrics:

Payback period: Payback period is the time in which the initial investment is expected to be recovered from the savings generated by the investment. It is calculated as the ratio of the investment cost of the project to the average annual savings (after depreciation).

Cost effective index: It is used to compare the total cost of a programme/project with its benefits, using a common metric. This enables the calculation of the net cost or benefits associated with the programme. It is used most often at the start of a programme or project when different options or courses of action are being appraised and compared, as a technique for choosing the best approach. It can also be used, however, to evaluate the overall impact of a programme in quantifiable and monetised terms.

Internal Rate of Return (IRR): IRR is the interest rate at which the net present value of all the cash flows (both positive and negative) from a project or investment equals zero. IRR is used to evaluate the attractiveness of a project or investment.

Assumptions

Efficiency of existing IP sets: Since the electricity for irrigation is provided free for IP sets of capacity less than 10 HP, farmers are generally not concerned about energy efficiency or reducing electricity consumption. Currently, most of the existing IP sets are non-ISI certified and less efficient, thus drawing higher electricity. The average efficiency of existing IP sets are less than 30% (Oza, A., 2007; Sarabjot Singh Saini, 2011).

Efficiency of new IP sets: The overall efficiency of a pump set is the product of motor efficiency and pump efficiency. BEE has rated pumps from 1 star to 5 star based on its overall efficiency. If the efficiency is within 5% higher than a Bureau of Indian Standards (BIS) pump, it is rated as 1 star pump. While a pump having an overall efficiency higher than 20% of a BIS pump is rated as a 5 star pump. The overall efficiency of different star-rated pumps are provided in Table 3. In this study, we recommend that existing IP sets be replaced with pumps having star rating 4 and above. The average efficiency of BEE star-rated IP sets (4 to 5 star) of capacity between 5 to 10 HP was between 35-55%.

Table 3: BEE Star Rating of Pumps

BEE star rating	Overall energy efficiency of pump (BIS =1.0)
1 star	≥ 1.0 and < 1.05
2 star	≥ 1.05 and < 1.10
3 star	≥ 1.10 and < 1.15
4 star	≥ 1.15 and < 1.20
5 star	≥ 1.20

Source: BEE

Commission Determined Tariff (CDT): KERC determines the tariff for different consumers in each ESCOM every year. CDT for irrigation sector (LT 4(a)) is used to calculate the subsidy amount towards irrigation sector in each ESCOM. CDT has increased over the years as shown in Table 4. CDT of FY16 is chosen for the energy savings (INR Crore) calculation. This CDT is the lowest in the last three years, and hence, is a conservative choice for the calculation.

Table 4: Commission Determined Tariff for LT 4(a) in INR/kWh

ESCOMs	FY 16	FY 17	FY 18	FY 19 (proposed)
BESCOM	2.38	2.86	3.34	4.16
CESC	4.4	4.88	5.36	6.28
GESCOM	4.55	5.03	5.51	7.13
HESCOM	5.08	5.56	6.04	7.27
MESCOM	4.25	4.73	5.21	6.85

Capital cost: The capital cost of the project includes the cost of purchasing 5/7.5/10 HP pump sets (5 year warranty) with mobile-operated smart control panels and administration and project management costs (EESL, 2016). The average cost for replacing 5.16 lakh IP sets is INR 2,581 Crore. IP sets purchased for the pilot projects range from INR 32,000 (pump and accessories) to INR 90,000 (pump and distribution transformer) per piece. For

this analysis, CSTEP is considering a cost of around INR 50,000 per pump⁹, which comes with a mobile-operated smart control panel and 5 year warranty.

O&M Cost: The O&M cost is assumed as 2.5% of the project cost with an annual escalation of 5% per annum¹⁰ from the 6th year onwards.

7.6 Sensitivity Analysis

The savings from the project are likely to vary, considering that old and new pump-sets are different in terms of efficiency. Since this could affect the payback of the project, a sensitivity analysis was conducted. Efficiencies of old IP sets were considered to be between 20-32% while for new IP sets, it was 35-55%. The absolute values of efficiencies could not be validated from pilot projects as in some cases the flow rate or head was not measured. In the Malavalli project, the motor input power (kW) and flow (lps) for the old and new pumps were recorded. The efficiency improvement ratio (efficiency of new to old pump) was calculated assuming the discharge head to be the same, pre and post implementation of the project. Efficiency improvement ratio was calculated using Equation 2.

$$\text{Efficiency improvement ratio} = \frac{\text{Efficiency}_{\text{new}}}{\text{Efficiency}_{\text{old}}} = \frac{\text{Flow}_{\text{new}}}{\text{Motor Input}_{\text{new}}} \times \frac{\text{Motor Input}_{\text{old}}}{\text{Flow}_{\text{old}}} \quad (2)$$

The efficiency improvement ratios in the Malavalli project for a few IP sets show a range from **1.33 to 2.94**. The combination of efficiency of old and new IP sets which CSTEP has used in the calculation shows an improvement ratio of **1.41-2.75** which is comparable with the Malavalli project.

⁹ Based on discussions with EESL

¹⁰ Based on discussions with EESL

8. Findings and Discussion

8.1 Selected IP sets for Techno-economic Analysis

Karnataka has more than 23 lakh IP sets connected to 5,293 feeders (11kV), among which 15.5 lakh IP sets are connected to dedicated agricultural feeders. Based on the methodology detailed out in Section 4, 5.16 lakh IP sets having pump capacity between 5 to 10 HP were filtered out. These are connected to 1,531 feeders, spread across five ESCOMs. About 70% of the selected IP sets fall in BESCOM and HESCOM while the least number of IP sets to be replaced are in MESCOM. Table 5 provides the distribution of the number of IP sets in each ESCOM. Annexure I details the list of selected feeders.

Table 5: Distribution of IP sets in each ESCOMs

Criteria	CESC	MESCOM	BESCOM	HESCOM	GESCOM	Total
Total IP Sets (all feeders)	3,45,730	2,92,276	6,77,637	6,62,540	3,39,639	23,17,822
IP sets (only Agri feeders)	2,44,219	NA	5,68,789	5,08,147	2,08,284	15,29,439
IP sets by HP size (5-10HP)	83,769	25,802	1,98,991	1,53,345	54,196	5,16,103

8.2 Economic Feasibility of Replacing Selected IP sets

The pumps chosen for replacement are of capacities between 5 to 10 HP. Assuming the efficiency of existing IP sets to be 28% and the new IP sets to be 45%, the average energy saved per year is 2,415 MU. The overall cost of replacement of 5.16 lakh pumps is about INR 2,581 Crore. The GoK could save about INR 928 Crore from the annual subsidy payout, which suggests a payback period of about three years. This could decrease further as the project cost could reduce by 25-30% on mass procurement of pumps. Thus, the project could generate 36% energy savings. The pilot projects in Doddaballapur, Malavalli and Hubballi generated savings of 23%, 37% and 37%, respectively. Table 6 gives the ESCOM-wise details on the economic feasibility of replacing IP sets.

Table 6: ESCOM-wise Economic Feasibility

ESCOMs	Number of pumps to be replaced	Tariff for FY 16 (INR/kWh)	Cost Effective Index	Payback period (years)	Energy Savings per annum (MU)	Energy Savings per annum (INR Cr)	Cost of Replacement (INR Cr)
BESCOM	1,98,991	2.38	0.4	4.4	941	224	995
CESC	83,769	4.40	0.9	2.6	372	163	419
GESCOM	54,196	4.55	1.2	2.3	260	118	271
HESCOM	1,53,345	5.08	1.1	2.0	769	391	767
MESCOM	25,802	4.25	0.5	4.2	73	31	129
Total	5,16,103			2.8	2,415	928	2,581

8.3 Sensitivity Analysis

In actuality, there could be a mix of different pumps of the same capacity with varying efficiencies. This is due to the usage of non-ISI certified pump-sets, age of the pump, quality of water being pumped etc. The average efficiency of the existing IP sets could range from 20-32%. Thus, the payback period for the project is likely to vary, depending on the differing combination of efficiencies of both old and new IP sets (Table 7). The payback period is lower when the difference in efficiency of the new pump and old pump is higher (larger the difference in efficiency, lower the payback period).

Table 7 shows the range of payback periods for installing 5.16 lakh IP sets having different efficiencies, which lies between 1.65 to 5 years. The payback periods for most combinations of new and old IP sets falls between 1.6-2.8 years, in line with existing pilot projects in Karnataka.

Table 7: Payback Period (years) for Different Combinations of IP sets

Parameters		Efficiency of existing IP sets		
		20%	28%	32%
Efficiency of EE IP sets	35%	2.45	4.99	Not feasible
	45%	1.89	2.78	3.63
	55%	1.65	2.14	2.51

8.4 Project Funding

On assessing the economic feasibility of the project, this section provides the various funding mechanisms and business models which can be used for replacing five lakh inefficient IP sets with energy efficient IP sets.

8.4.1 Funding Mechanisms

The Department of Energy could create and administer an AgDSM IP Fund wherein the fund pooling can be done via:

Budget Allocation

The GoK can allocate funds every year with a plan to replace at least five lakh IP sets in a phased manner. These funds can be drawn from budgets allotted to Energy and other departments such as Agriculture and Horticulture. As a result, the subsidy portion for the Energy Department will reduce year by year or shall at least stay constant in view of decreasing cash flows.

Loan agreement with World Bank

Referring to examples of pump replacement exercises done by the World Bank in Bangladesh and Egypt, the GoK can pitch a request for a loan to the World Bank for a phased implementation of an irrigation pump replacement programme. This could be carried out in mission mode with a view of improving water and energy efficiency within the agriculture sector, especially for a drought-prone state such as Karnataka (The World Bank, 2013).

Levy a cess

Similar to the Krishi Kalyan Cess issued by the Government of India and the Green Energy Cess idea previously proposed by the GoK, money could be pooled by charging consumers from other sectors at a certain nominal rate. A five paise/kWh could be added to the current tariff of domestic, commercial and industrial consumers. Given the current tariff and electricity consumption (Domestic: 11,290 MU, Commercial: 6,124 MU and Industrial: 9,779 MU), approximately INR 130 Crore will be the revenue generated annually for Karnataka through this cess. The GoK could ideally initiate this exercise by replacing 30,000 pumps (6% of five lakh IP sets) in the very first year of the project and approximately 73 MU of energy can be saved by replacing an existing pump of 30% energy efficiency with a BEE star rated IP set of 55% efficiency. This can enable a cost saving of INR 29 Crore¹¹.

8.4.2 Business Models

In order to replace five lakh pumps across all ESCOMS in a phased manner, CSTEP recommends three business models– GoK model, ESCO model and Hybrid model. It is important to note that some of these models have already been implemented in select states, with minor adjustments designed for successful implementation of the project. The key stakeholders, across all these models, are listed below:

- GoK
- ESCOM
- ESCO
- Pump Manufacturers

For any of the models, an audit agency will play a crucial role in verifying the parameters of installed pumps. Switching from the standard BIS to a BEE recommended star rated pump model results in a significant gain in operational efficiency.

GoK Model

In this model (Figure 6), GoK shall be the sole investor. With funds pooled in through various sources, as cited in Section 7.1 of the document, GoK can conduct a phased disbursement of money to various ESCOMs. Each of the ESCOMs will be accountable for carrying out the exercise in their respective circles. GoK shall select the pump manufacturer via an open bidding process to carry out the pump replacement exercise. The pump manufacturer will be responsible for conducting a survey, replacing the selected IP sets and

¹¹ This might result in an increase in the payback period.

providing O&M service for a five-year period. The energy savings shall be estimated (via metering or SIM based technology detecting the IP run-time) by the ESCOMs, who shall report back to GoK, thereby providing a measure of the extent of savings on energy and expense for the state government.

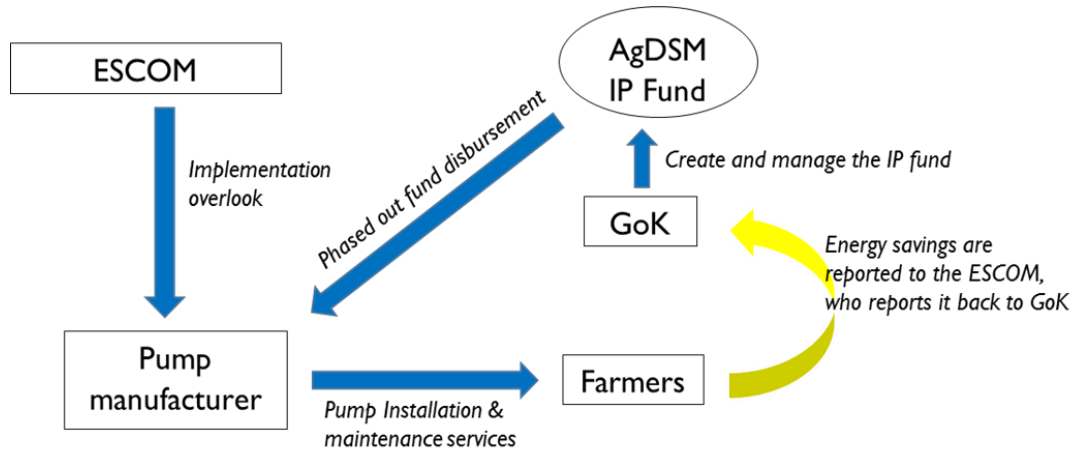


Figure 6: GoK Model

ESCO Model

As per this model (Figure 7), GoK shall act as a supervising authority and the entire cost of the project shall be borne by the ESCO. ESCOs typically possess the institutional, technical and financial capacity to provide overall support to the programme and can also ensure last mile delivery. In this model, GoK would select the ESCO through an open-bidding process. The selected ESCO would invest 100% of the project cost into the AgDSM IP Fund. GoK shall directly disburse this fund to the pump manufacturer (selected via open bidding process by GoK and ESCO) in a phased manner. ESCOMs shall only facilitate the implementation while pump manufacturers shall function similar to the GoK model. The ESCO shall estimate energy savings via metering or SIM based technology detecting the IP electricity consumption, and report it to ESCOMs. The ESCOMs, in turn, shall update GoK with the overall energy savings on a quarterly basis and ensure regular payments to the investor (ESCO in this case) over the course of the project time.

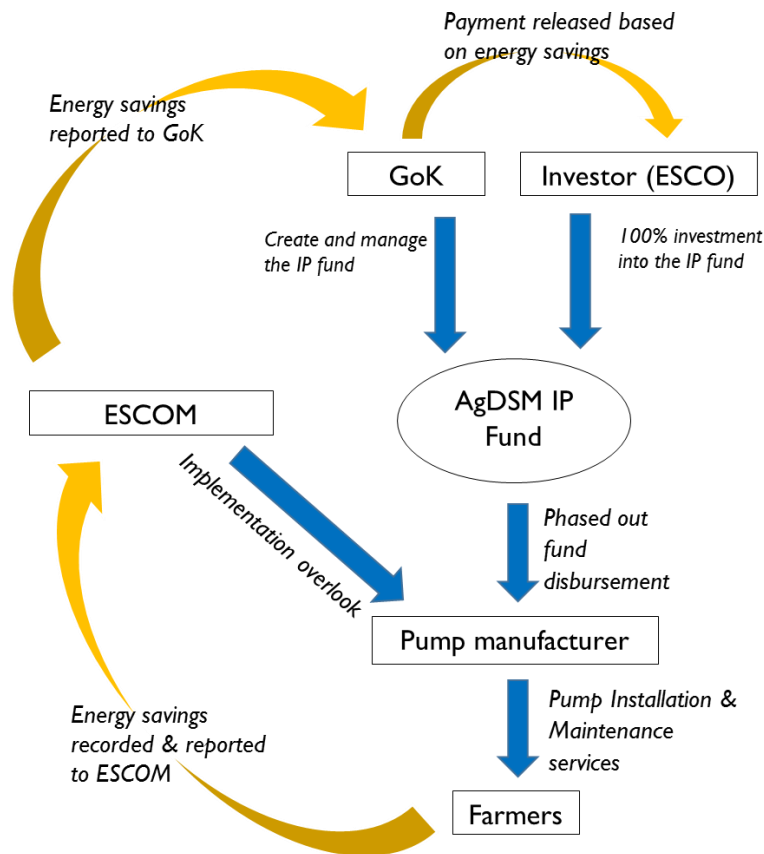


Figure 7: ESCO Model

Hybrid Model

The Hybrid model (Figure 8) would be similar to the ESCO model with the only exception being the mode of investment: This model entails a percentage split in the investment and profit sharing between the State Government and ESCO. This can be accomplished by sharing the subsidy savings through an appropriate distribution mechanism. In this model, GoK shall invest 20% of the total project cost (can potentially be drawn from the IP set subsidy allotted to ESCOMs by the Energy Department) and the private investor (ESCO) invests the remaining 80%. The total investment is pooled into the AgDSM IP Fund. This money shall be disbursed directly to the pump manufacturer (selected via open bidding process by GoK and ESCO) in a phased manner. Further implementation of the exercise and reporting of energy savings is similar to the ESCO model. This will ensure that payments are made to the investors (GoK and ESCO in this case) in the proposed ratio, over the course of the project time. CSTEP further suggests that a portion of the government's share should go towards the AgDSM IP Fund to refinance the project and the remaining could be disbursed to the ESCOMs.

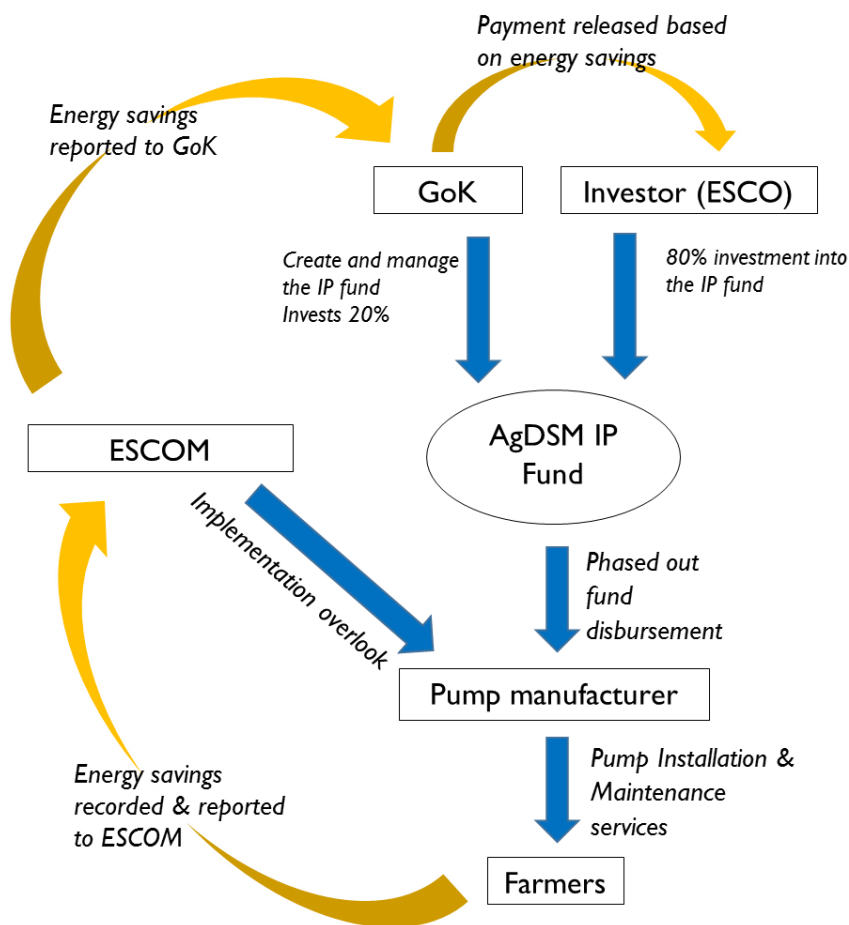


Figure 8: Hybrid Model

A sample model is provided in Table 8.

Table 8: Sample Model

Parameters	Value
Number of Pumps	5,00,000
Total Energy Savings	2,411 million kWh
Cost of saved energy (Tariff)	INR 3.81 /kWh
Total Project Cost	INR 2,693 Cr
GoK contribution (20%)	INR 539 Cr
Private Investor contribution (80%)	INR 2,154 Cr
Proportion of tariff for ESCO	INR 2.55 /kWh
Proportion of tariff to state directed to ESCOMs	INR 0.75 /kWh

Proportion of tariff to AgDSM IP Fund	INR 0.51 /kWh
IRR for ESCO (pre-tax)	21%

9. Recommendations

Table 9: Technical and Institutional Recommendations

Recommendation	Outcome
Technical	
Replace existing inefficient pump sets with BEE star rated pumps – <ul style="list-style-type: none"> • Replace pumps up to 5 HP capacity with at least 4 star rated pumps and pumps above 5 HP with 5 star pumps • Pump replacement should be prioritised based on the age of the existing pumps – older pumps should be replaced first 	<p>Specific energy consumption per pump reduces; overall subsidy for IP sets also reduces.</p> <p>Highest energy savings can be achieved by replacing older pumps.</p>
Conduct a survey (on pump capacity) across all sub-divisions	The survey helps to confirm the actual pump capacity on the ground.
Embedded SIM cards in IP sets	SIM cards being embedded within the control panel would allow the IP sets to be accessed remotely via smart phones or other devices. A software application can be used to record the number of hours of operation of the pump.
GPS enumeration for IP sets	BESCO and CESC are in the final stages of completing this exercise for all IP sets. CSTEP recommends that all ESCOMs carry out this exercise in order to filter out the pumps currently operational and in good working order.
IP set and DT tagging to be completed	This helps in assessing and segregating the losses in a better manner.
Installation of meter	As per the Electricity Act, all consumers are to be metered to facilitate recording of energy consumption and account for savings.
Micro-irrigation schemes	In addition to existing schemes and subsidised agricultural equipment, new schemes in conjunction with IP set replacement can enable water efficiency.

Institutional	
Monitoring hours of usage by IP sets should be done continuously	Farmers must be educated on modern methods of rejuvenating groundwater.
Awareness campaign on agriculture-water nexus	Aim to educate farmers on the nuances of using energy efficient IP sets, water-use optimisation and suitable cropping pattern for the given region.

10. Implementable Roadmap

Stage I: Pre-Implementation

- Pre-requisites:
 - GPS enumeration and DT tagging of all IP sets to be completed

In order to replace five lakh pumps across the state, CSTEP suggests a phased installation of the pumps across a 4 year period as shown in Table 10.

Table 10: Implementation of project

ESCOM	1	2	3	4	Total
BESCOM	25,000	50,000	50,000	73,991	1,98,991
CESC	20,000	20,000	30,000	13,769	83,769
GESCOM	25,000	25,000	4,196	-	54,196
HESCOM	25,000	50,000	50,000	28,345	1,53,345
MESCOM	5,000	5,000	10,000	5,802	25,802
Total	1,00,000	1,50,000	1,44,196	1,21,907	5,16,103

- Train the farmers for minimum servicing requirements and also establish a local site office for attending to major/emergency repairs and servicing.
- Organise continuous periodical process of training, education and motivation of farmers/consumers for proper use and maintenance of the new pump sets.
- Replace old pump sets, install and commission energy efficient pump sets, provide O&M services for the project. O&M services shall include maintenance and repair or replacement of pumps. Repairs of pumps should maintain the star rating of original pump.
- The energy efficient pump sets installed should be capable of pumping the same quantity of water as compared to the existing ones.
- The ESCOMs shall ensure good power quality and load management system in the project area.
- Investor for project implementation to be selected through open bidding process, based on investment and profit sharing mechanism.

Stage II: Implement Phase I of the project in the first year

- 1) Select a few dedicated agricultural feeders in the five ESCOMs to implement Phase I by replacing 1,00,000 existing IP sets (i.e., 20% of IP sets proposed in this study) with energy efficient IP sets.
- 2) Conduct a survey on the selected feeders and measure motor input parameters like energy consumption (kWh), power rating (kVA), current (A), voltage (V) and water discharge (m³/h).

These readings are to be verified at least three times to minimise errors

- 3) Interview the farmers to understand the year of pump set installation, repairs and maintenance of the pump, overhauling frequency, pumping hours, cropping pattern, instances of motor rewinds, area of the farm, water table, etc.
- 4) Water table depth recorded from farmers is to be verified from boring agency in the region.
- 5) The pump set efficiency to be calculated with the help of Equation 3,

$$\text{Pump efficiency (\%)} = \frac{\left(\text{Flow, } \frac{\text{m}^3}{\text{h}} * \text{Head, m.} * 9.81, \frac{\text{m}}{\text{s}^2} * \text{density of water, } \frac{\text{kg}}{\text{m}^3} \right)}{3600 * \text{Motor Input Power, kW}} \quad (3)$$

Where, Head = (Net Static Head + Velocity Head at Suction & Discharge + Friction losses due to fittings & length), (m)

Density of water = 1000 kg/m³

Existing Efficiency = includes efficiency of pump set i.e. pump + motor

- 6) Existing pumps which have an efficiency of less than 35% or the oldest pumps are selected for replacement.
- 7) Install a meter on the selected IP sets and measure monthly energy consumption for a year to establish a baseline.
- 8) Replace the existing IP sets with SIM-based BEE star rated pumps (minimum 4 star). The SIM (inclusive of a GPRS module) will be inserted in a phone, which shall record the electricity consumed. This data will be communicated to the ESCOM office via a software tool. The capacity of the new IP set should be based on site requirements.
- 9) A dedicated team for monitoring the project to be set up. The team should include ESCOM officials and representatives from pump manufacturers.

10) Pump manufacturers to verify the water discharge from each IP set at least once in 6 months for the first three years of the project. O&M for the pumps is to be taken care of by pump manufacturers during the warranty period of five years

11) The annual energy savings (MU) should be calculated using Equation 4

$$\text{Energy Savings} = \text{Baseline Electricity consumption (kWh)} - \text{New Electricity consumption (kWh)} \quad (4)$$

Stage III: Installation of remaining 4 lakh IP sets

- 1) ESCOMs to conduct a survey for the remaining 4 lakh IP sets (Refer to Annexure I).
- 2) Repeat steps 3 to 12 from Stage II.

Stage IV: Post-implementation

ESCOMs should carry out a routine check on the functioning of the new pumps installed. This would ensure the success of implementation and strengthen the entire Public-Private Partnership (PPP) model of functionality.

- A quarterly report will have to be submitted to AgDSM department and energy department on the monthly energy savings from each ESCOM. This will be the basis for the payments to the investor.
- Pump manufacturers to provide customer support to farmers (for project period) to ensure optimum performance of pumps, monitoring of pump operation and efficiency and on-call emergency service.

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Annexure I

This section contains the list of feeders identified for the project.

Sr. No.	ESCO	Name of the feeding substation (220/110/66/33 KV)	Name of the 11 KV feeder	No. of IP sets connected to the feeder	Average daily energy sent out on the feeder (in KWh) For the year 16-17)	Average pump capacity (HP)
1	HESCOM	110/33/11 KV MUSS Satti	Radderatti	591	23500.00	7.6
2	HESCOM	110/33/11 KV MUSS Satti	Satti Garden	274	13068.07	9.1
3	HESCOM	110/33/11 KV MUSS Satti	Gayakawad thot	186	8096.37	8.3
4	HESCOM	110/11 KV Baligeri	Bangyan Bhavi	205	10513.33	9.8
5	HESCOM	110/11 KV Baligeri	Laxmiwadi	180	7366.67	7.8
6	HESCOM	33 Muragundi	Muragundi	693	23144.50	6.4
7	HESCOM	33 Muragundi	Devaranatti	405	14606.67	6.9
8	HESCOM	33/11KV Nandagaon	Ghatanatti	610	30066.67	9.4
9	HESCOM	33/11KV Nandagaon	Savadi Darga	266	12673.33	9.1
10	HESCOM	33/11KV Nandagaon	Nandagav Garden	435	13246.67	5.8
11	HESCOM	33/11KV Nandagaon	KODAGANUR	384	13413.33	6.7
12	HESCOM	33/11 KV MUSS KOLIGUDD	Sankratti	275	13333.33	9.3
13	HESCOM	33/11 KV MUSS HALYAL	Awarakhod	510	16673.33	6.3
14	HESCOM	33/11 KV MUSS HALYAL	Darur+Karlatti	628	31146.67	9.5
15	HESCOM	33/11 KV MUSS Sankonatti	Hulagabali	359	20024.47	10.7
16	HESCOM	33/11 KV MUSS Sankonatti	Sankonatti	750	23038.00	5.9
17	HESCOM	33/11 KV MUSS Sankonatti	Chikatti	490	16824.47	6.6
18	HESCOM	33/11 KV MUSS JAMBAGI	Naganuar	519	15393.33	5.7
19	HESCOM	33/11 KV MUSS JAMBAGI	Tavanshi	472	15726.67	6.4
20	HESCOM	110 KV MUSS Ugar	JACKWELL IP	433	16650.67	7.4

21	HESCOM	110 KV MUSS Ugar	KUSANAL EXP.	239	10686.67	8.6
22	HESCOM	110 KV MUSS Ugar	KUSANAL	364	14893.33	7.8
23	HESCOM	110 KV MUSS Ugar	MANGSULI OLD	277	9100.00	6.3
24	HESCOM	110 KV MUSS Ugar	LAXMI	217	11598.33	10.2
25	HESCOM	110/11 KV MUSS KAGWAD	BALESHWAR	406	17756.00	8.4
26	HESCOM	110/11 KV MUSS KAGWAD	LIFT	196	8272.67	8.1
27	HESCOM	33/11 KV SHIRAGUPPI	JUGUL	389	20521.76	10.1
28	HESCOM	33/11 KV SHIRAGUPPI	SHEDABAL IP-I	270	8965.00	6.4
29	HESCOM	33/11 KV SHEDBAL	DHONDI MADDI	91	3134.00	6.6
30	HESCOM	33/11 KV SHEDBAL	MAYAKKA	535	28022.83	10.0
31	HESCOM	33/11 KV SHEDBAL	PIPE FACTORY	267	7666.00	5.5
32	HESCOM	110 KV MUSS AINAPUR	JAYANTI NAGAR	203	6840.00	6.5
33	HESCOM	110 KV MUSS AINAPUR	KATRAL	286	10956.67	7.3
34	HESCOM	110 KV MUSS AINAPUR	SIDDESHWAR MALAGI	203	7413.33	7.0
35	HESCOM	110 KV MUSS AINAPUR	BARIGADDI	430	16800.00	7.5
36	HESCOM	110 KV MUSS AINAPUR	Saptasagar	345	15446.67	8.6
37	HESCOM	33/11 KV MUSS SHIRAHATTI	BALAWAD	506	16373.00	6.2
38	HESCOM	110/11 KV MUSS AIGALI	F7-BADAGI	252	8480.00	6.4
39	HESCOM	110/11 KV MUSS AIGALI	F8-TELANG	729	21940.00	5.8
40	HESCOM	110/11 KV MUSS YALLAMMAWADI	F3 ZUNJARAWAD MADDI	293	14920.00	9.7
41	HESCOM	110/11 KV MUSS YALLAMMAWADI	F4 SUTTATTI IP	407	14146.67	6.7
42	HESCOM	B.BAGEWADI_220 KV	F2- INGLESWAR	654	22106.00	6.5
43	HESCOM	MALAGHAN_110 KV(B.BAGEWADI)	F4-MULAWAD	332	9902.00	5.7
44	HESCOM	MANAGULI_33 KV	F3-UKKALI-1	288	10693.00	7.1
45	HESCOM	MANAGULI_33 KV	F4-UKKALI-2	293	9453.00	6.2

46	HESCOM	MUDDEBIHAL_110 KV	F6-CHALMI	637	23371.00	7.0
47	HESCOM	MUDDEBIHAL_110 KV	F9-NEBAGERI	384	11094.00	5.5
48	HESCOM	MUDDEBIHAL_110 KV	F10-BASARAKOD	328	12771.00	7.5
49	HESCOM	MUDDEBIHAL_110 KV	F11-YARAZERI	376	13159.00	6.7
50	HESCOM	NALATAWAD_33 KV	F5-BALADINNI	385	13216.00	6.6
51	HESCOM	NALATAWAD_33 KV	F6-ADAVI SOMANAL	344	12330.00	6.9
52	HESCOM	NIDAGUNDI_110 KV	F1-HULLUR	716	25881.00	6.9
53	HESCOM	NIDAGUNDI_110 KV	F10-KASHINAKUNTI	420	16994.00	7.7
54	HESCOM	TANGADAGI_33 KV	F3-TANGADAGI	107	4267.00	7.6
55	HESCOM	TANGADAGI_33 KV	F6-MADARI	174	5302.00	5.8
56	HESCOM	ACHANUR_110 KV	F2-BENNUR	411	19693.15	9.2
57	HESCOM	ACHANUR_110 KV	F3-BHAGAWATHI IP	381	17911.23	9.0
58	HESCOM	ACHANUR_110 KV	F5-MUGALLOLLI IP	401	15629.59	7.5
59	HESCOM	BAGALKOT_110 KV	F3-CHABI RC	441	13863.39	6.0
60	HESCOM	KALADAGI_110 KV	F1-YENDIGERI	124	5276.71	8.1
61	HESCOM	KALADAGI_110 KV	F2-UDAGATTI IP	417	21708.49	10.0
62	HESCOM	KALADAGI_110 KV	F4-ANKALAGI	510	28422.58	10.7
63	HESCOM	KAMATAGI_33 KV	F3-KAMATAGI IP	286	13716.00	9.2
64	HESCOM	RAMPUR_110 KV	F2-DEVALAPUR	282	12111.09	8.2
65	HESCOM	RAMPUR_110 KV	F3-BENNUR IP	349	14304.66	7.8
66	HESCOM	RAMPUR_110 KV	F7-MANAHALLI IP	316	12184.11	7.4
67	HESCOM	SIGIKERI_110 KV	F3-SANGAMA CROSS	211	10888.77	9.9
68	HESCOM	BELAWADI_110 KV	F4-PATTIHAL IP	346	10620.00	5.9
69	HESCOM	BELAWADI_110 KV	F9-KENGANUR IP	346	11122.00	6.2
70	HESCOM	CHULKI_33 KV	F3-SHIRASANGI	193	5719.67	5.7
71	HESCOM	KSHIVAPUR_33 KV	F2-SHIVAPUR IP(A)	569	20428.57	6.9
72	HESCOM	KSHIVAPUR_33 KV	F3-AKKISAGAR	262	11318.68	8.3
73	HESCOM	KSHIVAPUR_33 KV	F6-CHECK DAM IP	167	6542.86	7.5

74	HESCOM	KSHIVAPUR_33 KV	F7-KOTUR IP	469	21296.70	8.7
75	HESCOM	MALLUR_33 KV	F2-HOSUR	693	26891.34	7.4
76	HESCOM	MALLUR_33 KV	F6A-YAKKUNDI	442	23766.04	10.3
77	HESCOM	MUNAVALLI_110 KV	F4-MUNAVALLI IP	273	14481.21	10.2
78	HESCOM	MURAGOD_33 KV	F1-HIREBUDNUR	692	26954.67	7.5
79	HESCOM	YARAGATTI_110 KV	F10-MADLUR	381	18878.79	9.5
80	HESCOM	YARAGATTI_110 KV	F15-MUGALIHAI IP	534	26691.51	9.6
81	HESCOM	YARAGATTI_110 KV	F16-SATTIGERI	588	18884.38	6.1
82	HESCOM	BALEKUNDRI_33 KV	F10-MODGA IP	499	27942.00	10.7
83	HESCOM	BEEDI_110 KV	F3-KAKKERI	800	24364.00	5.8
84	HESCOM	GANDIGAWAD_33 KV	F2-ANGROLLI	198	10676.00	10.3
85	HESCOM	HIREBAGEWADI_110 KV	F4-ARALIKATTI	887	32451.00	7.0
86	HESCOM	HIREBAGEWADI_110 KV	F7-BHENDAGIRI	508	26934.00	10.1
87	HESCOM	HIREBAGEWADI_110 KV	F11-KUKADOLLI	713	23154.00	6.2
88	HESCOM	M.K.HUBLI_110 KV	F2-ITAGI	500	27866.00	10.7
89	HESCOM	M.K.HUBLI_110 KV	F4-HIREMUNOLLI	594	19588.00	6.3
90	HESCOM	MACHE_110 KV	F8-ZADSHAPUR	326	16930.75	9.9
91	HESCOM	ANKALI_110 KV	F6-LAXMI	246	12404.88	9.7
92	HESCOM	ANKALI_110 KV	F7-KADAPUR	438	12378.08	5.4
93	HESCOM	ANKALI_110 KV	F15-ANKALI RIVER BED	265	10756.71	7.8
94	HESCOM	ANKALI_110 KV	F17-YADUR	272	8009.86	5.6
95	HESCOM	BHOJ_33 KV	F5-KARADGA (R/B)	200	7349.15	7.0
96	HESCOM	BHOJ_33 KV	F6-BARWAD	160	8191.62	9.8
97	HESCOM	BHOJ_33 KV	F7-BAWANMATH	254	9152.49	6.9
98	HESCOM	BORGAON_110 KV	F12-SHIRADWAD(JANAWAD)	279	10695.34	7.3
99	HESCOM	CHIKODI_110 KV	F1-SANKESHWAR CROSS	231	8385.68	6.9
100	HESCOM	CHIKODI_110 KV	F12-JAINAPUR	291	9733.15	6.4
101	HESCOM	GALATAGA (BHOJ)_110 KV	F6-HUNNARGI	418	12392.00	5.7

102	HESCOM	GALATAGA (BHOJ)_110 KV	F10-BEERESHWAR	311	12690.41	7.8
103	HESCOM	KABBUR_33 KV	F5-MEERAPURATTI	270	11877.96	8.4
104	HESCOM	KAROSHI_33 KV	F5-KAROSHI IP	405	16976.60	8.0
105	HESCOM	KERUR_33 KV	F2-KERURWADI	192	7475.89	7.5
106	HESCOM	KHADAKLAT_33 KV	F5-SANKANWADI	276	9002.00	6.2
107	HESCOM	KHADAKLAT_33 KV	F6-NAVALIHAL	232	6547.00	5.4
108	HESCOM	KHOTAWDI_33 KV	F3-KRISNHA	133	3982.66	5.7
109	HESCOM	KOGANOLI_33 KV	F3-APPACHIWADI	602	28011.00	8.9
110	HESCOM	KOGANOLI_33 KV	F5- SAUNDALGA	824	25210.00	5.9
111	HESCOM	NAGARAMUNOLLI_110 KV	F1-BHOGADA	248	9030.14	7.0
112	HESCOM	NAGARAMUNOLLI_110 KV	F2-MAKANAKODI	139	4852.60	6.7
113	HESCOM	NAGARAMUNOLLI_110 KV	F3-SHERIKODI	379	11225.75	5.7
114	HESCOM	NAGARAMUNOLLI_110 KV	F4-BELAGALI	350	10814.79	5.9
115	HESCOM	NAGARAMUNOLLI_110 KV	F9-HANCINAL	177	8004.38	8.7
116	HESCOM	NANADI_110 KV	F3-KARNATAK KODI	382	11408.99	5.7
117	HESCOM	NANADI_110 KV	F7-BALUMAMA	316	11100.49	6.7
118	HESCOM	NANADI_110 KV	F12-KALLOL	250	11599.95	8.9
119	HESCOM	NIPPANI_110 KV	F13 Peerwadi IP	178	5660.00	6.1
120	HESCOM	SADALAGA_110 KV	F1-WADAGOL	288	8705.75	5.8
121	HESCOM	SADALAGA_110 KV	F2-MALIKWAD	334	10877.81	6.2
122	HESCOM	SADALAGA_110 KV	F4-NEJ	365	13217.53	6.9
123	HESCOM	SADALAGA_110 KV	F8-VENKTESHWAR	258	13002.74	9.6
124	HESCOM	VIJAYANAGAR_33 KV	F6-GURUKUL	351	14333.70	7.8
125	HESCOM	HALIYAL(ALLOLLI)_110 KV	F4-MANGALWAD	540	21870.00	7.8
126	HESCOM	HALIYAL(ALLOLLI)_110 KV	F5-TERGAON	775	22759.00	5.6
127	HESCOM	HALIYAL(ALLOLLI)_110 KV	F6-TATWANGI	653	30266.00	8.9
128	HESCOM	HALIYAL(ALLOLLI)_110 KV	F7-SAMBRANI	657	21458.00	6.3
129	HESCOM	HALIYAL(ALLOLLI)_110 KV	F8-KESROLLI	763	33375.00	8.4

130	HESCOM	HOLEITAGI_33 KV	F1-HEBBAL(NEW)	144	8008.00	10.6
131	HESCOM	HOLEITAGI_33 KV	F3-SASALWADA	84	3753.33	8.6
132	HESCOM	HOLEITAGI_33 KV	F5-HOLEITAGI	193	7433.33	7.4
133	HESCOM	LAKKUNDI_33 KV	F6-HARLAPUR	89	3509.37	7.5
134	HESCOM	SURANAGI_33 KV	F4-YELLAPUR	149	4697.33	6.0
135	HESCOM	ANKALAGI_110 KV	F2-SULDAL	164	5992.00	7.0
136	HESCOM	ANKALAGI_110 KV	F6-URIBINATTI	290	8565.00	5.7
137	HESCOM	ARALIMATTI_33 KV	F1-ARALIMATTI	331	15387.67	8.9
138	HESCOM	ARALIMATTI_33 KV	F3-AWARADI A	338	10573.42	6.0
139	HESCOM	ARALIMATTI_33 KV	F4B-AWARADI B2	300	10214.00	6.5
140	HESCOM	ARALIMATTI_33 KV	F4B-AWARADI B1	312	10214.00	6.3
141	HESCOM	DANDAPUR_33 KV	F1-RAJAPUR	300	12462.47	8.0
142	HESCOM	DANDAPUR_33 KV	F4-DANDAPUR	128	4825.00	7.2
143	HESCOM	DANDAPUR_33 KV	F6-GANESHWADI	420	12878.90	5.9
144	HESCOM	GHATAPRABHA_110 KV	F1-BADIGAWAD	413	15608.22	7.2
145	HESCOM	GHATAPRABHA_110 KV	F2-PAMLADINNI	498	18906.85	7.3
146	HESCOM	GHATAPRABHA_110 KV	F3-MALLAPUR P.G	418	16576.99	7.6
147	HESCOM	GHATAPRABHA_110 KV	F6-SHINDIKURBET	421	14696.16	6.7
148	HESCOM	GHATAPRABHA_110 KV	F7-NANDAGAON	460	14990.41	6.2
149	HESCOM	GHATAPRABHA_110 KV	F8-MELMATTI	528	18221.37	6.6
150	HESCOM	GHATAPRABHA_110 KV	F9-SHIVAPUR	555	20409.59	7.0
151	HESCOM	GHATAPRABHA_220	F4-SATTIGERI THOTA	319	10538.77	6.3
152	HESCOM	GHATAPRABHA_220	F5-DURDUNDI	369	15374.33	8.0
153	HESCOM	GOKAK_110 KV	F10-KADBAGATTI	353	16492.00	8.9
154	HESCOM	HALLUR (MAHALINGPUR)_33 KV	F1-KAPPALAGUDDI	334	13633.81	7.8
155	HESCOM	HALLUR (MAHALINGPUR)_33 KV	F3-H .SHIVAPUR	331	13013.92	7.5

156	HESCOM	HALLUR (MAHALINGPUR)_33 KV	F5-HALLUR	326	13745.04	8.1
157	HESCOM	HALLUR (MAHALINGPUR)_33 KV	F6-NIRALAKUDI	389	13853.15	6.8
158	HESCOM	HALLUR (MAHALINGPUR)_33 KV	F7-MARAKODI	447	13370.41	5.7
159	HESCOM	KALLOLLI_33 KV	F1-NAGANUR IP-1	388	12526.96	6.2
160	HESCOM	KALLOLLI_33 KV	F3-RAJAPUR IP	299	8866.30	5.7
161	HESCOM	KALLOLLI_33 KV	F5-TUKKANATTI. IP	363	10210.37	5.4
162	HESCOM	KALLOLLI_33 KV	F6-TUKKANATTI VILLAGE	370	14146.67	7.3
163	HESCOM	KHANAGAON_33 KV	F1-GADA	295	8596.00	5.6
164	HESCOM	KULAGOD_110 KV	F1-BISANAKOPPA	292	15563.84	10.2
165	HESCOM	KULAGOD_110 KV	F2-DAVALESHWAR	319	14191.23	8.5
166	HESCOM	KULAGOD_110 KV	F3-KULAGOD	319	11440.55	6.9
167	HESCOM	KULAGOD_110 KV	F5-NEW BETAGERI	401	13393.97	6.4
168	HESCOM	KULAGOD_110 KV	F6-KALLIGUDDI	350	14167.40	7.7
169	HESCOM	KULAGOD_110 KV	F10-KOUJALAGI	317	13346.30	8.1
170	HESCOM	KULAGOD_110 KV	F11-BAIRANATTI	361	15968.22	8.5
171	HESCOM	KULAGOD_110 KV	F12-HONAKUPPI	400	14940.00	7.1
172	HESCOM	KULAGOD_110 KV	F13-P.Y.HUNSHYAL	389	13859.73	6.8
173	HESCOM	MAMADAPUR(GHATAPRABHA)_110 KV	F1-GOSABAL	650	20433.00	6.0
174	HESCOM	MAMADAPUR(GHATAPRABHA)_110 KV	F3-BETAGERI	503	20433.00	7.8
175	HESCOM	MAMADAPUR(GHATAPRABHA)_110 KV	F12-MARADI SIVAPUR	188	9798.00	10.0
176	HESCOM	MANTUR_33 KV	F10-RAJAPUR	123	6520.00	10.1
177	HESCOM	MANTUR_33 KV	F11-DANDAPUR	255	8598.00	6.5

178	HESCOM	MUDALAGI_110 KV	F1-GURLAPUR LINK LINE	209	6413.70	5.9
179	HESCOM	MUDALAGI_110 KV	F2-KAMALADINNI	355	13823.18	7.5
180	HESCOM	MUDALAGI_110 KV	F5-GURLAPUR IP	401	17254.25	8.2
181	HESCOM	MUDALAGI_110 KV	F8-MUNNYAL	372	13629.04	7.0
182	HESCOM	MUDALAGI_110 KV	F9-GUJANATTI	345	12037.26	6.7
183	HESCOM	MUDALAGI_110 KV	F1A-PATAGUNDI	332	14621.37	8.4
184	HESCOM	MUDALAGI_110 KV	F11-MASAGUPPI	343	11812.05	6.6
185	HESCOM	MUDALAGI_110 KV	F12-NAGANOOR IP	378	12227.95	6.2
186	HESCOM	PG_HUNASHYAL_110 KV	F1-JOKANATTI IP	319	10252.00	6.2
187	HESCOM	PG_HUNASHYAL_110 KV	F2-KALLOLLI IP	350	12650.00	6.9
188	HESCOM	TIGADI_33 KV	F7A-SUNDHOLLI A	401	15200.00	7.3
189	HESCOM	YADAWAD_110 KV	F-4 GULAGUNJIKOPPA IP	329	15200.00	8.8
190	HESCOM	YADAWAD_110 KV	F-7 KOPADATTI	233	12365.00	10.2
191	HESCOM	YADAWAD_110 KV	F-8 KAMANAKATTI IP	273	10800.00	7.6
192	HESCOM	YADAWAD_110 KV	F-9 MANOMI IP	339	9652.00	5.5
193	HESCOM	YADAWAD_110 KV	F-10 HALAKI ROAD IP	261	8658.00	6.4
194	HESCOM	ADUR_33 KV	F3-SHANKARIKOPPA	177	4987.95	5.4
195	HESCOM	BELAGALPET_33 KV	F2-ADUR	26	836.67	6.2
196	HESCOM	BELAGALPET_33 KV	F4-KADASHATTIHALLI	236	9326.00	7.6
197	HESCOM	GUTTAL_110 KV	F2-HAVANUR	470	15126.67	6.2
198	HESCOM	GUTTAL_110 KV	F3-NEGALUR	718	21753.33	5.8
199	HESCOM	GUTTAL_110 KV	F6-KURAGUNDA	724	21600.00	5.7
200	HESCOM	HANAGAL_110 KV	F7-BAICHAVALLI EIP	370	12500.00	6.5
201	HESCOM	HATTIMATTUR_33 KV	F2-NAYIKERUR	343	12000.00	6.7
202	HESCOM	HATTIMATTUR_33 KV	F5-HESARURU	234	8600.00	7.0
203	HESCOM	HOSARITTI_33 KV	F9-KONANATAMBAGI	58	2726.67	9.0
204	HESCOM	HULAGUR_33 KV	F1-ATTIGERI	57	2819.33	9.5
205	HESCOM	KERIMATTHALLI_33 KV	F8-HERUR	95	4170.00	8.4

206	HESCOM	SHESHAGIRI_33 KV	F2-MAKARAVALLI	357	11340.00	6.1
207	HESCOM	TILAVALLI_110 KV	F7-TILAVALLI	225	9223.33	7.8
208	HESCOM	Ramankoppa Varur	Ramankoppa	145	6046.90	8.0
209	HESCOM	110 KV NAVALGUND	SHANWAD	550	18350.70	6.4
210	HESCOM	110 KV NAVALGUND	MORAB	272	11830.68	8.3
211	HESCOM	33 KV ANNIGERI	HALLIKERI	304	9376.99	5.9
212	HESCOM	ATHARAGA_110 KV	F5-RAJANAL	216	6445.16	5.7
213	HESCOM	INDI_110 KV	F2-KHEDAGI OLD	477	14690.32	5.9
214	HESCOM	INDI_110 KV	F3-GOLASAR OLD	578	22035.48	7.3
215	HESCOM	INDI_110 KV	F4-SHIRASHYAD OLD	348	19064.52	10.5
216	HESCOM	INDI_110 KV	F5-TADAVALAGA	914	29187.10	6.1
217	HESCOM	INDI_110 KV	F9-KHEDAGI NEW	351	14754.84	8.0
218	HESCOM	INDI_110 KV	F10-GOLASAR NEW	600	26361.29	8.4
219	HESCOM	INDI_110 KV	F11-SHIRASHYAD NEW	355	16529.03	8.9
220	HESCOM	INDI_220	F3-CHAVADIHAL	198	6780.65	6.6
221	HESCOM	INDI_220	F4-NIMBAL	515	14761.29	5.5
222	HESCOM	LACHYAN_110 KV	F5-PADANUR OLD	438	15832.26	6.9
223	HESCOM	NAAD_33 KV	F2-GOLASAR	179	6193.55	6.6
224	HESCOM	NAAD_33 KV	F4-NAD	228	11187.10	9.4
225	HESCOM	TADAVALAGA_33 KV	F1-TENNELLI	364	11006.45	5.8
226	HESCOM	TADAVALAGA_33 KV	F6-TADAVALAGA-2	179	6419.35	6.9
227	HESCOM	TAMBA_33 KV	F1-ATHARAGA	461	19051.61	7.9
228	HESCOM	CHADACHAN_110 KV	F1A-JIGAJEEVANI	1004	28666.70	5.5
229	HESCOM	CHADACHAN_110 KV	F2-VITAL NAGAR	539	21926.70	7.8
230	HESCOM	CHADACHAN_110 KV	F3-DEVAR NIMBARAGI	521	19706.70	7.2
231	HESCOM	DHULAKHED_33 KV	F1-BHIMASAHANKAR	135	5606.67	8.0
232	HESCOM	DHULAKHED_33 KV	F2-MARAGUR	189	9946.67	10.1
233	HESCOM	DHULAKHED_33 KV	F4-DHULAKHED	240	10040.00	8.0

234	HESCOM	DHULAKHED_33 KV	F5-ANACHI	177	9133.33	9.9
235	HESCOM	DHULAKHED_33 KV	F6-CHANEGAON	292	12793.30	8.4
236	HESCOM	HALASANGI_33 KV	F1-HINGANI	366	11773.30	6.2
237	HESCOM	HALASANGI_33 KV	F2-HALASANGI-2	258	7920.00	5.9
238	HESCOM	HALASANGI_33 KV	F6-HALASANGI-1	208	6740.00	6.2
239	HESCOM	NIVARAGI_33 KV	F3-UMARAJ	514	19966.70	7.4
240	HESCOM	NIVARAGI_33 KV	F4-NIVARAGI	307	12233.30	7.6
241	HESCOM	ZALAKI_110 KV	F1-SATALAGAON	483	21860.00	8.7
242	HESCOM	ALMEL_110 KV	F1-GUNDAGI	318	12726.67	7.7
243	HESCOM	ALMEL_110 KV	F2-KURABATAHALLI IP	236	11720.00	9.5
244	HESCOM	ALMEL_110 KV	F5-KADANI	411	20040.00	9.3
245	HESCOM	ALMEL_110 KV	F7-MADNALLI	191	7880.00	7.9
246	HESCOM	ALMEL_110 KV	F9-VIBUTIHALLI	321	15453.33	9.2
247	HESCOM	ALMEL_110 KV	F11-BABALESHWAR	312	14529.66	8.9
248	HESCOM	CHANDAKAVATE_110 KV	F8-HIKKANGUTTI	132	6460.00	9.4
249	HESCOM	CHANDAKAVATE_110 KV	F7-CHANDAKAVATE	317	14600.00	8.8
250	HESCOM	CHANDAKAVATE_110 KV	F2-BALAGANUR	450	15473.33	6.6
251	HESCOM	DEVANAGOAN_110 KV	F6-BOMMANALLI	227	12333.33	10.4
252	HESCOM	GOLAGERI_33 KV	F5-SASABAL	207	7846.67	7.3
253	HESCOM	MALGHAN_110 KV(SINDAGI)	F2-JATNAL	214	9516.13	8.5
254	HESCOM	MALGHAN_110 KV(SINDAGI)	F4-MALGHAN	204	11074.91	10.4
255	HESCOM	MALGHAN_110 KV(SINDAGI)	F6-MADARI	194	9411.89	9.3
256	HESCOM	MALGHAN_110 KV(SINDAGI)	F11-DEVARNAVADAGI	249	11466.67	8.8
257	HESCOM	MALGHAN_110 KV(SINDAGI)	F13-ASANGIHAL	277	8053.33	5.6
258	HESCOM	MORATAGI_110 KV	F2-GABASAVALAGI	261	13393.33	9.8
259	HESCOM	MORATAGI_110 KV	F4-KUMASAGI	176	8760.00	9.5
260	HESCOM	MORATAGI_110 KV	F5-BAGALUR	288	11973.33	8.0
261	HESCOM	MORATAGI_110 KV	F6-KERUR+BANTNUR	333	13386.67	7.7

262	HESCOM	SINDAGI_110 KV	F3-SUNGATHAN	540	16220.00	5.7
263	HESCOM	SINDAGI_110 KV	F4-RAMPUR	331	14326.67	8.3
264	HESCOM	SINDAGI_110 KV	F6-YANKANCHI	504	20006.67	7.6
265	HESCOM	SINDAGI_110 KV	F7-SOMPUR	339	12760.00	7.2
266	HESCOM	SINDAGI_110 KV	F8-YARGAL	271	13833.33	9.8
267	HESCOM	KALAKERI(SINDAGI)_33 KV	F1-KALAKERI IP	113	3947.66	6.7
268	HESCOM	ALABAL_110 KV	F-1 Kadakol Bridge	190	9773.00	9.8
269	HESCOM	ALABAL_110 KV	F-3 New Muttur IP	236	7213.00	5.9
270	HESCOM	ALABAL_110 KV	F-4 New Alabal IP	57	1827.00	6.1
271	HESCOM	ALABAL_110 KV	F-7 Kankanawadi Gaddi	230	7300.00	6.1
272	HESCOM	ALABAL_110 KV	F9-MAIGUR	254	9287.00	7.0
273	HESCOM	BANAHATTI_110 KV	F4-YALAHATTI	384	16035.48	8.0
274	HESCOM	BANAHATTI_110 KV	F6-ASAKI ASANGI	392	16241.94	7.9
275	HESCOM	BIDARI_33 KV	F1-BIDARI IP	253	11074.00	8.4
276	HESCOM	BIDARI_33 KV	F3-JANAWAD IP	228	8220.00	6.9
277	HESCOM	BIDARI_33 KV	F5-BIDARI IP2	318	12983.00	7.8
278	HESCOM	GANI_33 KV	F2-BUDNI	233	12547.00	10.3
279	HESCOM	HIPPARAGI_33 KV	F1-KULHALLI-I	323	15000.00	8.9
280	HESCOM	HIPPARAGI_33 KV	F4-KULHALLI -II	259	11658.06	8.6
281	HESCOM	HIPPARAGI_33 KV	F7-HIPPARAGI IP-I	219	12192.90	10.7
282	HESCOM	HIREPADASALAGI_33 KV	F2-CHIKKAPADASALAGI	232	11580.00	9.6
283	HESCOM	HIREPADASALAGI_33 KV	F3-HIREPADASALAGI IP1	133	6187.00	8.9
284	HESCOM	HIREPADASALAGI_33 KV	F4-NAGANUR	316	17318.00	10.5
285	HESCOM	JAGADAL_33 KV	F2-LAXMI GUDI IP	249	13709.68	10.5
286	HESCOM	JAGADAL_33 KV	F7-JANATA PLOT	188	10477.42	10.7
287	HESCOM	JAGADAL_33 KV	F10-JANAWAD IP	266	13939.03	10.0
288	HESCOM	JAMAKHANDI_110 KV	F9-ALGUR GADDI	269	10335.00	7.4
289	HESCOM	JAMAKHANDI_110 KV	F10-KUNCHANUR	373	11375.00	5.8

290	HESCOM	JAMAKHANDI_110 KV	F17-ALGUR	279	12947.00	8.9
291	HESCOM	KALABILAGI_33 KV	F1-GOTHE	440	12880.00	5.6
292	HESCOM	MADHARAKHANDI_33 KV	F1-KALAHALLI	318	13572.00	8.2
293	HESCOM	MADHARAKHANDI_33 KV	F2-MUTTUR	236	9571.00	7.8
294	HESCOM	MADHARAKHANDI_33 KV	F4-MADHARAKHANDI	339	11662.00	6.6
295	HESCOM	MADHARAKHANDI_33 KV	F5-ALBAL	180	9200.00	9.8
296	HESCOM	MAHALINGAPUR_220 KV	F9-MUGULKOD OLD	206	7004.38	6.5
297	HESCOM	MAHALINGAPUR_220 KV	F23-KESARGOPPA IP	291	15581.10	10.2
298	HESCOM	MAREGUDDI_110 KV	F3-HUNASHIKATTI	208	9360.00	8.6
299	HESCOM	MAREGUDDI_110 KV	F6-KONNUR	397	19387.00	9.3
300	HESCOM	MUNDAGANUR_110 KV	F8-LINGANUR	314	13700.00	8.4
301	HESCOM	RABAKAVI_110 KV	F4-YARAGATTI	421	17825.81	8.1
302	HESCOM	RABAKAVI_110 KV	F9-CHIMMADA KARYAL	183	8634.19	9.0
303	HESCOM	RABAKAVI_110 KV	F10-HOSUR CHOLI	388	13732.26	6.8
304	HESCOM	RABAKAVI_110 KV	F14-HANAGANDI IP2	204	6655.81	6.2
305	HESCOM	SAVALAGI_110 KV	F8-SURPALI	235	11220.00	9.1
306	HESCOM	SAVALAGI_110 KV	F12-KANNOLLI	236	9327.00	7.6
307	HESCOM	SHIROL_110 KV	F5-SHIROL I	188	6931.51	7.1
308	HESCOM	SHIROL_110 KV	F17-SORGOAN IP	447	12798.36	5.5
309	HESCOM	SHIROL_110 KV	F18-BUDNI II	161	8868.22	10.5
310	HESCOM	TERADAL_110 KV	F1-TAMADADDI	370	18490.32	9.6
311	HESCOM	TERADAL_110 KV	F4-KALATIPPI	211	10193.55	9.2
312	HESCOM	TERADAL_110 KV	F6-SASALATTI	480	19522.58	7.8
313	HESCOM	TERADAL_110 KV	F7-THIRD PATA	342	16116.13	9.0
314	HESCOM	TERADAL_110 KV	F8-SASALATTI LINK LINE	165	7329.03	8.5
315	HESCOM	TERADAL_110 KV	F9-KALATIPPI LINK LINE	283	13322.58	9.0
316	HESCOM	TERADAL_110 KV	F12-GOLABHAVI LINK LINE	231	11845.16	9.8
317	HESCOM	TODALABAGI_110 KV	F2-ADIHUDI MADDI	231	12753.00	10.6

318	HESCOM	TODALABAGI_110 KV	F3-GOTHE	268	14853.00	10.6
319	HESCOM	TODALABAGI_110 KV	F5-ADIHUDI	148	6000.00	7.8
320	HESCOM	TODALABAGI_110 KV	F6-GADYAL	189	6920.00	7.0
321	HESCOM	TODALABAGI_110 KV	F11-BIDARI V	253	9167.00	6.9
322	HESCOM	VANTAGODI_33 KV	F2-CHANNAL	272	12970.41	9.1
323	HESCOM	VANTAGODI_33 KV	F3-MIRJI	392	14107.40	6.9
324	HESCOM	ANAGAWADI_33 KV	F3-TUMMARAMATTI	265	12032.00	8.7
325	HESCOM	BHANTANUR_33 KV	F8-JUNNUR IP	260	11000.00	8.1
326	HESCOM	BISANAL_110 KV	F2-BISANAL	223	8080.00	6.9
327	HESCOM	BISANAL_110 KV	F5-GULABAL EIP	220	9100.00	7.9
328	HESCOM	BISANAL_110 KV	F6-BUDIHAL EIP	251	8740.00	6.7
329	HESCOM	GANI_33 KV	F6-YADAHALLI	254	11000.00	8.3
330	HESCOM	GIRISAGAR_110 KV	F2-HONNIHAL	254	11000.00	8.3
331	HESCOM	GIRISAGAR_110 KV	F10-KORTI	199	7046.67	6.8
332	HESCOM	KATARAKI_110 KV	F1-KOPPA S K	253	13153.33	10.0
333	HESCOM	KATARAKI_110 KV	F2-ARAKERI	242	7740.00	6.1
334	HESCOM	KATARAKI_110 KV	F3-ARAKERI TANDA (HALAGALI)	237	8040.00	6.5
335	HESCOM	KATARAKI_110 KV	F6-SHIRAGUPPI	256	10738.67	8.0
336	HESCOM	KATARAKI_110 KV	F7-KOVALLI (EIP)	229	8137.33	6.8
337	HESCOM	LOKAPUR_110K V	F5-HEBBAL	403	15000.00	7.1
338	HESCOM	LOKAPUR_110 KV	F7-KADARKOPPA	375	21000.00	10.7
339	HESCOM	LOKAPUR_110 KV	F9-BOMMANNABUDNI	375	17000.00	8.7
340	HESCOM	LOKAPUR_110 KV	F13-MUDAPUR	332	13000.00	7.5
341	HESCOM	LOKAPUR_110 KV	F14-CHOUDAPUR	306	17000.00	10.6
342	HESCOM	LOKAPUR_110 KV	F15-NAGANAPUR	376	12000.00	6.1
343	HESCOM	MUNDAGANUR_110 KV	F5-KOLUR	255	9733.33	7.3
344	HESCOM	MUNDAGANUR_110 KV	F6-KOLUR EIP	221	6660.00	5.8
345	HESCOM	SHIRGUPPI_110 KV	F2-JANAMATTI	305	10293.33	6.5

346	HESCOM	SHIRGUPPI_110 KV	F3-KOVALLI	318	13333.33	8.0
347	HESCOM	SHIRGUPPI_110 KV	F9-SUNAGA	285	9360.00	6.3
348	HESCOM	SHIRGUPPI_110 KV	F10-B MATH	235	10660.00	8.7
349	HESCOM	BATAKURKI_33 KV	F3-NAGANUR	136	4012.05	5.6
350	HESCOM	BATAKURKI_33 KV	F6-NAGANUR	314	10799.62	6.6
351	HESCOM	HULAKUND_33 KV	F2-HULKUND IP	419	12305.29	5.6
352	HESCOM	HULAKUND_33 KV	F6-CHIKKOPPA	398	12477.81	6.0
353	HESCOM	MUDAKAVI_33 KV	F2-M TIMMAPUR	263	14252.55	10.4
354	HESCOM	RAMDURG_110 KV	F1-SALAPUR	579	17071.78	5.6
355	HESCOM	RAMDURG_110 KV	F7A-HALAGATTI PLOT	279	13248.16	9.1
356	HESCOM	RAMDURG_110 KV	F7B-HALAGATTI MASARI	279	7838.42	5.4
357	HESCOM	RAMDURG_110 KV	F8-RANKALKOPPA	443	15138.20	6.5
358	HESCOM	SALAHALLI_110 KV	F4-UDAPUDI	169	5225.75	5.9
359	HESCOM	SALAHALLI_110 KV	F5-BANNUR	428	17890.63	8.0
360	HESCOM	SALAHALLI_110 KV	F9-CHIPPALKATTI	391	18038.85	8.8
361	HESCOM	SALAHALLI_110 KV	F12-TONDIKATTI	351	18738.96	10.2
362	HESCOM	AREMALLAPURA_110 KV	F1-AREMALLAPUR	265	10006.45	7.2
363	HESCOM	AREMALLAPURA_110 KV	F2-KUDARIHAL	340	11670.97	6.6
364	HESCOM	AREMALLAPURA_110 KV	F4-BELUR	344	14045.16	7.8
365	HESCOM	AREMALLAPURA_110 KV	F9-HUVINAMARADI	244	12196.00	9.6
366	HESCOM	AREMALLAPURA_110 KV	F14-MEDLERI	350	13000.00	7.1
367	HESCOM	BYADGI_110 KV	F12-ALALGERI	206	8463.95	7.9
368	HESCOM	CHIKKERUR_33 KV	F2-YAMMIGANUR	385	14071.33	7.0
369	HESCOM	CHIKKERUR_33 KV	F5-BETEKERUR	189	7205.00	7.3
370	HESCOM	GUDGUR-MAIDUR_33 KV	F8-HARANGIRI	163	5693.86	6.7
371	HESCOM	HALAGRI_33 KV	F1-ALADAKATTI	440	16910.06	7.4
372	HESCOM	HALAGRI_33 KV	F4-ANTARVALLI	500	14969.74	5.7
373	HESCOM	HALAGRI_33 KV	F5-BENAKANKONDA	278	11230.14	7.7

374	HESCOM	HALAGRI_33 KV	F6-KUSUGUR	385	11106.95	5.5
375	HESCOM	HALLIYALA_33 KV	F2-ANAJI	205	9623.33	9.0
376	HESCOM	HARIHARHOSPET_66	F3-NADIHARALALLI	463	20651.61	8.5
377	HESCOM	HAUNSBABI_33 KV	F1-YATNAHALLI	604	20126.66	6.4
378	HESCOM	HAUNSBABI_33 KV	F3-MADLUR	475	14933.33	6.0
379	HESCOM	HAUNSBABI_33 KV	F4-ARALIKATTI	604	19513.33	6.2
380	HESCOM	HIREKRUR_110 KV	F6-TAVARAGI	291	10640.00	7.0
381	HESCOM	KAGINELE_33 KV	F4-IGALAGONDI IP	201	9856.44	9.4
382	HESCOM	KAGINELE_33 KV	F9-MUTTUR	282	8223.01	5.6
383	HESCOM	KODA_33 KV	F4-CHIKKAMATTUR	293	11616.00	7.6
384	HESCOM	MASUR_33 KV	F3-KODAMAGGI	333	15853.33	9.1
385	HESCOM	RATTIHALLI_110 KV	F4-HIREMORAB	419	18048.00	8.2
386	HESCOM	SUNAKALBIDARI_33 KV	F3-JOYISARAHALLI	300	8846.45	5.6
387	HESCOM	TILAVALLI_110 KV	F1-KACHAVI	416	16216.67	7.5
388	HESCOM	TILAVALLI_110 KV	F12-GALAPUJI IP	416	12818.36	5.9
389	HESCOM	TUMMINAKATTI_110 KV	F5-BADABASAPURA	104	3903.23	7.2
390	HESCOM	TUMMINAKATTI_110 KV	F11-BULLAPUR	536	22113.33	7.9
391	HESCOM	GAJENDRAGAD_110 KV	F3-DINDUR	405	11611.00	5.5
392	HESCOM	GAJENDRAGAD_110 KV	F4-BAIRAPUR	347	10438.00	5.8
393	HESCOM	GAJENDRAGAD_110 KV	F6-MATARANGI	206	7242.00	6.7
394	HESCOM	MUSHIGERI_33 KV	F1-SARJAPUR	316	9047.00	5.5
395	HESCOM	RON_110 KV	F7-BEVINAKATTI	138	4154.84	5.8
396	HESCOM	SIRSI_220 KV	F2-ANDAGI	750	38303.23	9.8
397	HESCOM	SIRSI_220 KV	F3-SUGAVI	745	28306.45	7.3
398	HESCOM	SIRSI_220 KV	F5-BISLKOPPA	1195	47141.94	7.6
399	HESCOM	ALAGAWADI_33 KV	F1-BASTAWAD	287	9322.58	6.2
400	HESCOM	ANKALI_110 KV	F1-NASALAPUR	529	17174.00	6.2
401	HESCOM	CHINCHALI_33 KV	F5-BADUMKODI	360	16102.00	8.6

402	HESCOM	HIDAKAL_110 KV	F1-BASTAWAD-I	381	18596.77	9.3
403	HESCOM	HIDAKAL_110 KV	F3-BASTAWAD-II	619	28258.06	8.7
404	HESCOM	HIDAKAL_110 KV	F9-KURUBAGODI	513	25774.19	9.6
405	HESCOM	HIDAKAL_110 KV	F10-MUGALAKHOD R	661	24354.84	7.1
406	HESCOM	HIDAKAL_110 KV	F13-KHANADAL	302	14870.97	9.4
407	HESCOM	HIDAKAL_110 KV	F14-NIRALAKODI-3	421	22225.81	10.1
408	HESCOM	HIDAKAL_110 KV	F15-SAVASUDDI	130	4645.16	6.8
409	HESCOM	HIDAKAL_110 KV	F19-NIRALAKHODI-II	238	10774.19	8.7
410	HESCOM	ITNAL_110 KV	F5-GANESH NAGAR	289	14838.71	9.8
411	HESCOM	ITNAL_110 KV	F8-DASAR KODI	146	4193.55	5.5
412	HESCOM	ITNAL_110 KV	F11-LAXMI GUDI	293	12193.55	8.0
413	HESCOM	ITNAL_110 KV	F12-JACKWELL	189	7032.26	7.1
414	HESCOM	KUDACHI_110 KV	F4-GUNDAWAD	381	18855.00	9.5
415	HESCOM	KUDACHI_110 KV	F9-PARAMANANDWADI	386	16763.00	8.3
416	HESCOM	KUDACHI_220	F2-PARAMANADAWADI	488	17924.00	7.0
417	HESCOM	KUDACHI_220	F3-LAXMIGUDI	436	15643.00	6.9
418	HESCOM	MANTUR_110 KV(RAIBAG)	F5-BENWAD IP	373	11347.00	5.8
419	HESCOM	MANTUR_110 KV(RAIBAG)	F9-NIPNAL IP	489	14480.00	5.7
420	HESCOM	RAIBAG_110 KV	F12-JALAPUR	311	12991.00	8.0
421	HESCOM	RAIBAG_110 KV	F14-KANCHAKARWADI	186	9655.00	9.9
422	HESCOM	YELPARATTI_110 KV	F8-BADBYAKUD	268	10612.90	7.6
423	HESCOM	YELPARATTI_110 KV	F10-HARUGERI CROSS	146	6258.06	8.2
424	HESCOM	YELPARATTI_110 KV	F11-ALAKNUR	307	10161.29	6.3
425	HESCOM	SULTANAPUR_110 KV	F3-HANDIGUND IP	268	9870.97	7.1
426	HESCOM	SULTANAPUR_110 KV	F5-PALBHAVI DARGA	235	11709.68	9.5
427	HESCOM	SULTANAPUR_110 KV	F6-PALABAVI-HIGH SCHOOL	185	7000.00	7.2
428	HESCOM	SULTANAPUR_110 KV	F7-SULTANAPUR	142	6096.77	8.2
429	HESCOM	SULTANAPUR_110 KV	F9-HANDIGUND VG	205	10612.90	9.9

430	HESCOM	SULTANAPUR_110 KV	F10-KAPPALAGUDDI	184	9709.68	10.1
431	HESCOM	KOLIGUDDA_33 KV	F1-KOLIGUDDA-1	280	12032.26	8.2
432	HESCOM	KOLIGUDDA_33 KV	F2-HARUGERI CROSS	216	8225.81	7.3
433	HESCOM	KOLIGUDDA_33 KV	F3-KOLIGUDDA-2	165	7193.55	8.3
434	HESCOM	KOLIGUDDA_33 KV	F5-YABARATTI	224	11354.84	9.7
435	HESCOM	33 KV Bijjaragi	F01-Gonasangi	334	10190.79	5.8
436	HESCOM	33 KV Bijjaragi	F04-Kottalagi	256	9972.38	7.5
437	HESCOM	110 KV Tikota	F13-Tikota IP	983	28357.75	5.5
438	HESCOM	110 KV Tikota	F02-K.Kavatagi IP	186	9840.14	10.1
439	HESCOM	110 KV Tikota	F03-S.D.Hatti IP	353	13402.19	7.3
440	HESCOM	110 KV Tikota	F08-Kotyal+K Siddapur	556	24183.18	8.3
441	HESCOM	110 KV Tikota	F01-Honwad IP	880	27556.27	6.0
442	HESCOM	110 KV Bijapur(City)	F03-Hittnahalli	256	11140.27	8.3
443	HESCOM	220 KV Bijapur	F04-Ainapur	340	11785.75	6.6
444	HESCOM	33 KV Tidagundi	F3-Kannal IP	184	7181.10	7.5
445	HESCOM	110/11 KV MUSS Mamdapur	F3-Uppaladinni	565	26926.67	9.1
446	HESCOM	KADANAKOPPA_110 KV	F3-NAGANOOR	399	19995.00	9.6
447	HESCOM	KADANAKOPPA_110 KV	F5-CHELMATTI	114	5333.33	9.0
448	HESCOM	KALAGHATAGI_110 KV	F12-HIREHONNALLI	361	10734.00	5.7
449	HESCOM	KIRAVATTI_110 KV	F1-SIDDANBHAVI	167	5618.00	6.4
450	HESCOM	LAKKAMANAHALLI_110 KV	F9-HEBBALLI	104	4000.00	7.4
451	CESC	Megalapura	Kuppegala	413	15496	7.2
452	CESC	Megalapura	Hosahalli	375	12360	6.3
453	CESC	Vajamangala	Mellahalli	445	13000	5.6
454	CESC	DMG HALLI	MARIYANAHUNDI	199	6310	6.1
455	CESC	HAMPAPURA	Chuncharayanahundi	257	7785	5.8
456	CESC	B.Matakere	Beeramaballi	393	11231	5.5
457	CESC	B.Matakere	F1 - B.Matakere	464	18378	7.6

458	CESC	Bettadapura	Kanagalu	526	16320	5.9
459	CESC	Bettadapura	Komalapura	497	15015	5.8
460	CESC	Bilikere	Alanahalli	538	15113	5.4
461	CESC	G.V.Gudi	F5-K V Gudi	286	9081	6.1
462	CESC	Gavadagere	Hiri Kyathanahalli	615	17338	5.4
463	CESC	H.D.Kote	Bheemanahalli	900	29253	6.2
464	CESC	H.D.Kote	Chikkereyur	574	21253	7.1
465	CESC	H.D.Kote	Kabini	422	15392	7.0
466	CESC	H.D.Kote	Metikuppe	698	22433	6.2
467	CESC	H.D.Kote	Naganahalli	665	23005	6.6
468	CESC	H.D.Kote	Savve	804	24854	5.9
469	CESC	Hampapura	Bachegowdanahally	467	18066	7.4
470	CESC	Hampapura	Kanchamalli	558	16510	5.7
471	CESC	Hampapura	Chunchrayanahundi	322	9184	5.5
472	CESC	Hanagod	Heggandur	578	17734	5.9
473	CESC	Hanagod	Karnakuppe	563	15973	5.4
474	CESC	Hosur gate	Hosa penjahalli	350	9952	5.4
475	CESC	K.R.Nagar	F5 - Adaguru	434	19807	8.7
476	CESC	Periyapatana	NANDINATHAPURA FEEDER	418	15648	7.2
477	CESC	Periyapatana	CHOWTHI FEEDER	480	14555	5.8
478	CESC	Periyapatana	Hemmige	338	9700	5.5
479	CESC	Sargur	Jakkalli	88	3255	7.1
480	CESC	Sargur	Brahmagiri	307	11862	7.4
481	CESC	Sargur	Hegganur	344	12964	7.2
482	CESC	Sargur	Yashawanthapura	455	13820	5.8
483	CESC	Devanur	Badanvalu	891	33187	7.1
484	CESC	TNPura	Hemmige(T.Chandahalli)	628	19765	6.0
485	CESC	Bannur	Bannur-2	861	31222	6.9

486	CESC	Meghalapura	B.N.Halli	533	16189	5.8
487	CESC	Meghalapura	Kupya	524	15354	5.6
488	CESC	Meghalapura	Hosa Kempaianahundi	403	12332	5.9
489	CESC	CHANDAKAVADI	F2-KAALIKAMBA	358	12873	6.9
490	CESC	CHANDAKAVADI	F3-CHANDAKAVADI	451	15860	6.7
491	CESC	CHANDAKAVADI	F5-MALLEDEVANAHALLI	471	18096	7.4
492	CESC	D.R.PET	F5- MANGALA	326	9686	5.7
493	CESC	GUNDLUPET	F10-Bargi	796	26017	6.3
494	CESC	GUNDLUPET	F11-Mallayanapura	159	6165	7.4
495	CESC	GUNDLUPET	F12-Berambadi	474	14775	6.0
496	CESC	HANGALA	F8 - Mallayanapura	344	13345	7.4
497	CESC	HARVE	F8- Thammadally	408	16158	7.6
498	CESC	HARVE	F12- N D Pura	463	17833	7.4
499	CESC	HONNAHALLI	F4-SUVARNANAGARA	263	7860	5.7
500	CESC	ATTUGULIPURA	F2-SIDDAINAPURA	394	13375	6.5
501	CESC	ATTUGULIPURA	F8-ATTUGULIPURA	377	12162	6.2
502	CESC	SANTHEMARALLI	F10- Chungdipura	89	3111	6.7
503	CESC	Madhuvinahally	Budhabalu	365	11471	6.0
504	CESC	Madhuvinahally	Kannur	502	20088	7.7
505	CESC	Doddinduvadi	Chikkallur	525	22070	8.0
506	CESC	Doddinduvadi	Prakash Palya	579	19975	6.6
507	CESC	Doddinduvadi	Tellanooru	385	11690	5.8
508	CESC	Kollegal	Sugar factory	264	13352	9.7
509	CESC	Kollegal	Harale	340	10120	5.7
510	CESC	Kollegal	Katnavadi (Chilukuvadi)	294	8887	5.8
511	CESC	Kollegal	Kunagally	416	15508	7.1
512	CESC	Kunthur	Hosamalangi	477	13940	5.6
513	CESC	Sathegala	Palya	490	17324	6.8

514	CESC	Hanur	Chinchally	355	10387	5.6
515	CESC	Hanur	Mangalla	45	2518	10.7
516	CESC	Hanur	Gurugal doddi (Bandalli)	352	11240	6.1
517	CESC	Bandalli	Tomiyarapalya	329	11356	6.6
518	CESC	Yalandur	Shivakally	595	18916	6.1
519	CESC	Yalandur	Gumbally	384	12760	6.4
520	CESC	S.M Halli	Honnur	424	12777	5.8
521	CESC	S.M Halli	AMBLE	554	22315	7.7
522	CESC	MANDYA MUSS	Mangala(F6)	672	29458	8.4
523	CESC	KIADB, MUSS	F2 (Hanakere)	494	16376	6.3
524	CESC	KIADB, MUSS	F4 (Keelara)	544	25345	8.9
525	CESC	BASARALU	F2 Shivapura	513	17761	6.6
526	CESC	BASARALU	F9 Ankushapura	267	8522	6.1
527	CESC	HAMPAPURA MUSS	F2 Keragodu	250	9511	7.3
528	CESC	HAMPAPURA MUSS	F6 Bilidegalu	557	18837	6.5
529	CESC	KOLAKARANADODDI	Thggahalli F4	491	15932	6.2
530	CESC	G.Malligere	F1 Hunuganahalli (Muttigere)	220	8770	7.6
531	CESC	KK Doddi	Gopanahalli	433	17482	7.7
532	CESC	KK Doddi	Yadaganahalli	478	14767	5.9
533	CESC	Maddur	C.A.Kere	595	21302	6.9
534	CESC	Maddur	Somanahalli	658	22572	6.6
535	CESC	Maddur	Kyatagahhta	464	16982	7.0
536	CESC	KM Doddi	Bidarahalli	647	21620	6.4
537	CESC	Igalur	Igalur	332	13428	7.7
538	CESC	Dundanahalli	C.L. Doddi	347	10382	5.7
539	CESC	Dundanahalli	T.S Halli	470	16852	6.9
540	CESC	Dundanahalli	Dundanahalli	270	13802	9.8
541	CESC	K Honnalagere	B Gudde	430	14688	6.5

542	CESC	K Honnalagere	K Honnalagere	359	10907	5.8
543	CESC	K Honnalagere	Kabbare	334	10584	6.1
544	CESC	Koppa	Koudley	315	12848	7.8
545	CESC	Koppa	Maraliga	296	8902	5.8
546	CESC	Koppa	Bekkalale	312	15586	9.6
547	CESC	Besagarahalli	Hosakere	276	14230	9.9
548	CESC	Malavalli	R.B. Halli	402	11896	5.7
549	CESC	Malavalli	N.M. Halli	374	13258	6.8
550	CESC	Malavalli	Banasamudra-1	333	11425	6.6
551	CESC	Malavalli	Anchedodi	250	13810	10.6
552	CESC	Malavalli	Banasamudra-2	238	10145	8.2
553	CESC	Malavalli	Dugganahally	521	16621	6.1
554	CESC	T.K.Halli	Puradadoddi	440	16636	7.2
555	CESC	Hadli	Antarahally	401	12500	6.0
556	CESC	Yathambadi	Guruteak	213	7544	6.8
557	CESC	Yathambadi	Belthur	257	12725	9.5
558	CESC	B G PURA MUSS	F1 Narayanpura	362	12802	6.8
559	CESC	B G PURA MUSS	F6 BLUFF	670	19369	5.5
560	CESC	KIRAGAVALU MUSS	F2-Mikkere	429	14931	6.7
561	CESC	KIRAGAVALU MUSS	F9-Moogankoppalu	345	13086	7.3
562	CESC	T.K.HALLI MUSS	F3-Ganalu	231	9678	8.0
563	CESC	Pandavapura Muss	F2 Chandre	386	15836	7.9
564	CESC	Pandavapura Muss	F4 Kenchanahalli	382	12630	6.3
565	CESC	Pandavapura Muss	F5 Baleattiguppe	368	12767	6.6
566	CESC	Pandavapura Muss	F7 Banaghatta	491	18548	7.2
567	CESC	Pandavapura Muss	F9 NarthBank(F-11)	211	10685	9.7
568	CESC	Pandavapura Muss	F11 Elekere	394	12822	6.2
569	CESC	Jakkanahalli Muss	F-1 Shambunahalli	250	9973	7.6

570	CESC	Jakkanahalli Muss	F4 Bellale	222	11562	10.0
571	CESC	Jakkanahalli Muss	F5 Yeregowdanahally	326	10822	6.4
572	CESC	Jakkanahalli Muss	F6 Narayanapura	412	13260	6.2
573	CESC	Chinakurali Muss	F2 Ragimuddanahally	215	9507	8.5
574	CESC	Chinakurali Muss	F 3 Baby	331	10932	6.3
575	CESC	Chinakurali Muss	F7 Kadaba	381	10795	5.4
576	CESC	Chinakurali Muss	F6 Lingapura	289	9260	6.1
577	CESC	Madeshwarapura Muss	F6 Hosakote	350	12055	6.6
578	CESC	Madeshwarapura Muss	F7 Halebeedu	305	10685	6.7
579	CESC	Madeshwarapura Muss	F3 Mahadeshwarapura	254	11753	8.9
580	CESC	Madeshwarapura Muss	F1 Keretonnur	340	12356	7.0
581	CESC	Bannangadi Muss	F1 Bannangadi	139	7096	9.8
582	CESC	Bannangadi Muss	F2 Malligere	149	8164	10.5
583	CESC	Bannangadi Muss	F3 Giriyaahalli	157	8411	10.3
584	CESC	Bannangadi Muss	F5 Dinka	141	4082	5.5
585	CESC	D.B Halli Muss	F6-Nuggahalli	40	1521	7.3
586	CESC	G.Malligere Muss	F4 HONNEMADU	30	1650	10.5
587	CESC	Arakere	F-8 Bannahally	434	14630	6.5
588	CESC	Arakere	F-9 Doddapalya	74	3726	9.6
589	CESC	Taripura	F-4 Hebbadi	260	11616	8.6
590	CESC	Gamanahally	F-2 Gamanahally	371	13753	7.1
591	CESC	Gamanahally	F-8 Neralekere	309	10904	6.8
592	CESC	K R pet	Makavalli	270	8338	5.9
593	CESC	K R pet	Teganahally	382	11336	5.7
594	CESC	Bookanakere	Mudigere	300	9311	5.9
595	CESC	Akkihebbalu	Beeruvally	405	12473	5.9
596	CESC	Akkihebbalu	Somanahally	460	13881	5.8
597	CESC	Akkihebbalu	Jainahally	342	10277	5.8

598	CESC	Seelanere	Akkimanchanhally	190	6496	6.5
599	CESC	Seelanere	Tendekere	328	11799	6.9
600	CESC	Seelanere	Guduganahally	261	9261	6.8
601	CESC	Uygonahalli	Guddenahally	442	13037	5.6
602	CESC	Uygonahalli	Valageremensa	192	7046	7.0
603	CESC	Uygonahalli	Sindaghatta	258	9761	7.2
604	CESC	Ganjigere	Yagachaguppe	226	7818	6.6
605	CESC	Ganjigere	Bookahalli	242	7246	5.7
606	CESC	Ganjigere	Poovanahally	379	11178	5.6
607	CESC	S B HALLI	GRS	166	5878	6.8
608	CESC	Nagamangala	Melukote	489	15769	6.2
609	CESC	Nagamangala	Bindiganavile	472	15586	6.3
610	CESC	Haradanahalli	Devalapura	547	19639	6.9
611	CESC	Haradanahalli	Kudugabalu	376	11438	5.8
612	CESC	Guddenahalli	Mannahalli	202	9525	9.0
613	CESC	Guddenahalli	Bogadi	142	5381	7.3
614	CESC	Guddenahalli	B D Halli	318	10547	6.3
615	CESC	Guddenahalli	Ijjalaghatta	337	9844	5.6
616	CESC	Guddenahalli	Alphalli	218	9794	8.6
617	CESC	Guddenahalli	T Channapura	198	6974	6.7
618	CESC	Bogadi	Kesavinakatte	153	5031	6.3
619	CESC	Bogadi	Tattekere	227	9216	7.8
620	CESC	Addihalli	Naragonahalli	179	7430	7.9
621	CESC	Addihalli	Mayagonahalli	339	11781	6.7
622	CESC	Addihalli	Koochahalli	274	11075	7.7
623	CESC	Dudda	Karebore	292	8510	5.6
624	CESC	Dudda	Nandihalli IP	432	13518	6.0
625	CESC	Rameshwaranagara	Boovanahalli	350	11288	6.2

626	CESC	Salagame	Gullenahalli	402	13718	6.5
627	CESC	Shantigrama	Kenchattahally	163	6290	7.4
628	CESC	Shantigrama	Hampanahalli (IP)	426	12316	5.5
629	CESC	KANDLI	Alur	771	25542	6.3
630	CESC	MAGGE	Channapura	668	21848	6.3
631	CESC	MAGGE	Palya	682	23258	6.5
632	CESC	C.R.Patna	Anekere	263	10671	7.8
633	CESC	Udayapura	Udayapura	186	7788	8.0
634	CESC	Udayapura	Katharigatta	197	7775	7.6
635	CESC	S. Belagola	Baralu	312	12472	7.7
636	CESC	S. Belagola	K.R.Pura	541	18372	6.5
637	CESC	S. Belagola	Parama	359	11747	6.3
638	CESC	Yachenahally	Nalluru	393	13563	6.6
639	CESC	Yachenahally	A.Cholenahally	318	11176	6.7
640	CESC	Yachenahally	Honnashettyhally	255	10910	8.2
641	CESC	Sathenahally	Mudanhally	211	7782	7.1
642	CESC	Sathenahally	Nettekere	177	5680	6.1
643	CESC	Rampura	Tagaduru	490	13778	5.4
644	CESC	Bagur	Oblapura	344	9867	5.5
645	CESC	Bagur	Anathi (Kamanayakanahally)	168	7036	8.0
646	CESC	Hirisave	Didaga (Ullavally)	437	18172	8.0
647	CESC	Hirisave	Machbhuvan Hally	127	4329	6.5
648	CESC	Hirisave	Balaganchi	509	15233	5.7
649	CESC	Didaga	Madalagere	229	9760	8.2
650	CESC	Didaga	Hosahally	213	9508	8.5
651	CESC	Byrapura	K.thimlapura	354	10804	5.8
652	CESC	Juttanahally	Juttanahally	211	7077	6.4
653	CESC	Mattanavile	Aresomanahally	233	9373	7.7

654	CESC	Hadenahally	Kumbenahalli	307	13035	8.1
655	CESC	Athichowdenahally	Sagathavalli	266	10466	7.5
656	CESC	DODDAHALLI	F2- Doddahally	329	11006	6.4
657	CESC	HALLY MYSORE	F1- Thejur	257	7929	5.9
658	CESC	DODDAKADANOR	F4- Hiritalalu	426	14559	6.5
659	CESC	SOMANAHALLI	F1- Kalenahally	380	13708	6.9
660	CESC	SOMANAHALLI	F2- Nerale	190	6402	6.5
661	CESC	SOMANAHALLI	F4- Niduvani	220	7099	6.2
662	CESC	SINGAPURA	F1- Ulivala	455	14889	6.3
663	CESC	SINGAPURA	F4- Mudalahippe	539	16301	5.8
664	CESC	SINGAPURA	F6- Valambige	436	12792	5.6
665	CESC	Hangarahally	Hangarahally	150	4607	5.9
666	CESC	Ramanathapura	Basavapattana	613	18680	5.8
667	CESC	Ramanathapura	Agrahara	618	19800	6.1
668	CESC	Saligrama	Mirle	254	7214	5.4
669	CESC	D M KURKE	F2: Kyathanahally	515	14518	5.4
670	CESC	D M KURKE	F3: J C Pura	543	16650	5.9
671	CESC	D M KURKE	F7:Kanakatte	329	9275	5.4
672	CESC	Kondenalu	Kenkere	239	8687	7.0
673	CESC	Panchanahally	F2 D M Kurke	514	15750	5.9
674	BESCOM	66/11 KV ANEKAL	F03-SAMANDUR	375	12493.2	6.4
675	BESCOM	Attibele 66/11 KV	F04-YADAVANAHALLI	101	5362.7	10.2
676	BESCOM	Dommasandra 66/11 KV	F05-NERIGA	278	8800.0	6.1
677	BESCOM	CHANDAPURA_66	F04-MUTHANALLUR	1	34.8	6.7
678	BESCOM	HANUMANTHNAGAR_66	F05-HANUMANTHA-NAGARA-F	289	9037.8	6.0
679	BESCOM	HANUMANTHNAGAR_66	F10-KIRANGERE-F	153	5884.9	7.4
680	BESCOM	MARALAWADI_66	F01-THATTEKERE--F	468	14206.0	5.8
681	BESCOM	MARALAWADI_66	F03-THERUBEEDI-F	522	16444.9	6.0

682	BESCOM	YEDUMADU_66	F06-KADUJAKKASANDRA	266	8881.6	6.4
683	BESCOM	CHIKKENAHALLI_66	F01-UDARAHALLI	256	9261.4	6.9
684	BESCOM	CHIKKENAHALLI_66	F04-KOTTAGALLU	343	13255.9	7.4
685	BESCOM	KANAKAPURA_66	F02-V-R-DODDI	414	11704.1	5.4
686	BESCOM	KANAKAPURA_66	F08-HUNASANAHALLI	465	19456.4	8.0
687	BESCOM	KANAKAPURA_66	F09-HAROHALLY	653	20594.0	6.0
688	BESCOM	KANAKAPURA_66	F11-DODDALAHALLY	874	25841.1	5.7
689	BESCOM	MARALAWADI_66	F08-THOKASANDRA-F	496	15761.1	6.1
690	BESCOM	VENKATARAYANADODDI_66	F05-SOMEDYAPANAHALLI	404	17097.2	8.1
691	BESCOM	HOOKUNDA_66	F02-SHIVANEGOWDANADODDY	299	9412.6	6.0
692	BESCOM	HOOKUNDA_66	F04-MUNESHWARA BETTA	319	11190.7	6.7
693	BESCOM	BIDADI_220	F06-BIDADI-URBAN	809	26916.8	6.4
694	BESCOM	BIDADI_220	F21-KENCHANAKUPPE	342	18806.5	10.5
695	BESCOM	HEJJALA_66	F04-BANNIKUPPE	293	10193.5	6.7
696	BESCOM	KEMPANAHALLI_66	F02-KEPFHEGGADAGERE	259	10548.4	7.8
697	BESCOM	DUNDANAHALLY_66	F-2 KUMBARAKATTE	134	6493.2	9.3
698	BESCOM	KUTAGALLU_66	F01-KUTAGALLU	149	4900.0	6.3
699	BESCOM	MELLAHALLI_66	F08-SUGUNAHALLI	409	11680.0	5.5
700	BESCOM	KUDUR_66	F02-HULIKAL	294	11789.8	7.7
701	BESCOM	IGGALUR_66	F01-IGGALUR	412	12453.3	5.8
702	BESCOM	IGGALUR_66	F07-MAREGOWDANA-DODDI	91	2793.3	5.9
703	BESCOM	IGGALUR_66	F08-CB-DODDI	180	8386.7	8.9
704	BESCOM	IGGALUR_66	F10-SARAGUR	37	1860.0	9.6
705	BESCOM	KOLAR_220	F03-DODDAHASALA	202	6962.6	6.6
706	BESCOM	KOLAR_220	F05-HOGRI	309	11406.6	7.1
707	BESCOM	KOLAR_220	F09-ARAHALLI	99	3956.0	7.6
708	BESCOM	KOLAR_220	F10-NARASAPURA	94	2775.8	5.7
709	BESCOM	KOLAR_220	F11-KOOTERI	109	5742.9	10.1

710	BESCOM	TAMAKA_66	F04-KODIRAMASANDRA	258	9778.0	7.3
711	BESCOM	TAMAKA_66	F09-KODIKANNUR	233	10417.6	8.6
712	BESCOM	Addagal	F05-KOORIGEPALLI	406	18368.3	8.7
713	BESCOM	Addagal	F06-MARASANAPALLI	379	16434.8	8.3
714	BESCOM	Addagal	F07-CHILLORPALLI	329	13534.4	7.9
715	BESCOM	Srinivasapura	F09-THADIGOL	378	18346.3	9.3
716	BESCOM	Yeldur	F05-HOSAHALLI	147	5510.1	7.2
717	BESCOM	DALSANUR_66	F03-CHIRUVANAHALLI	635	20603.8	6.2
718	BESCOM	Vokkaleri 66/11 KV MUSS	F-4 Vokkaleri	378	12885.3	6.5
719	BESCOM	66/11 KV Vemgal	F-10 Bellamaranahalli	500	17760.0	6.8
720	BESCOM	66/11 KV Kyalanur	F-3 URATI AGRAHARA	284	8227.0	5.5
721	BESCOM	66/11 KV Kyalanur	F-4 Madderi	268	11813.3	8.4
722	BESCOM	Kembodi 66/11 KV MUSS	F-3 Kembodi	218	11719.3	10.3
723	BESCOM	S.M.Mangala 66/11 KV Muss (3ph-6.9MW 1ph-2.2MW)	SMF2 Shettykunte	140	5033.3	6.9
724	BESCOM	66/11 KV Tamaka	TF-7 Abbani	289	8999.0	6.0
725	BESCOM	66/11 KV Thoradevandahalli MUSS (New Station)	F-7 Nukkanahalli	422	13162.7	6.0
726	BESCOM	66/11 KV Narasapura	F-5 Kendatti	480	15580.7	6.2
727	BESCOM	66/11 KV Narasapura	F-8 Jodi krishnapura	352	10192.7	5.5
728	BESCOM	Dalasanur 66/11 KV MUSS	F5 Holur	223	8778.0	7.5
729	BESCOM	Dalasanur 66/11 KV MUSS	F-7 Gatahalli	248	9406.7	7.3
730	BESCOM	Talagawara 66/11 KV MUSS	F6 Ammanalur	205	9194.2	8.6
731	BESCOM	66/11 KV APET MUSS	MF1-Banagiri	383	17884.6	8.9

732	BESCOM	66/11 KV kgf MUSS	F3-VOLAGAMADI	164	7472.5	8.7
733	BESCOM	66/11 KV kgf MUSS	F8-KRG HALLI	258	8928.6	6.6
734	BESCOM	66/11 KV kgf MUSS	F-9 Kangandlahalli.	233	8928.6	7.3
735	BESCOM	66/11 KV kgf MUSS	F14-APET RURAL	325	13901.1	8.2
736	BESCOM	66/11 KV KYSAMBALLI MUSS	F14-ALLIKALLU	329	13534.4	7.9
737	BESCOM	TEKAL 66/11 KV MUSS	F01-KEMPANAHALLI	155	4371.7	5.4
738	BESCOM	LAKKUR 66/11 KV MUSS	F01-PURA	472	13953.3	5.7
739	BESCOM	TEKAL 66/11 KV MUSS	F02-K.G.HALLI	396	12139.4	5.9
740	BESCOM	MASTHI 66/11 KV MUSS	F02-THURANASI	509	14913.3	5.6
741	BESCOM	TEKAL 66/11 KV MUSS	F03-TEKAL	300	10596.8	6.8
742	BESCOM	MASTHI 66/11 KV MUSS	F04-DINAHALLI	549	15612.8	5.4
743	BESCOM	MASTHI 66/11 KV MUSS	F07-RAJENAHALLI	426	19780.0	8.9
744	BESCOM	TEKAL 66/11 KV MUSS	F09-SHETTAHALLI	571	21939.3	7.4
745	BESCOM	MASTHI 66/11 KV MUSS	F12-BANTEHALLI	512	24442.7	9.1
746	BESCOM	NANGLI_66	F01-BYRKUR	406	18368.3	8.7
747	BESCOM	MUDIYANUR_66	F02-MANJALANAGAR	379	16434.8	8.3
748	BESCOM	MULBAGAL_66	F04-SRIRANGAPURA	329	13534.4	7.9
749	BESCOM	MULBAGAL_66	F12-MALLANAYAKANAHALLI	378	18346.3	9.3
750	BESCOM	NANGLI_66	F13-K.BYAPALLY	147	5510.1	7.2
751	BESCOM	NANGLI_66	F09-GUDIPALLI	635	20603.8	6.2
752	BESCOM	66/11 KV S/S Chintamani	F3-Seekal	356	16550.0	8.9
753	BESCOM	66/11 KV S/S Chintamani	F9-Nandiganahalli	339	14737.5	8.3
754	BESCOM	66/11 KV S/S Y.Hunaseshally	F1- Chintamani	412	12092.8	5.6
755	BESCOM	66/11 KV S/S Y.Hunaseshally	F7- Kanganahally	408	12048.2	5.7
756	BESCOM	66/11 KV S/S KODIHALLI	F05-D.B.HALLI	360	11314.4	6.0
757	BESCOM	66/11 KV S/S KODIHALLI	F06-ANOOR	318	9526.4	5.7
758	BESCOM	66/11 KV S/S KODIHALLI	F07-K-HOSUR	219	10196.8	8.9
759	BESCOM	Irragampalli Station	F4-K.C.Halli	449	14657.5	6.2

760	BESCOM	Irragampalli Station	F6-Battlahalli	555	17024.7	5.9
761	BESCOM	Irragampalli Station	F8-Kodigal	616	19191.2	6.0
762	BESCOM	Irragampalli Station	F9-Gowdanahalli	412	12528.5	5.8
763	BESCOM	Yenigadale Station	F2-Navodaya	350	10109.6	5.5
764	BESCOM	Yenigadale Station	F3-Chilakalanerpu	512	15004.1	5.6
765	BESCOM	Yenigadale Station	F4-Tulavanur	385	15064.4	7.5
766	BESCOM	Yenigadale Station	F5-Buradagunte	280	9603.5	6.6
767	BESCOM	Yenigadale Station	F6-Nandanavana	261	10242.1	7.5
768	BESCOM	Yenigadale Station	F7-Nadampalli	381	13345.8	6.7
769	BESCOM	Talagavara Station	F7-Vaizakur	194	7771.5	7.7
770	BESCOM	Talagavara Station	F12-Mylapura	340	15135.9	8.5
771	BESCOM	M.Gollahalli Station	F5-Yenamalapadi	339	12099.2	6.8
772	BESCOM	Ganjigunte MUSS	F9-F9 Settihalli	286	10283.5	6.9
773	BESCOM	Nandiganahalli MUSS	F4-Muddalahalli	324	11865.8	7.0
774	BESCOM	SIDLAGHATTA_66	F03-ABLOODU	461	19898.9	8.3
775	BESCOM	YHUNASENAHALLI_66	F03-KUNDALAGURKI	267	14672.8	10.5
776	BESCOM	GANJIGUNTE_66	F01-VEMAGAL	292	11396.7	7.5
777	BESCOM	CHEEMANGALA_66	F02-ATTIGANAHALLI	371	14169.4	7.3
778	BESCOM	MELUR_66	F02-MELUR	321	15173.3	9.0
779	BESCOM	DIBBURAHALLI_66	F03-ANEMADUGU	297	13489.7	8.7
780	BESCOM	MELUR_66	F04-BHAKTARAHALLI	203	7603.4	7.2
781	BESCOM	SADALI_66	F04-S VENKATAPURA	221	6997.9	6.1
782	BESCOM	DIBBURAHALLI_66	F05-DODDATEKHALLI	291	12129.0	8.0
783	BESCOM	JANGAMAKOTE_66	F06-SUGATOOR	139	4243.9	5.8
784	BESCOM	JANGAMAKOTE_66	F07-BALUVANAHALLI	237	6973.9	5.6
785	BESCOM	CHEEMANGALA_66	F07-CHEEMANGALA	521	14650.0	5.4
786	BESCOM	SADALI_66	F09-SONNAGANAHALLI	177	7558.3	8.2

787	BESCOM	NALLIMARADAHALLI	F-1 GOLLU	272	11426.7	8.0
788	BESCOM	NALLIMARADAHALLI	F-3 RAMADEVARAGUDI	306	13255.3	8.3
789	BESCOM	NALLIMARADAHALLI	F-5 GANGREKALUVE	276	13060.0	9.1
790	BESCOM	NALLIMARADAHALLI	F-6GUNDLAGURKI	309	10860.0	6.7
791	BESCOM	NALLIMARADAHALLI	F-7DEVASTHANAOHALLI	329	12732.0	7.4
792	BESCOM	NALLIMARADAHALLI	F-9ANGREKANAHALLI	356	11693.3	6.3
793	BESCOM	CHIKKABALLAPURA TOWN	F-3PERESANDRA	519	14753.3	5.4
794	BESCOM	CHIKKABALLAPURA TOWN	F-5MANCHANABELE	481	17053.3	6.8
795	BESCOM	CHIKKABALLAPURA TOWN	F-6SIDLAGHATTA	502	21133.3	8.1
796	BESCOM	CHIKKABALLAPURA TOWN	F-9DIBBUR	248	7213.3	5.6
797	BESCOM	CHIKKABALLAPURA TOWN	F-10HOSAHUDYA	615	18053.3	5.6
798	BESCOM	CHIKKABALLAPURA TOWN	F-4MANCHENAHALLI	640	22886.7	6.8
799	BESCOM	CHIKKABALLAPURA IA	F-14MYLAPPANAHALLI	326	9446.7	5.5
800	BESCOM	Somenahalli 66/11 KV	F-1 Dinnahally	279	9373.3	6.4
801	BESCOM	Peresandra 66/11 KV	F2-Varlakonda	273	11962.7	8.4
802	BESCOM	Vatadahosahalli 66/11 KV	F-5 Lakkasandra	199	6006.7	5.8
803	BESCOM	Vatadahosahalli 66/11 KV	F-6 Hulikunte	223	10913.3	9.4
804	BESCOM	Vatadahosahalli 66/11 KV	F-8 Jeelakunte	210	10215.3	9.3
805	BESCOM	G.Kothur 66/11 KV	F-3 Gudapalli	131	3726.7	5.4
806	BESCOM	G.Kothur 66/11 KV	F-7 Yellodu	245	8586.7	6.7
807	BESCOM	G.Kothur 66/11 KV	F-10 Cholashetty halli	336	10220.0	5.8
808	BESCOM	D.Palya 66/11 KV	F-4 Chinchanaahalli	209	8880.0	8.1
809	BESCOM	D.Palya 66/11 KV	F-7 Hudugur	288	8893.3	5.9
810	BESCOM	THONDEBHAVI_66	F01-POTHENAHALLY	124	4493.6	6.9
811	BESCOM	VIDHURASHWATHA_66	F01-RAMACHANDRAPURA	187	8504.1	8.7
812	BESCOM	Chakavelu	F11-RAMANPADI	378	18526.7	9.4
813	BESCOM	Chelur	F02-CHELUR-EXPRESS	497	14960.0	5.8
814	BESCOM	Chelur	F03-VENKATAPURA	129	6193.3	9.2

815	BESCOM	Julapalya	F02-PEDDANAGARLU	328	10716.7	6.3
816	BESCOM	Julapalya	F04-CHOKKAMPALLI	240	9706.7	7.7
817	BESCOM	Somanathapura	F04-THIMMASANDRA-NEW	526	15993.3	5.8
818	BESCOM	Somanathapura	F07-THIMMASANDRA-OLD	130	4403.3	6.5
819	BESCOM	Somanathapura	F08-OLD-BILLUR	307	9996.7	6.2
820	BESCOM	DCROSS_66	F09-RAJAGHATTA	412	18937.0	8.8
821	BESCOM	DCROSS_66	F12-HEGGADIHALLI	452	13518.9	5.7
822	BESCOM	DODDABELAVANGALA_66	F01-HADRIPURA	530	20443.1	7.4
823	BESCOM	DODDABELAVANGALA_66	F02-DODDABELVANGALA	473	14938.5	6.0
824	BESCOM	DODDABELAVANGALA_66	F04-HULIKUNTE	554	20485.5	7.1
825	BESCOM	DODDABELAVANGALA_66	F05-HUSKUR	489	15128.5	5.9
826	BESCOM	DODDABELAVANGALA_66	F06-SASALU	325	16020.8	9.4
827	BESCOM	DODDABELAVANGALA_66	F07-SAKKAREGOLLAHALLI	510	16814.5	6.3
828	BESCOM	DODDABELAVANGALA_66	F08-KOLIGERE	401	14778.1	7.1
829	BESCOM	GUNDAMGERE_66	F04-SULAKUNTE	227	9082.2	7.7
830	BESCOM	GUNDAMGERE_66	F05-UJJANI	297	15877.0	10.2
831	BESCOM	GUNDAMGERE_66	F06-HOSAHALLI	340	14530.7	8.2
832	BESCOM	KANASWADI_66	F01-OUR-NATIVE-VILLAGE	156	5135.3	6.3
833	BESCOM	KANASWADI_66	F07-KANNAMANGALA	207	9869.6	9.1
834	BESCOM	KANASWADI_66	F08-RAMDEVANAHALLI	141	4103.0	5.6
835	BESCOM	TUBUGERE_66	F06-MACHAGONDANAHALLI	513	15175.9	5.7
836	BESCOM	TUBUGERE_66	F08-GANTIGANAHALLI	112	5615.3	9.6
837	BESCOM	66/11 KV Nelamangala	F19-T-BEGUR-AGRI	213	8916.2	8.0
838	BESCOM	220/66/11 KV Dabaspete	F02-DEVARAHOSAHALLI-AGRI	352	17056.4	9.3
839	BESCOM	220/66/11 KV Dabaspete	F03-DABBESPET-RURAL-AGRI	561	25334.8	8.6
840	BESCOM	66/11 KV Thyamgondlu	F04-KALLALUGHATTA-AGRI	230	10801.3	9.0
841	BESCOM	66/11 KV Thyamgondlu	F05-GUNDENAHALLI-AGRI	312	15577.6	9.6
842	BESCOM	66/11 KV MUSS Nandagudi	F4 Ittasanadra	291	13731.0	9.0

843	BESCOM	66/11 KV MUSS Pillagumppa	F8 Korati	145	4650.0	6.1
844	BESCOM	66/11 KV MUSS Sulibele	F1 Kammasanadra	239	11264.5	9.0
845	BESCOM	66/11 KV MUSS Sulibele	F3 Ankonahalli	431	19101.3	8.5
846	BESCOM	220/66/11 KV Ekarajapura	F1 Muthsandra	51	2383.2	8.9
847	BESCOM	220/66/11 KV Ekarajapura	F7 Begure	200	7695.8	7.4
848	BESCOM	Devanahalli	F5-Yeliyur	472	16949.9	6.9
849	BESCOM	Devanahalli	F13-Kannamangala	355	12683.2	6.8
850	BESCOM	Devanahalli	F15-Channarayapatna	441	16792.1	7.3
851	BESCOM	Vijayapura	F3-Narayanapura	523	15469.2	5.7
852	BESCOM	Vijayapura	F-8 Beediganahalli	289	9120.0	6.0
853	BESCOM	Vijayapura	F6-Varadenahalli	299	12274.5	7.9
854	BESCOM	Budigere	F- 3 Nallur	386	12315.6	6.1
855	BESCOM	Budigere	F- 4 Kaggalahalli	386	13966.0	6.9
856	BESCOM	Budigere	F-8 Gangawara	374	12105.2	6.2
857	BESCOM	KIADB D B Pura	F10-Jalige	232	8580.8	7.1
858	BESCOM	Kundanna	F-5 Ramanathapura	156	8590.0	10.5
859	BESCOM	Kundanna	F-8 Singarahalli	126	5556.8	8.4
860	BESCOM	HOSAKOTE	HF8-Dasarahalli	482	14505.2	5.8
861	BESCOM	PILLAGUMPA	PF7-Doddahullur	286	8675.5	5.8
862	BESCOM	VOLVO	VF3-Yalachalli	371	15237.3	7.9
863	BESCOM	AVAREGERE_66	F02-HONNUR	365	12052	6.3
864	BESCOM	AVAREGERE_66	F03-BASAVANALLU	304	9488	6.0
865	BESCOM	AVAREGERE_66	F06-KADAJJI	440	13670	5.9
866	BESCOM	AVAREGERE_66	F11-IGURU	485	14755	5.8
867	BESCOM	KUKKAWADA_66	F05-MATHI	439	13262	5.8
868	BESCOM	KUKKAWADA_66	F06-KUKKAWADA	147	4142	5.4
869	BESCOM	KUKKAWADA_66	F11-NAGARASANAHALLI	252	8009	6.1
870	BESCOM	Jagalur_66	JF2-Toranagatte	352	11263	6.1

871	BESCOM	Pallagatte_66	PF7-Madrahalli	515	16925	6.3
872	BESCOM	Bilichodu_66	Muggidaragihalli	210	8141	7.4
873	BESCOM	Channagiri_66	Ajjihalli	614	26747	8.3
874	BESCOM	Channagiri_66	Mavinahole	366	15264	8.0
875	BESCOM	Channagiri_66	Akklikatte	263	13842	10.1
876	BESCOM	Channagiri_66	Honnebagi	433	17489	7.7
877	BESCOM	Goppenahalli_66	Pandomatti	239	11443	9.2
878	BESCOM	Goppenahalli_66	Savedlu	318	9991	6.0
879	BESCOM	Goppenahalli_66	Malahal	583	22548	7.4
880	BESCOM	Goppenahalli_66	Goppenahalli	256	8403	6.3
881	BESCOM	Goppenahalli_66	Kanchiganahal	343	12799	7.1
882	BESCOM	Lingadahalli_66	Asthapanahalli IP	257	8217	6.1
883	BESCOM	Mavinakatte_66	Dondragatta	159	6644	8.0
884	BESCOM	Mavinakatte_66	Madenahalli	174	5324	5.9
885	BESCOM	Mavinakatte_66	BRT MVK	247	8641	6.7
886	BESCOM	Mavinakatte_66	Mavinakatte IP	207	7499	6.9
887	BESCOM	Tavarekere_66	Nellihankalu	314	8839	5.4
888	BESCOM	Santhebennur_66	F-02 SIDDANAMATA	860	28887	6.4
889	BESCOM	Santhebennur_66	F-08 TANIGERE	670	24590	7.0
890	BESCOM	Thyvanagi_66	F-01 NALKUDARE	468	15603	6.4
891	BESCOM	Basvapatna_66	F-04 CHIRADONI	355	16032	8.6
892	BESCOM	Basvapatna_66	F-11 BASAVAPATTANA	361	12110	6.4
893	BESCOM	HONNALI_66	F10-KONANTHALE	564	16660.44	5.7
894	BESCOM	NYAMATHI_66	F01-KODIKOPPA	80	3369.70	8.1
895	BESCOM	HARAPPANAHALLI_66	F06-HPHALLI-RURAL-I.P	347	13873.97	7.7
896	BESCOM	HALUVAGALU_66	F03-THALEDHAHALLI	225	7775.34	6.6
897	BESCOM	HARAPPANAHALLI_66	F02-KANCHIKERE	399	13848.49	6.6
898	BESCOM	HARAPPANAHALLI_66	F09-ADAVIMALLAPURA	187	9008.88	9.2

899	BESCOM	KURUBARAHALLI_66	F09-SHANKRAHALLI	359	11868.49	6.3
900	BESCOM	Chitradurga	Haykal	632	20091	6.1
901	BESCOM	Chitradurga	Turuvanur	412	14692	6.8
902	BESCOM	Hireguntanuru	Chickpura	427	13822	6.2
903	BESCOM	Hireguntanuru	Bheemsamudra	395	14176	6.9
904	BESCOM	Hireguntanuru	Vadrapalya	378	20975	10.6
905	BESCOM	Hireguntanuru	Bheemeswra Templee	284	10987	7.4
906	BESCOM	Pandarahalli	Siddapura	372	15161	7.8
907	BESCOM	Pandarahalli	Godabanahal	598	21973	7.0
908	BESCOM	Pandarahalli	Kavalahatti	207	8580	7.9
909	BESCOM	Pandarahalli	Singapura	458	14369	6.0
910	BESCOM	Pandarahalli	Kurubarahalli	564	20303	6.9
911	BESCOM	Pandarahalli	Janukonda	443	18800	8.1
912	BESCOM	Bharamasagara	Nallikatte	624	25335	7.8
913	BESCOM	Sirigere	Siddapura	450	24425	10.4
914	BESCOM	Sirigere	Halavuadra	450	16490	7.0
915	BESCOM	Sirigere	Alagavadi	502	21655	8.3
916	BESCOM	Sirigere	Obavvanagthihalli	630	24647	7.5
917	BESCOM	Sirigere	Cheelangi	322	12860	7.6
918	BESCOM	CHITRAHALLI_66	F08-SHIVAGANGA	226	9524	8.1
919	BESCOM	HDPURA_66	F01-T-NULENUR	322	10604	6.3
920	BESCOM	CHITRAHALLI_66	F01-ECHAGHATTA	194	6646	6.6
921	BESCOM	HDPURA_66	F03-BOODIPURA	222	6571	5.7
922	BESCOM	HDPURA_66	F09-THEKALAVATTY	457	21120	8.8
923	BESCOM	HOLALKERE_66	F02-GOWDIHALLI	411	14056	6.5
924	BESCOM	HOLALKERE_66	F09-GILIKENAHALLI	212	7746	7.0
925	BESCOM	RAMAGIRI_66.	F07-KALAKERE	444	17191	7.4
926	BESCOM	RAMAGIRI_66.	F08-RNULANUR	304	12921	8.1

927	BESCOM	SASALUHALLA_66	F03-MUTTUGADURU	187	10181	10.4
928	BESCOM	SASALUHALLA_66	F07-DANDIGENAHALLI	294	10348	6.7
929	BESCOM	SASALUHALLA_66	F08-HIREHEMMIGANUR	393	13054	6.4
930	BESCOM	SASALUHALLA_66.	F04-KALGHATTA	249	11129	8.6
931	BESCOM	SASALUHALLA_66.	F05-ANDANUR	383	11546	5.8
932	BESCOM	BAGUR_TMK_66	F06-SRPURA	265	7871	5.7
933	BESCOM	BAGUR_TMK_66	F07-ANIVALA	286	8647	5.8
934	BESCOM	HALURAMESHWARA_66	F03-JANKAL	463	20549	8.5
935	BESCOM	HALURAMESHWARA_66	F07-MADADAKERE	451	14972	6.4
936	BESCOM	BHARAMAGIRI_66	F04-V.V.PURA	354	14407	7.8
937	BESCOM	BHARAMAGIRI_66	F05-A.V.KOTTEGE	313	8997	5.5
938	BESCOM	BHARAMAGIRI_66	F07-BHOOTHAYANAHATTI	256	13018	9.7
939	BESCOM	HARIYABBE_66	F07-HOOVINAHOLE	255	14304	10.7
940	BESCOM	HINDASGHATTA_66	F03-RANGAPURA	286	9909	6.6
941	BESCOM	HINDASGHATTA_66	F04-SOMERAHALLY	347	12685	7.0
942	BESCOM	HINDASGHATTA_66	F05-ARISHINAGUNDI	518	20121	7.4
943	BESCOM	HINDASGHATTA_66	F08-KURUBARAHALLI	361	13710	7.3
944	BESCOM	HIRIYUR_220	F04-VVPURA	369	11872	6.2
945	BESCOM	IMANGALA_66	F06-BURUJINAROOPPA	342	12526	7.0
946	BESCOM	JAVAGONDANAHALLI_66	F03-JAVAGONDANAHALLI	363	13591	7.2
947	BESCOM	JAVAGONDANAHALLI_66	F06-OBALAPUR	150	7851	10.0
948	BESCOM	JAVAGONDANAHALLI_66	F10-SURAPPANAHATTY	278	9434	6.5
949	BESCOM	RANGANATHAPURA_66	F01-KUNDALAGURA	292	15709	10.3
950	BESCOM	RANGANATHAPURA_66	F03-UPPALAGERE	265	14387	10.4
951	BESCOM	RANGANATHAPURA_66	F05-PITTLALI	342	15819	8.9
952	BESCOM	RANGANATHAPURA_66	F06-ALURU	443	12754	5.5
953	BESCOM	CHALLAKERE	F03-DUGGAVARA	548	18411	6.4
954	BESCOM	CHALLAKERE	F04-REDDIHALLY	588	19353	6.3

955	BESCOM	CHALLAKERE	F06-NANNIVALA	563	21813	7.4
956	BESCOM	SANIKERE	F01-HULIKUNTE	415	15029	6.9
957	BESCOM	SANIKERE	F02-KAMMATHMARIKUNTE	252	11373	8.6
958	BESCOM	SANIKERE	F04-SANIKERE	365	15117	7.9
959	BESCOM	SANIKERE	F06-HEGGERE	297	8591	5.5
960	BESCOM	SANIKERE	F07-GOPANAHALLY	203	6566	6.2
961	BESCOM	MYLANAHALLY	F05-MYLENAHALLI	557	17820	6.1
962	BESCOM	MYLANAHALLY	F01-OBALAPURA	554	17520	6.1
963	BESCOM	MYLANAHALLY	F06-THIPPEREDIHALLY	451	16613	7.1
964	BESCOM	MYLANAHALLY	F07-GUDIHALY	389	11000	5.4
965	BESCOM	P.R PURA	F03-T.N.KOTE	430	14067	6.3
966	BESCOM	P.R PURA	F01-DODDACHELLUR.	865	28467	6.3
967	BESCOM	P.R PURA	F02-CHOULUR(NAGARAMAGERE)	530	22670	8.2
968	BESCOM	P.R PURA	F04-MAHADEVPUA	333	10891	6.3
969	BESCOM	P.R PURA	F08-KORLAKUNTE	274	13442	9.4
970	BESCOM	DYVARANAHALLY	F04-KARIKERE	661	22269	6.4
971	BESCOM	BALENAHALLY	F08-BAALENAHALLY	312	13291	8.2
972	BESCOM	KALAMARAHALLY	F01-GORALATTU	295	12407	8.1
973	BESCOM	NAYAKANAHATTY	F08-REKALAGERE	441	17880	7.8
974	BESCOM	NAYAKANAHATTY	F11-MALLURAHALLY	263	10998	8.0
975	BESCOM	NAYAKANAHATTY	F01-GOWDIGERE	491	14135	5.5
976	BESCOM	NAYAKANAHATTY	F06-NELGETHNAHATTY	458	18820	7.9
977	BESCOM	NAYAKANAHATTY	F10-TOREKOLAMMANAHALLY	378	14363	7.3
978	BESCOM	B.G.KERE	F01-GOWRASAMUDRA	169	6313	7.2
979	BESCOM	HONNAVALLI_110	F10-PATREHALLI	195	5516.6	5.4
980	BESCOM	NONAVINAKERE_110	F03-GUNGURUMALE	187	6299.4	6.4
981	BESCOM	Ammasandra	F12 - C.N.Halli	469	13224.4	5.4
982	BESCOM	Kadehalli	F1 - Devanayakanahalli	275	9170.5	6.4

983	BESCOM	Kadehalli	F2 -Kadehalli	322	9091.8	5.4
984	BESCOM	Kadehalli	F3 - Are Mallenahalli	220	8053.0	7.0
985	BESCOM	Kadehalli	F7 - Dabbehatta	508	14382.9	5.4
986	BESCOM	Thandaga	F3 - Aayarahalli	432	12419.2	5.5
987	BESCOM	Thandaga	F4 - Aanemale	234	7697.8	6.3
988	BESCOM	Thandaga	F5- Puttamadihalli	287	9227.9	6.2
989	BESCOM	TURUVEKERE	F4-Kallanakere	210	7157.0	6.5
990	BESCOM	TURUVEKERE	F7-Hulikere	80	2277.3	5.4
991	BESCOM	TURUVEKERE	F8-Anekere	396	12617.1	6.1
992	BESCOM	SAMPIGE	F-3 Byadarahalli	166	6155.1	7.1
993	BESCOM	SAMPIGE	F-5 Mallenahalli	163	5823.7	6.8
994	BESCOM	SAMPIGE	F-6 Sampige	238	7633.4	6.1
995	BESCOM	SAMPIGE	F-7 Angarekhanahalli	148	6593.4	8.5
996	BESCOM	DASUDI_66	F02-DASUDI	293	8752.1	5.7
997	BESCOM	TIMMANAHALLI_110	F02-LAKKENAHALLI	204	7139.9	6.7
998	BESCOM	HANDANKERE_110	F03-BOMMENAHALLI	352	9982.1	5.4
999	BESCOM	DASUDI_66	F03-THAMMANANA GUDDE	400	11853.4	5.7
1000	BESCOM	HULIYAR_110	F03-YALANADU	329	10296.4	6.0
1001	BESCOM	CHIKKANAYAKANAHALLI_110	F04-BAVANAHALLI	207	6466.15	6.0
1002	BESCOM	TIMMANAHALLI_110	F04-THIMMANALLI	342	9752.05	5.5
1003	BESCOM	HANDANKERE_110	F04-YENNEGERE	356	10536.74	5.7
1004	BESCOM	BUKKAPATNA_66	F05-BELLARA	970	32075.14	6.3
1005	BESCOM	CHIKKANAYAKANAHALLI_110	F05-BULLENAHALLI	243	7085.96	5.6
1006	BESCOM	HANDANKERE_110	F05-HANDANKERE	18	506.27	5.4
1007	BESCOM	HULIYAR_110	F06-SOMANAHALLI	131	5004.36	7.3
1008	BESCOM	HULIYAR_110	F07-DODDABIDARE	476	14382.91	5.8
1009	BESCOM	TIMMANAHALLI_110	F08-KANDIKERE	326	9249.90	5.4
1010	BESCOM	SHETYKERE_110	F09-BENAKANAKATTE	162	5339.57	6.3

1011	BESCOM	TIMMANAHALLI_110	F10-AGGIGUDDE	167	6090.98	7.0
1012	BESCOM	CHIKKANAYAKANAHALLI_110	F10-SALAKATTE	299	9640.73	6.2
1013	BESCOM	Madhugiri 220/66/11 KV	F-8 BANDREHALLY	352	11414.79	6.2
1014	BESCOM	Madhugiri 220/66/11 KV	F-9 SHAMBOONAHALLY	257	10395.62	7.7
1015	BESCOM	Madhugiri 220/66/11 KV	F-10 AMARAVATHI	407	11546.30	5.4
1016	BESCOM	Madhugiri 66/11 KV	F-2 MADHUGIRI	85	3095.04	7.0
1017	BESCOM	Madhugiri 66/11 KV	F-3 CHINAKAVAJRA	363	10283.84	5.4
1018	BESCOM	Madhugiri 66/11 KV	F-4 BHOOTHANAHALLY	331	12440.55	7.2
1019	BESCOM	Madhugiri 66/11 KV	F-9 SIDDAPURA	247	9429.04	7.3
1020	BESCOM	Madhugiri 66/11 KV	F-10 DABBEGHATTA	507	16589.59	6.3
1021	BESCOM	BADAVANAHALLY 66/11	F-2 KAVANADALA	408	13505.75	6.3
1022	BESCOM	BADAVANAHALLY 66/11	F-3 SIDADARAGALLU	354	10086.58	5.5
1023	BESCOM	BADAVANAHALLY 66/11	F-4 DODDERI	307	12683.84	7.9
1024	BESCOM	BADAVANAHALLY 66/11	F-5 KARPENAHALLY	345	11658.08	6.5
1025	BESCOM	BADAVANAHALLY 66/11	F-8 J N PALYA	302	13578.08	8.6
1026	BESCOM	BADAVANAHALLY 66/11	F-9 BANAGARAHALLY	332	14560.44	8.4
1027	BESCOM	PULAMAGHATTA 66/11 KV	F-2 KOTAGARALAHALLY	226	6364.93	5.4
1028	BESCOM	PULAMAGHATTA 66/11 KV	F-3 BASAVANAHALLY	294	10053.70	6.5
1029	BESCOM	PULAMAGHATTA 66/11 KV	F-6 THONACHAGONDANAHALLY	279	10382.47	7.1
1030	BESCOM	PULAMAGHATTA 66/11 KV	F-7 KITHAGALI	241	7647.12	6.1
1031	BESCOM	HOSAKERE 66/11 KV	F-1 DASENAHALLY	409	13558.36	6.3
1032	BESCOM	HOSAKERE 66/11 KV	F-5 NEELIHALLY	319	10990.06	6.6
1033	BESCOM	HOSAKERE 66/11 KV	F-6 BRAMASANDRA	386	12310.85	6.1
1034	BESCOM	HOSAKERE 66/11 KV	F-8 NERALEKERE	408	16180.54	7.6
1035	BESCOM	MIDAGESHI66/11 KV	F-4 M N HALLY	379	12164.38	6.1
1036	BESCOM	Kodigenahalli	F-7 Singanahalli	413	12025.00	5.6
1037	BESCOM	Kodigenahalli	F-8 Kodlapura	159	6599.42	7.9
1038	BESCOM	Kodigenahalli	F-9 Kadagaturu	398	11743.73	5.6

1039	BESCOM	SIRA	F6-Madalur, New	400	12602.08	6.0
1040	BESCOM	SIRA	F-14-Gajamaranahalli	388	12572.71	6.2
1041	BESCOM	SIRA	F-15-Bandhakunte	412	13862.74	6.4
1042	BESCOM	C.B.GERE	F-1-C.B.GERE	344	11027.67	6.1
1043	BESCOM	C.B.GERE	F-2-Hulikunte	242	7193.48	5.7
1044	BESCOM	C.B.GERE	F-3-Kotti	500	16881.64	6.5
1045	BESCOM	C.B.GERE	F-4-Karehalli	333	10572.55	6.1
1046	BESCOM	C.B.GERE	F-7-Baragur	312	12296.74	7.5
1047	BESCOM	C.B.GERE	F-8-Agrahara	307	9553.37	6.0
1048	BESCOM	C.B.GERE	F-9-K R halli	345	10351.34	5.7
1049	BESCOM	GULIGENAHALLI	F-1-Yaragunte	319	9501.92	5.7
1050	BESCOM	GULIGENAHALLI	F-4- Magodu	284	8355.62	5.6
1051	BESCOM	GULIGENAHALLI	F-6-Guligenahally	340	10437.81	5.9
1052	BESCOM	GULIGENAHALLI	F-7-Mooganahally	255	7505.75	5.6
1053	BESCOM	BEVINAHALLI	F-1-Changavara	335	10322.41	5.9
1054	BESCOM	BEVINAHALLI	F-2-GC Halli	306	9639.45	6.0
1055	BESCOM	BEVINAHALLI	F-9- Bevinahalli	208	7447.67	6.9
1056	BESCOM	P.N.HALLI	F-1-Huligere	270	12004.38	8.5
1057	BESCOM	P.N.HALLI	F-2-Huchhageeranahalli	319	11852.05	7.1
1058	BESCOM	P.N.HALLI	F-6-Kallahalli	195	9411.56	9.2
1059	BESCOM	P D KOTE	F-3-Bejjihalli	282	8037.81	5.5
1060	BESCOM	P D KOTE	F-4-Chiratahalli	312	11802	7.2
1061	BESCOM	BEVINAHALLI_66	F06-GAJJIGARAHALLI	288	9259	6.2
1062	BESCOM	BEVINAHALLI_66	F07-GOWDAGERE	313	10331	6.3
1063	BESCOM	BEVINAHALLI_66	F08-K-RANGANAHALLI	444	12493	5.4
1064	BESCOM	BEVINAHALLI_66	F12-HOSUR	176	9098.237718	9.9
1065	BESCOM	SIRA_66	F05-DEVARAHALLI	468	14286.17692	5.8
1066	BESCOM	SIRA_66	F11-MANANGI	265	7623.00289	5.5

1067	BESCOM	SIRA_66	F13-BUTHAKATANAHALLI	453	13206.84076	5.6
1068	BESCOM	SIRA_66	F03-MEKERAHALLI	368	13610.99073	7.1
1069	BESCOM	TAVAREKERE(H)_66	F01-MG-HATTI	241	12174.00698	9.7
1070	BESCOM	TAVAREKERE(H)_66	F02-MELLEKOTE	293	8610.918972	5.6
1071	BESCOM	TAVAREKERE(H)_66	F03-DANDIKERE	281	9903.586864	6.7
1072	BESCOM	TAVAREKERE(H)_66	F04-MOSARAKUNTE	358	11460.56971	6.1
1073	BESCOM	TAVAREKERE(H)_66	F05-LAKHSMISAGARA	405	12846.35166	6.1
1074	BESCOM	TAVAREKERE(H)_66	F08-G-RANGANAHALLI	355	13698.74963	7.4
1075	BESCOM	BRAHMASANDRA_66	F01-DODDASEEBI	256	12098.37913	9.0
1076	BESCOM	BRAHMASANDRA_66	F03-YALDABAGI	215	8404.363145	7.5
1077	BESCOM	BRAHMASANDRA_66	F04-MUDIMADU	360	10637.51578	5.7
1078	BESCOM	BRAHMASANDRA_66	F05-HALDODDERI	328	11790.78581	6.9
1079	BESCOM	BRAHMASANDRA_66	F06-BRAHMASANDRA	344	11352.92025	6.3
1080	BESCOM	BRAHMASANDRA_66	F07-AMALAGONDI	335	13661.09964	7.8
1081	BESCOM	BRAHMASANDRA_66	F08-TARUR	496	22715.89506	8.8
1082	BESCOM	BUKKAPATNA_66	F01-BUKKAPATNA	147	5350.233064	7.0
1083	BESCOM	BUKKAPATNA_66	F02-HUNASEKATTE	449	14172.46193	6.0
1084	BESCOM	BUKKAPATNA_66	F03-RAMLINGAPURA	294	13461.10114	8.8
1085	BESCOM	BUKKAPATNA_66	F04-PURA	561	25631.0098	8.7
1086	BESCOM	BUKKAPATNA_66	F07-HUILDORE	361	13346.34791	7.1
1087	BESCOM	BUKKAPATNA_66	F08-SAKSHIHALLI	266	12541.43592	9.0
1088	BESCOM	KALLAMBELLA_66	F02-BHOOPASANDRA	496	17086.21	6.6
1089	BESCOM	KALLAMBELLA_66	F03-KALLAMBELLA	692	21592.19	6.0
1090	BESCOM	KALLAMBELLA_66	F04-GOPALADEVARAHALLI	317	16487.85	10.0
1091	BESCOM	KALLAMBELLA_66	F05-MYSORE-ROAD	351	16174.74	8.8
1092	BESCOM	KALLAMBELLA_66	F07-DODDA-AGRAHARA	601	19278.54	6.1
1093	BESCOM	KALLAMBELLA_66	F08-HALANAHALLI	467	21315.14	8.7

1094	BESCOM	KALLAMBELLA_66	F09-VADDANAHALLI	428	22163.22	9.9
1095	BESCOM	KALLAMBELLA_66	F10-GANGANAHALLI	563	19071.88	6.5
1096	BESCOM	Koratagere	Yelarampura	749	23790.14	6.1
1097	BESCOM	Koratagere	Agrahara	141	5523.29	7.5
1098	BESCOM	Koratagere	Koaratagere Town	647	22290.41	6.6
1099	BESCOM	Hollavanahally	Hollavanahally	119	6587.84	10.6
1100	BESCOM	Madhugiri 220 KV	Balenahalli	44	1827.95	8.0
1101	BESCOM	LINGADAHALLI_TMK2_66	F03-SASALAKUNTE	285	14773.77	9.9
1102	BESCOM	LINGADAHALLI_TMK2_66	F05-NIDGAL	350	10839.34	5.9
1103	BESCOM	LINGADAHALLI_TMK2_66	F07-MUDDAGANAHALLY	316	13068.85	7.9
1104	BESCOM	LINGADAHALLI_TMK2_66	F11-NJY-KENCHAMMANAHALLI	240	7400.00	5.9
1105	BESCOM	MANGALWADA_66	F02-ARASIKERE	574	18639.34	6.2
1106	BESCOM	MANGALWADA_66	F07-KILARLAHALLY	374	15016.39	7.7
1107	BESCOM	MANGALWADA_66	F11-NJY-UDDAGATTE	100	5311.48	10.2
1108	BESCOM	NAGALMADIKE_66	F01-HUSSAINPURA	312	12557.38	7.7
1109	BESCOM	NAGALMADIKE_66	F05-HOSAHALLI	362	15262.30	8.1
1110	BESCOM	NAGALMADIKE_66	F06-B.K.HALLI	367	10468.85	5.5
1111	BESCOM	NAGALMADIKE_66	F07-TIRUMANI-EXPRESS	430	12619.67	5.6
1112	BESCOM	PAVAGADA_66	F02-C.K.PURA	681	25363.93	7.1
1113	BESCOM	PAVAGADA_66	F03-GANGASAGARA	198	9934.43	9.6
1114	BESCOM	PAVAGADA_66	F04-BOMMATHALAHALLY	479	17731.15	7.1
1115	BESCOM	PAVAGADA_66	F05-NEELAMMANAHALLY	260	10754.10	7.9
1116	BESCOM	PAVAGADA_66	F06-RAJAVANTI	276	12439.34	8.6
1117	BESCOM	SHYLAPURA_66	F01-K.T.HALLI	333	14970.49	8.6
1118	BESCOM	SHYLAPURA_66	F02-DEVALAKERE	288	15757.38	10.5
1119	BESCOM	SHYLAPURA_66	F04-VADANAKALLU	367	17026.23	8.9

1120	BESCOM	SHYLAPURA_66	F06-KOTAGUDDA	480	17281.97	6.9
1121	BESCOM	SHYLAPURA_66	F07--MARIDASANAHALLY	573	20586.89	6.9
1122	BESCOM	VENKATAPURA_66	F03-DOMMATHMARI	442	15721.31	6.8
1123	BESCOM	YNHOSKOTE_66	F07--BHEMANAKUNTE	146	7016.39	9.2
1124	BESCOM	YNHOSKOTE_66	F08-HOSADURGA	160	5940.98	7.1
1125	BESCOM	ANTHARASANAHALLY_66	F08-HEBBAKA	437	15348.16	6.7
1126	BESCOM	ANTHARASANAHALLY_67	F14-NARASAPURA	253	14077.81	10.7
1127	BESCOM	ANTHARASANAHALLY_68	F02-SWANDENAHALLY	445	15419.18	6.6
1128	BESCOM	ANTHARASANAHALLY_69	F05-NAVILAHALLY	233	9685.48	8.0
1129	BESCOM	TUMKUR_66	F05-TUMKUR3	171	7111.24	8.0
1130	BESCOM	TUMKUR_67	F07-BELAGUMBA	479	14833.97	5.9
1131	BESCOM	BADIHALLI	BF1 Kittaganahalli	364	10810.96	5.7
1132	BESCOM	BADIHALLI	BF2 Palasandra	507	15391.78	5.8
1133	BESCOM	HIREHALLI	HF8 Hirehalli	407	18500.00	8.7
1134	BESCOM	BADDIHALLI	BF11 Kallahalli	320	13200.00	7.9
1135	BESCOM	BADDIHALLI	BF12 Kesaramadu rural	381	14500.00	7.3
1136	BESCOM	HONNUDIKE 66/11 KV	HNF2 Mulukunte	501	17800.00	6.8
1137	BESCOM	URDIGERE	F3 Devarayanadurga	355	12600.00	6.8
1138	BESCOM	URDIGERE	F4 Devarayanadurga	419	12800.00	5.8
1139	BESCOM	URDIGERE	F5 Sithakallu	337	11000.00	6.2
1140	BESCOM	URDIGERE	F6 Kuruvelu	463	14800.00	6.1
1141	BESCOM	BELLAVI	BF2-DODDERI	430	13733.33	6.1
1142	BESCOM	BELLAVI	BF3-SINGIPURA	442	14320.00	6.2
1143	BESCOM	BELLAVI	BF6-CHANNENAHALLY	339	13280.00	7.5
1144	BESCOM	BELLAVI	BF7-BANAVARA	510	20230.00	7.6
1145	BESCOM	BELLAVI	BF8-AGALAGUNTE	210	10226.67	9.3

1146	BESCOM	BELLAVI	BF12-THIMALAPURA	239	10082.67	8.1
1147	BESCOM	HEGGERE	HF4-MUDIGERE	220	12230.00	10.6
1148	BESCOM	MELEKOTE	MF6-BANAVARA	449	13806.67	5.9
1149	BESCOM	MALLASANDRA	MF6-JOGIRANAHATTY	286	11980.00	8.0
1150	BESCOM	CT KERE	CTF2-KUCHHANGI	210	9968.33	9.1
1151	BESCOM	CT KERE	CTF4-BOMMANAHALLY	260	9470.83	7.0
1152	BESCOM	CT KERE	CTF6-DEVALAPURA	289	12480.67	8.3
1153	BESCOM	CT KERE	CTF7-KARIKERE	291	13388.67	8.8
1154	BESCOM	BELADHARA	BF7-JAKKENAHALLY	253	10126.67	7.7
1155	BESCOM	KORA	KF2-P.GOLLAHALLY	368	12334.07	6.4
1156	BESCOM	KORA	KF3-KURI KEMPAHALLY	280	9952.00	6.8
1157	BESCOM	KORA	KF7-KORA	272	14828.00	10.4
1158	BESCOM	KORA	KF8-KATTIGENA HALLY	226	12693.33	10.8
1159	BESCOM	BELLAVI	TF4-DODDERI	325	12102.67	7.1
1160	BESCOM	BELLAVI	TF7-KESTURU	326	13533.33	7.9
1161	BESCOM	BELLAVI	TF8-GOWRAGONDANAHALLY	350	10058.00	5.5
1162	BESCOM	A.N.HALLY	AF7-MELEHALLY	420	19366.67	8.8
1163	BESCOM	DODDA SARANGI_66	F01-NANDIHALLI	293	13054.82	8.5
1164	BESCOM	DODDA SARANGI_66	F02-DODDASARANGI-IP	275	13926.58	9.7
1165	BESCOM	DODDA SARANGI_66	F04-ADLAPURA	271	9525.04	6.7
1166	BESCOM	HEBBUR_66	F01-HONASIGERE	396	12645.70	6.1
1167	BESCOM	HEBBUR_66	F02-GOVINDARAJAPURA	443	21272.15	9.2
1168	BESCOM	HEBBUR_66	F03-C-S-PURA	256	12173.06	9.1
1169	BESCOM	HEBBUR_66	F05-THONDEGERE	416	14940.10	6.9
1170	BESCOM	HEBBUR_66	F06-C-S-TEMPLE	397	11701.48	5.6
1171	BESCOM	HEBBUR_66	F07-NAGAVALLI	268	10461.11	7.5

1172	BESCOM	HEBBUR_66	F09-BASAVANAGUDI	307	13827.95	8.6
1173	BESCOM	HEBBUR_66	F11-R-M-HALLI	491	18153.21	7.1
1174	BESCOM	HEBBUR_66	F14-KANAKUPPE	369	18185.42	9.4
1175	BESCOM	HEGGERE_66	F01-VOKKODI	96	2843.18	5.7
1176	BESCOM	MALLASANDRA_66	F02-HABBATANAHALLI	367	14286.90	7.5
1177	BESCOM	MALLASANDRA_66	F04-PUTTANAPALYA	211	10076.05	9.1
1178	BESCOM	MELKOTE_66	F05-MELEKOTE(A)	303	13948.93	8.8
1179	BESCOM	MELKOTE_66	F07-HALANOORU	560	18176.88	6.2
1180	BESCOM	MELKOTE_66	F08-KUMKUMANAHALLI	470	19702.36	8.0
1181	BESCOM	THIMMASANDRA_66	F01-BIDRAKATTE	375	13324.27	6.8
1182	BESCOM	THIMMASANDRA_66	F03-DOMMANKUPPE	311	12148.60	7.5
1183	BESCOM	THIMMASANDRA_66	F04-KARIDIGERE	539	16922.30	6.0
1184	BESCOM	THIMMASANDRA_66	F07-G-H-RHISALA	225	8797.81	7.5
1185	BESCOM	ANKASANDRA 66/11 KV	F05-DEVARAHALLI	384	20028.00	10.0
1186	BESCOM	BIDARE 110/11 KV	F03-BIDARE	347	15297.00	8.4
1187	BESCOM	BIDARE 110/11 KV	F05-GOWRIPURA	642	24504.00	7.3
1188	BESCOM	CHELUR 66/11 KV	F11-NIMBEKATTE	345	10698.00	5.9
1189	BESCOM	GUBBI 110/11 KV	F05-THOREHALLI	579	23613.99	7.8
1190	BESCOM	GUBBI 110/11 KV	F08-KOPPA	437	15772.00	6.9
1191	BESCOM	GUBBI 110/11 KV	F09-HERUR	575	18003.00	6.0
1192	BESCOM	GUBBI 110/11 KV	F10-M.H.PATNA	529	17396.00	6.3
1193	BESCOM	KALLUR 110/11 KV	F01-C.S-PURA	106	4597.00	8.3
1194	BESCOM	KALLUR 110/11 KV	F03-KADABA	486	14462.00	5.7
1195	BESCOM	KALLUR 110/11 KV	F04-BYADAGERE	554	18224.00	6.3
1196	BESCOM	KALLUR 110/11 KV	F06-KALLUR	24	799.96	6.4
1197	BESCOM	KALLUR 110/11 KV	F07-K.KALLAHALLI	375	13393.00	6.8

1198	BESCOM	KALLUR 110/11 KV	F10-KURUBARAHALLI	313	10231.00	6.3
1199	BESCOM	KG TEMPLE 110/11 KV	F05-KOPPA	192	7754.00	7.7
1200	BESCOM	KG TEMPLE 110/11 KV	F09-HOSAPALYA	141	5576.39	7.6
1201	BESCOM	UNGRA 110/11 KV	F01-C.N PALYA	165	7252.00	8.4
1202	BESCOM	UNGRA 110/11 KV	F02-KENCHANAHALLI	104	5649.00	10.4
1203	BESCOM	UNGRA 110/11 KV	F09-MANIKUPE	327	14318.00	8.4
1204	BESCOM	NITTUR	Kodihalli	538	16286.00	5.8
1205	BESCOM	NITTUR	Yallapura	612	24376.00	7.6
1206	BESCOM	NITTUR	Sagaranahalli	428	19897.00	8.9
1207	BESCOM	NITTUR	Marashettyhalli	649	21469.00	6.3
1208	BESCOM	NITTUR	Tyagtur	643	25776.97	7.7
1209	BESCOM	NITTUR	BENACHIGERE	452	15297.29	6.5
1210	BESCOM	NITTUR	Hesarahalli	478	19503.15	7.8
1211	BESCOM	NITTUR	Rampura	310	12473.33	7.7
1212	BESCOM	DODDAGUNI	Doddaguni	282	9985.45	6.8
1213	BESCOM	DODDAGUNI	Thaggihalli	294	10694.00	7.0
1214	BESCOM	KADABA	B.Kodihalli	373	15638.00	8.0
1215	BESCOM	KADABA	Kadashettyhalli	364	17869.00	9.4
1216	BESCOM	KADABA	Belavatha	389	17396.36	8.6
1217	BESCOM	KADABA	GANGASANDRA	168	9070.00	10.3
1218	BESCOM	KALLUR	Peddanhalli	481	18182.00	7.2
1219	BESCOM	KALLUR	Manchihalli	350	13254.00	7.2
1220	BESCOM	HOSAKERE	Shivapura	459	20561.82	8.6
1221	BESCOM	HOSAKERE	Hagalavadi	653	36295.00	10.6
1222	BESCOM	HOSAKERE	Manchaladore	253	8465.45	6.4
1223	BESCOM	HOSAKERE	Hoovinakatte	261	7753.64	5.7

1224	BESCOM	HOSAKERE	Kallanahalli	284	12606.06	8.5
1225	BESCOM	HOSAKERE	Hosakere	269	11779.39	8.4
1226	BESCOM	HOSAKERE	Alilughatta	769	25250.00	6.3
1227	BESCOM	HOSAKERE	Bettadahalli	463	15800.61	6.5
1228	BESCOM	SOMALAPURA	M.N Kotte	342	14268.00	8.0
1229	BESCOM	SOMALAPURA	Uddehosakere	348	11865.00	6.5
1230	BESCOM	ANKASANDRA	Gangaiahnapalya	263	11159.00	8.1
1231	BESCOM	ANKASANDRA	Kuntaramana halli	317	13759.00	8.3
1232	BESCOM	Bhaktharahalli	F1 Chikkamalavadi	477	17948.33	7.2
1233	BESCOM	Bhaktharahalli	F2 Taredakuppe	486	17392.67	6.9
1234	BESCOM	Bhaktharahalli	F3 Bhaktharahally	263	7472.67	5.4
1235	BESCOM	Bhaktharahalli	F10 VANIGERE	197	8340.00	8.1
1236	BESCOM	KUNIGAL 66	F1 Nagasandra	386	14653.33	7.3
1237	BESCOM	KUNIGAL 66	F8 Bhaktharahali	374	17026.67	8.7
1238	BESCOM	ANCHEPALYA 66	F4 Begur	435	18176.67	8.0
1239	BESCOM	KEMPANAHALLI 66	F2 Yedehalli	245	12093.33	9.4
1240	BESCOM	KEMPANAHALLI 66	F3 Kempnanahalli	375	11293.33	5.8
1241	BESCOM	KEMPANAHALLI 66	F7 Sigepalya	337	10386.00	5.9
1242	BESCOM	KEMPANAHALLI 66	F1 Haluvagilu	427	12880.00	5.8
1243	BESCOM	KEMPANAHALLI 66	F10 Chanapura	439	15310.96	6.7
1244	BESCOM	HULIYURDURGA_66	F02-YADAWANI	210	6461.26	5.9
1245	BESCOM	HULIYURDURGA_66	F05-UJINI	415	13979.91	6.4
1246	BESCOM	SANTEMVATTUR_66	F5-TARIKERE	248	9954.35	7.7
1247	BESCOM	YADAVANI_66	F03-UNGRA	241	10454.67	8.3
1248	GESCOM	33/11 KV Jambaga	Kalhangarga	586	19,401	6.3
1249	GESCOM	33/11 KV Jambaga	Taj Sultanpur	387	13,895	6.9
1250	GESCOM	110 KV Glb West	Zafarabad	1246	41,141	6.3

1251	GESCOM	110 KV Mahagaon	Jivanigi Ip	856	29,204	6.5
1252	GESCOM	110 KV Mahagaon	Babalad	599	19,961	6.4
1253	GESCOM	110 KV Farthabad	Hagaragundagi	462	21,259	8.8
1254	GESCOM	33/11 KV Ankalga Station	Ballundagi	122	4,804	7.5
1255	GESCOM	33/11 KV Kodla	F2 Handarki IP	250	7,580	5.8
1256	GESCOM	33/11 KV Chimanchod	F4 ChimmanChod	20	1,000	9.6
1257	GESCOM	110 /11 KV MUSS KAMTHANA	KANGANKOT	292	12,888	8.4
1258	GESCOM	111 /11 KV MUSS KAMTHANA	BELLURA	105	3,914	7.1
1259	GESCOM	112 /11 KV MUSS KOLAR	NAUBAD	376	13,908	7.1
1260	GESCOM	33/11 KV BAGDAL	AURAD (s)	348	19,401	10.7
1261	GESCOM	33/11 KV BAGDAL	BAGDAL THANDA	424	18,891	8.5
1262	GESCOM	33/11 KV BAGDAL	HONNADDI	442	18,976	8.2
1263	GESCOM	110 KV Bhalki	HARNAL	250	7,740	5.9
1264	GESCOM	33 KVA MEHKAR	NARDA SANGAM	200	6,666	6.4
1265	GESCOM	33 KVA MEHKAR	HALSI TUGAON	350	9,886	5.4
1266	GESCOM	33 KV BHATAMBRA	LAKHANGAON	220	11,666	10.2
1267	GESCOM	110/11 KV CHIDRI MUSS	IP Amlapur	425	12,605	5.7
1268	GESCOM	33/11 KV MANNALLI	IP Hokrana	261	8,756	6.4
1269	GESCOM	110 KV MUSS NIRNA	Nagankera	247	7,809	6.1
1270	GESCOM	110 KV Koppal	F3-Gondabal	529	25,089	9.1
1271	GESCOM	33 KV Chilakmukki	F3-H.Bommanal	425	16,100	7.3
1272	GESCOM	33 KV Chilakmukki	F4-Methagal	396	16,289	7.9
1273	GESCOM	33 KV Alawandi	F3-WS(IP)	391	12,087	5.9
1274	GESCOM	33 KV Kinnal	F4-Irakalgada	336	15,144	8.6
1275	GESCOM	33 KV Hire Sindogi	F2-H.Sindogi	311	10,437	6.4
1276	GESCOM	33/11 KV Kampasagar	Hitnal Feeder (F2)	298	9,916	6.4
1277	GESCOM	33KV/11 KV Kerehalli	Vanabellary F5	406	20,930	9.9

1278	GESCOM	33KV/11 KV Kerehalli	Narayanpet F10	320	16,161	9.7
1279	GESCOM	33KV/11 KV Kerehalli	Indragi F4	433	13,894	6.1
1280	GESCOM	33KV/11 KV Kerehalli	Hale Kumata F11	202	7,297	6.9
1281	GESCOM	110/11 KV Ginigera	Kunikera F1	463	24,654	10.2
1282	GESCOM	110/11 KV Ginigera	Karkihalli F2	420	19,974	9.1
1283	GESCOM	110/11 KV Ginigera	AllaNagar F5	330	10,703	6.2
1284	GESCOM	110/11 KV Ginigera	Lachankeri F6	332	13,919	8.0
1285	GESCOM	110/11 KV Ginigera	Kalthavaragera F11	499	24,741	9.5
1286	GESCOM	33/11 KV HV KUNTA	F2 Toralakatti (Hunsihal)	632	18,646	5.6
1287	GESCOM	33/11 KV HV KUNTA	F3 Mataladinni	462	18,699	7.7
1288	GESCOM	33/11 KV HV KUNTA	F4 Gunnal	396	14,879	7.2
1289	GESCOM	33/11 KV VAJRABANDI	F1 Salbai	391	20,095	9.8
1290	GESCOM	33/11 KV VAJRABANDI	F2 H.A.Halli	482	18,966	7.5
1291	GESCOM	33/11 KV VAJRABANDI	F4 Konasagar	290	15,312	10.1
1292	GESCOM	33/11 KV KUKNOOR	F1 Goural	190	10,216	10.3
1293	GESCOM	33/11 KV KUKNOOR	F5 Kallur	195	8,678	8.5
1294	GESCOM	33/11 KV MANGALORE	F2 Neljeri	480	17,290	6.9
1295	GESCOM	33/11 KV TALAKAL	F1 Benkal	342	11,272	6.3
1296	GESCOM	110/11 KV BEVOOR	F-1 Bevoor	265	11,129	8.0
1297	GESCOM	110/11 KV BEVOOR	F-2 Guttur	385	12,084	6.0
1298	GESCOM	110/11 KV GANADAL	F-2 HireVaddarakal	291	15,090	9.9
1299	GESCOM	110/11 KV GANADAL	F-4 Chikka Mannapur	195	6,473	6.4
1300	GESCOM	33/11 KV BANDI	F2 Chikkabannigola	195	7,530	7.4
1301	GESCOM	33/11 KV BANDI	F3 Hagedal	240	6,993	5.6
1302	GESCOM	33/11 KV BANDI	F4 Tumbarguddi	200	9,062	8.7
1303	GESCOM	33/11 KV BANDI	F6 Bandi	184	6,383	6.6
1304	GESCOM	Kushtagi 220 KVA RS KST	F4-Kordakera	545	21,127	7.4
1305	GESCOM	Kushtagi 220 KVA RS KST	F3-Hirebannigola (Gjgd)	633	28,792	8.7

1306	GESCOM	33/11 KV Dotihal MUSS	F1- Bijakal	421	17,566	8.0
1307	GESCOM	33/11 KV Dotihal MUSS	F3- Kyadiguppa	251	9,688	7.4
1308	GESCOM	33/11 KV Dotihal MUSS	F4-Kadekoppa	111	4,471	7.7
1309	GESCOM	Hanumasagar 110 KV MUSS	F9 -Yeregera 110 muss I.P.	311	10,819	6.7
1310	GESCOM	Hanumasagar 110 KV MUSS	F1- Hosalli	333	10,996	6.3
1311	GESCOM	Varikal(Hiregonnagar) 110 KV	Gadachinthe F3 IP	291	10,688	7.0
1312	GESCOM	Varikal(Hiregonnagar) 110 KV	Kumblavathi F5 IP	421	14,298	6.5
1313	GESCOM	Varikal(Hiregonnagar) 110 KV	Badimnal (15/12/14) charge	299	9,007	5.8
1314	GESCOM	Chalagera 33 KV	Kalalbandi	421	15,935	7.2
1315	GESCOM	220 KV Raichur	Nelhal	179	5,931	6.3
1316	GESCOM	220 KV Raichur	Marchad	249	8,264	6.4
1317	GESCOM	110 KV APMC Rcr	Shakavadi F7	307	10,165	6.3
1318	GESCOM	33 KV Jawahar Nagar	Bolamdoddi	252	8,359	6.3
1319	GESCOM	33 KV Jawahar Nagar	Singanodi	42	1,377	6.3
1320	GESCOM	110 KV Wadavatti	W4 Wadavatti	345	11,434	6.3
1321	GESCOM	110 KV Wadavatti	W5 Chandraanda	208	6,895	6.3
1322	GESCOM	110 KV Wadavatti	Bapur	321	10,660	6.4
1323	GESCOM	110 KV Wadavatti	W6 Singanodi	238	7,881	6.3
1324	GESCOM	110 KV Shaktinagar	S-3 Arshinigi	204	6,770	6.4
1325	GESCOM	110 KV Shaktinagar	S-11 Korthakunda	261	8,670	6.4
1326	GESCOM	110 KV Shaktinagar	S-12 Mamididoddi	136	4,513	6.4
1327	GESCOM	33 KV Yapaldinni	D.Rampur	106	3,524	6.4
1328	GESCOM	33 KV Yapaldinni	Burdipad	838	27,770	6.3
1329	GESCOM	33 KV Yapaldinni	Arsigera	111	3,674	6.3
1330	GESCOM	33 KV Yapaldinni	Athkur	344	11,400	6.3
1331	GESCOM	33 KV Yapaldinni	Sarjapur	241	7,975	6.3
1332	GESCOM	33 KV Yapaldinni	LIS	196	6,513	6.4

1333	GESCOM	33 KV Yeragera	Gunjahalli IP	461	15,300	6.4
1334	GESCOM	33 KV Yeragera	Idapanur	410	13,599	6.3
1335	GESCOM	33 KV Yeragera	Jambaldinni	245	8,131	6.4
1336	GESCOM	33 KV Yeragera	L.K.Doddi	153	5,086	6.4
1337	GESCOM	110 KV Matmari	Hirapur	437	14,500	6.4
1338	GESCOM	110 KV Matmari	Garaldinni M3 IP	100	3,310	6.3
1339	GESCOM	110 KV Matmari	Purtipali	126	4,173	6.3
1340	GESCOM	33/11 KV Gillesugur	Thungabhadra	82	2,726	6.4
1341	GESCOM	33/11 KV Gillesugur	Panchamuki	382	12,667	6.3
1342	GESCOM	33/11 KV Gillesugur	Bichali	85	2,819	6.3
1343	GESCOM	33/11 KV Gillesugur	Kere Budoor	143	4,756	6.4
1344	GESCOM	110 KV Maliyabad	F6 Maliyabad	58	1,925	6.4
1345	GESCOM	110 KV Maliyabad	F2 Malkapur	248	8,212	6.3
1346	GESCOM	110 KV Maliyabad	F4 Massdoddi	398	13,204	6.4
1347	GESCOM	33 KV Chandrabanda	F1-Arsigera tanda	401	13,298	6.3
1348	GESCOM	33 KV Chandrabanda	F-2 Chandrabanda	100	3,301	6.3
1349	GESCOM	33 KV Chandrabanda	F-4 Maremma Camp	134	4,439	6.3
1350	GESCOM	33 KV Chandrabanda	F-6 Nagandoddi	231	7,652	6.3
1351	GESCOM	110 KV Chikkasugur	C13 Rural	445	14,760	6.3
1352	GESCOM	33 KV Kalmala	F5 Sultanpur9(CB PRBLM)	210	6,974	6.4
1353	GESCOM	33 KV Idapanur	F3 Mirjapur IP	72	2,373	6.3
1354	GESCOM	33 KV Idapanur	F6 Maladoddi IP	175	5,813	6.4
1355	GESCOM	110/11 KV MUSS Manvi	Sangapur F-6	414	13,413	6.2
1356	GESCOM	110/11 KV Matmari	Rajolli M-11	238	7,880	6.3
1357	GESCOM	110/11 KV Matmari	Aroli M-2	76	2,657	6.7
1358	GESCOM	110/11 KV MUSS Walkamdinni	Jeenur IP	293	10,333	6.8
1359	GESCOM	110/11 KV MUSS Madlapur	MadlapurF-3	349	12,929	7.1

1360	GESCOM	110/11 KV MUSS Madlapur	Cheekalparvi	371	12,040	6.2
1361	GESCOM	110/11 KV MUSS Kurdi	Kallur IP	50	2,733	10.5
1362	GESCOM	110/11 KV MUSS Kurdi	Kapgal	189	6,180	6.3
1363	GESCOM	110/11 KV MUSS Byagwat	Saicamp	90	2,833	6.0
1364	GESCOM	110/11 KV MUSS Kavital	Halapur	557	21,729	7.5
1365	GESCOM	110/11 KV MUSS Kavital	Pamana kallur	1328	56,218	8.1
1366	GESCOM	110/11 KV MUSS Kavital	Hussaianpur	396	14,607	7.1
1367	GESCOM	110/11 KV MUSS Sirwar	Athnoor IP	123	5,360	8.3
1368	GESCOM	110/11 KV MUSS Sirwar	Ballatgi	576	22,960	7.6
1369	GESCOM	110/11 KV muss Alkod	Narbanda	509	21,812	8.2
1370	GESCOM	220 KV R/S Lingasugur	Kalapur	376	11,494	5.9
1371	GESCOM	33/11 KV Nagalapur	Nagalapur	271	9,227	6.5
1372	GESCOM	Mavinbhavi 33/11 KV (9972207080)	Chitranal	243	7,641	6.0
1373	GESCOM	110/11 KV MUSS Kurogodu	F-2 Genikihal	280	12,727	8.7
1374	GESCOM	110/11 KV MUSS Kurogodu	F-5 Sindigeri	327	11,495	6.7
1375	GESCOM	110/11 KV MUSS Kurogodu	F-7 Badanahatti	262	8,341	6.1
1376	GESCOM	110 KV MUSS Somasamudra	F2 Somsamudra	200	7,468	7.1
1377	GESCOM	110 KV MUSS Thorangallu	F - 9 Taranagar	241	12,835	10.2
1378	GESCOM	33/11 KV Vittalapura	F-1 Metriki feeder	195	7,976	7.8
1379	GESCOM	33/11 KV Vittalapura	F-2 Rajapura	275	12,000	8.4
1380	GESCOM	66 KV MUSS Chornur	F-7 Bommagatta	236	10,745	8.7
1381	GESCOM	110 KV Tekkalkote	F - 2 Nittur	220	8,437	7.3
1382	GESCOM	110 KV Tekkalkote	F - 5 Buduguppa	143	4,215	5.6
1383	GESCOM	110/11 KV Kamalapura	F-3 Bukkasagara	314	9,205	5.6
1384	GESCOM	66/11 KV Venkatapura	F5 Nandi Bandi	173	7,506	8.3
1385	GESCOM	110/11 KV Kampli	F8 Metri (Ramasagara)	372	13,355	6.9

1386	GESCOM	33/11 KV Ittagi	F2-Sanapur	127	5,317	8.0
1387	GESCOM	33/11 KV Ittagi	F-3-Itigi	255	7,770	5.8
1388	GESCOM	33/11 KV Kampli	F5 Ramasagara(Metri)	285	11,758	7.9
1389	GESCOM	33/11 KV Kampli	F4 Belagodahal	214	8,615	7.7
1390	GESCOM	110/11 KV Metri	F2 Jowk	253	10,693	8.1
1391	GESCOM	110/11 KV Metri	F4 Devalapura	249	10,748	8.3
1392	GESCOM	HADAGALI 66/11 KV MUSS	F-5 Rajawala	406	14,466	6.8
1393	GESCOM	HADAGALI 66/11 KV MUSS	F-9 H.M. Kere	265	12,472	9.0
1394	GESCOM	HADAGALI 66/11 KV MUSS	F-10 Hakkandi	221	6,221	5.4
1395	GESCOM	Magala 66/11 KV MUSS	F4 Hosahalli	240	9,438	7.5
1396	GESCOM	Ittigi 220/66/11 KV RS	F-7 Itigi	296	9,753	6.3
1397	GESCOM	MYLARA 110/11 KV MUSS	F-2 Haravi	140	7,275	9.9
1398	GESCOM	MYLARA 110/11 KV MUSS	F-4 Mylara 1	216	8,273	7.3
1399	GESCOM	MYLARA 110/11 KV MUSS	F-11 Holalu Riverbed	257	7,765	5.8
1400	GESCOM	HP Sagar 66/11 KV MUSS	F-2 Kalvi(E&W)	234	10,910	8.9
1401	GESCOM	S.V.Halli 66/11 KV	F-1 Pura	363	14,254	7.5
1402	GESCOM	Giriyapura 66/1 KV	F-3 Hyarda	393	21,061	10.3
1403	GESCOM	Giriyapura 66/1 KV	F-10 Bannimatti	128	4,212	6.3
1404	GESCOM	66/11 KV MUSS U.P.Halli	F-2 ANKASAMUDRA	325	12,153	7.2
1405	GESCOM	66/11 KV MUSS U.P.Halli	F-3 UP HALLI	282	13,559	9.2
1406	GESCOM	66/11 KV MUSS U.P.Halli	F-4 VARADAPURA	502	14,273	5.4
1407	GESCOM	66/11 KV MUSS U.P.Halli	F-6Marabbihalu	344	12,436	6.9
1408	GESCOM	66/11 KV MUSS T.B.Halli	F-2 BANNIGOLA	128	3,723	5.6
1409	GESCOM	66/11 KV MUSS Hansi	F-6 Upparagatta	192	7,954	7.9
1410	GESCOM	66/11 KV MUSS Morgeri	F-4 Sonna	164	5,134	6.0
1411	GESCOM	66/11 KV Kudligi	F8-Thimmalapura	255	7,809	5.9
1412	GESCOM	66/11 KV Kudligi	F9-Gajapura	158	6,722	8.1
1413	GESCOM	66/11 KV Ujjini	F3-Ujjini	238	8,769	7.1

1414	GESCOM	66/11 KV Ujjini	F5-Kalapura	288	10,092	6.7
1415	GESCOM	66/11 KV C.J.Halli	F2-Thayakanahalli	347	11,379	6.3
1416	GESCOM	66/11 KV C.J.Halli	F3-Hurulihal	374	10,843	5.6
1417	GESCOM	66/11 KV C.J.Halli	F4-Siddapura	303	9,314	5.9
1418	GESCOM	66/11 KV C.J.Halli	F6-Thanda	52	2,090	7.7
1419	GESCOM	66/11 KV Hosahalli	F2-B.Tguddi	180	9,100	9.7
1420	GESCOM	66/11 KV Hosahalli	F4-Pujarahalli	254	9,124	6.9
1421	GESCOM	66/11 KV Hosahalli	F8 H.K.Kunte	166	5,918	6.8
1422	GESCOM	66/11 KV Banvikal	F-2 Banavikallu-B	200	8,635	8.3
1423	GESCOM	66/11 KV Gudekote	F-1 Kasapura	261	7,602	5.6
1424	GESCOM	66/11 KV Gudekote	F2-G.B.Halli	286	10,452	7.0
1425	GESCOM	66/11 KV Gudekote	F-5 Rayapura	286	9,371	6.3
1426	GESCOM	66/11 KV Gudekote	F-8 Gudekote	297	11,093	7.1
1427	MESCOM	SRS Kavoov	Vamanjoor	228	30,186	
1428	MESCOM	110/33/11 KV Konaje Station	Kinnya	202	14,538	
1429	MESCOM	110/11 KV SRS Kavoov	BAJPE	284	20,221	
1430	MESCOM	33/11 KV Mulky	Haleangady	292	20,430	
1431	MESCOM	33/11 KV Katipalla	Kuthethur	261	12,020	
1432	MESCOM	33/11 KV Katipalla	Thadambail	207	38,398	
1433	MESCOM	Puttur [110/33/ 11 KV]	Kabaka	239	11,077	
1434	MESCOM	Puttur [110/33/ 11 KV]	Campco	220	36,033	
1435	MESCOM	Sullia [33/11 KV]	Kolchar	280	6,079	
1436	MESCOM	33/11 KV VAGGA	F3-Moorje	261	6,933	
1437	MESCOM	110/11 KV SALETHUR	Malar	222	5,624	
1438	MESCOM	110/33/11 KV GURUVAYANAKERE	Illanthila	269	13,093	
1439	MESCOM	33/11 KV DHARMASTHALA	F1.D'sthala Temple	226	23,927	
1440	MESCOM	110/11 KV KARAYA	Kudradka	279	7,011	
1441	MESCOM	110/33/11 KV Manipal	KMF	200	38,351	

1442	MESCOM	110/11 KV Nittur	Kudcemp	216	23,300	
1443	MESCOM	220/110/11 KV Kemar	Sanoor	263	9,358	
1444	MESCOM	110/33/11 KV Kundapura	Industrial	225	4,82,758	
1445	MESCOM	110/11 KV Halady	Bailur Express	261	83,293	
1446	MESCOM	Tallur	Hemmady	256	17,590	
1447	MESCOM	Gangolli	Gangolli	256	21,240	
1448	MESCOM	110/11 KV ALKOLA MUSS	AF-1 Srirampura	292	19,306	
1449	MESCOM	110/11 KV ALKOLA MUSS	AF-13 Gejjenhalli	212	22,807	
1450	MESCOM	110/11 KV MUSS Machenahalli	MC F-1 Honnavele	227	9,143	
1451	MESCOM	66/11 KV MUSS Holalur	HF-2 Sominakoppa	222	11,630	
1452	MESCOM	66/11 KV MUSS Holalur	HF-7 Hadonahalli	288	11,919	
1453	MESCOM	110/11 KV MUSS Gajanuru	F-5 Kadekallu	298	9,796	
1454	MESCOM	110/11 KV MUSS Thirthahalli	TF-12 Bavikaisara	246	27,137	
1455	MESCOM	110/11 KV Station Machenahalli	MF-2 Kadadakatte	256	8,408	
1456	MESCOM	Holehonnur	F-6 Agaradhahalli	252	4,333	
1457	MESCOM	Holehonnur	F8 K.K. Magge	205	4,000	
1458	MESCOM	Anandapura Sub Station 110/11 KV (Sagar S/D)	Rippanpete Town	297	18,102	
1459	MESCOM	Anandapura Sub Station 110/11 KV (Sagar S/D)	Arasalu	297	10,781	
1460	MESCOM	Sorab Sub Station 110/33/11 KV.(Sorab S/D)	Pura	258	18,800	
1461	MESCOM	Sorab Sub Station 110/33/11 KV.(Sorab S/D)	Gerukoppa	204	23,600	
1462	MESCOM	110/11 KV	Badadbylu	270	25,981	
1463	MESCOM	110/11 KV	Harishi	279	16,097	
1464	MESCOM	Hulical Sub Station 110/11 KV.(Hosanagara S/d)	KPC Coloney	278	3,179	

1465	MESCOM	ESSUR	F5.Harokoppa)	245	-	
1466	MESCOM	ESSUR	F8 Essur IP	270	4,983	
1467	MESCOM	Shikaripura	F6-kotta	275	16,270	
1468	MESCOM	KITTADAHALLI	F2 - Hosanagara	271	28,416	
1469	MESCOM	HOSSUR	F2- Nallinakoppa	296	6,706	
1470	MESCOM	HOSSUR	F5- Aralahalli	252	9,113	
1471	MESCOM	SANDA	F4 - Kaneya	250	12,433	
1472	MESCOM	SANDA	F5_ Harugaralli	275	8,185	
1473	MESCOM	SHIRALAKOPPA	F3 - Mallenalli	294	14,968	
1474	MESCOM	SHIRALAKOPPA	F-9 Hirejambur	281	21,800	
1475	MESCOM	SHIRALAKOPPA	F-11 Manchikoppa	220	6,000	
1476	MESCOM	SHIRALAKOPPA	F-12 Chikkajambur	242	16,506	
1477	MESCOM	BALLIGAVI	F2-Talagunda	273	15,396	
1478	MESCOM	TOGARSI	F6-Togarsi	258	15,277	
1479	MESCOM	KOTIPURA	F2- KUPPAGADDE	239	27,490	
1480	MESCOM	KOTIPURA	F3-HURALLI	294	27,120	
1481	MESCOM	KOTIPURA	F4-DWARAHALLI	260	21,928	
1482	MESCOM	KOTIPURA	F5-AGASANAHALLI	248	21,193	
1483	MESCOM	KOTIPURA	F9-KUBATURU	263	11,795	
1484	MESCOM	KOTIPURA	F-12 Hasavi	223	26,320	
1485	MESCOM	KOTIPURA	F7-Talagadde	210	-	
1486	MESCOM	KOTIPURA	F-14 ANAVATTI	218	-	
1487	MESCOM	BHARANGI	F1. Tattur	248	20,790	
1488	MESCOM	BHARANGI	F3. Chikkamagadi	271	10,403	
1489	MESCOM	BHARANGI	F9. Yeliwala	295	6,893	
1490	MESCOM	chikkeruru	Malavalli	213	4,996	

1491	MESCOM	Jade	F3-Sooranagi	220	14,680	
1492	MESCOM	Aldur	Shanker falls	277	7,075	
1493	MESCOM	Aldur	Guddadur	252	7,948	
1494	MESCOM	Aldur	Gullanpete	253	10,009	
1495	MESCOM	Muguluvalli Stn	Marle	214	6,826	
1496	MESCOM	Mudigere	Maakonalli	203	17,09,220	
1497	MESCOM	Mudigere	Daaradahalli	234	28,66,080	
1498	MESCOM	Kalasa	Javali	211	21,50,000	
1499	MESCOM	110/11 KV MUSS Tarikere	Attiganalu	228	22,392	
1500	MESCOM	110/11 KV MUSS Neralakere	Medihally	210	10,221	
1501	MESCOM	66/11 KV MUSS Lingadahalli	Gulladamane	249	17,264	
1502	MESCOM	66/11 KV MUSS Lakkavalli	Soppinamatti	203	12,826	
1503	MESCOM	66/11 KV MUSS Duglapura	Station duglapura	228	9,590	
1504	MESCOM	66/11 KV MUSS Duglapura	Jambadahalla	254	14,333	
1505	MESCOM	66/11 KV MUSS Duglapura	Chikkathur	202	9,233	
1506	MESCOM	Panchanahalli	K.Bidare	263	2,979	
1507	MESCOM	Tangli	Mallidevihalli	210	10,207	
1508	MESCOM	Tangli	B H Road (Malleshwara)	225	9,664	
1509	MESCOM	NAGENAHALLI	Hulikere	235	11,033	
1510	MESCOM	NAGENAHALLI	(Nagenahalli) Jiganehalli	233	13,055	
1511	MESCOM	Nidagatta	T B Kavalu	228	14,902	
1512	MESCOM	Byagadehalli 220/110/11 KV muss	K.M Road	209	29,963	
1513	MESCOM	Byagadehalli 220/110/11 KV muss	Kadur Town	200	34,247	
1514	MESCOM	Ajjampura	Channapura	210	24,900	
1515	MESCOM	Shivani	Kanabagatte	280	12,000	
1516	MESCOM	Shivani	Shivani town(b)	256	9,560	

1517	MESCOM	Birur 110/11 KV MUSS	Bettadahalli	253	10,070	
1518	MESCOM	Birur 110/11 KV MUSS	Hullehalli	209	11,272	
1519	MESCOM	Yagati 110/11 KV MUSS	Yagati	222	4,997	
1520	MESCOM	Yagati 110/11 KV MUSS	Singatagere	292	13,469	
1521	MESCOM	Singatagere 110/11 KV muss	Shivaganga giri	220	3,280	
1522	MESCOM	Hirenalluru 110/11 KV muss	Hirenallur	202	9,376	
1523	MESCOM	Balehonnur 66/33/11 KV MUSS	Gadigeshwara F4	200	9,530	
1524	MESCOM	Balehonnur 66/33/11 KV MUSS	Balehonnur F5	235	16,958	
1525	MESCOM	Muthinakoppa 110/33/11 KV MUSS	Muthinakoppa F7	298	23,707	
1526	MESCOM	Muthinakoppa 110/33/11 KV MUSS	K.Kanabur F4	236	21,572	
1527	MESCOM	Koppa	koppa town	237	7,868	
1528	MESCOM	Koppa	Siddaramath-2	248	2,903	
1529	MESCOM	Koppa	Gadical(mescom colony)	236	-	
1530	MESCOM	KAMMARADI	KADTOOR	262	5,368	
1531	MESCOM	Jayapura	Lokanthapura	253	1,353	



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