

POLICY

INSTALLATION OF PREPAYMENT METERS (POLICY NUMBER 11107)

APPROVED BY COUNCIL : 31 JANUARY 2013
C09/01/13

(Revised Policy)

CITY OF CAPE TOWN		ELECTRICITY SERVICES	
Document	POLICY	Reference	CTEP 011
Subject	POLICY RELATING TO THE INSTALLATION OF PREPAYMENT METERS (PPMs)	Revision	2.0
Compiled by	Neil Ballantyne	Review	3 years from approval
Approved	Leslie Rencontré Director : Electricity Services	 Signature	
	Council	Effective Date:	
Supported by: Electricity Services Level 3 Management Team			

CONTENTS

	DESCRIPTION	PAGE
1	Policy objectives	2
2	Abbreviations	2
3	Definitions	2
4	Normative references	2
5	Types of prepayment meter installed	3
6	Circumstances requiring installation	3
7	Basic requirements for the installation of split PPMs	3
8	New connections and any change to the supply connection (single erven, including single erven in group schemes) up to and including 100A, 3 phase	4
9	New connections (blocks of flats or sectional title developments)	4
10	Meter retrofits by consumers on single erven, including single erven in group schemes, up to a connection size of 100 A, 3 phase	5
11	Retrofitted PPMs requested by consumers in bulk metered premises (blocks of flats and full title developments)	5
12	Retrofitted PPMs required by the Department	6
13	Replacement of failed in-service PPMs	7
14	Applications for a second meter to supply another separate dwelling on an erf	7
15	Council owned properties	7
16	General supplies	7
17	The policy for reverting from PPM to conventional (billed) meter	7
18	Recovery of cost via the prepayment vending system	8
Annex A	Prepayment meter policy matrix	9

1. Policy objectives:

- (1) The main objectives of this policy are to promote the installation of split prepayment meters (PPM) in the Department's supply area and standardise the types of metering installation to ensure operational efficiency and consumer equity. The policy deals with both new and existing connections and addresses the different factors dictated by the differing types of dwelling in which these meters are installed, taking technical constraints into consideration.
- (2) The policy must provide cost effective options for new and existing consumers and must be implementable in a manner that is financially sustainable and within the budget adopted annually by Council.
- (3) This policy links with the City's credit control and debt collection policy which provides for the recovery of Municipal account arrears through the prepayment meter system.
- (4) This policy is based on currently available metering technology. The policy will be reviewed as technology changes dictate.
- (5) Detailed technical requirements are set out in the Department's "Electrical Contractors' Guide" document.

2. Abbreviations:

AMI: Advanced metering infrastructure
CIU: Customer interface unit
FLR: First Line Response
MCU: Meter control unit
PCB: Passive common base
PPM: Prepayment meter

3. Definitions:

Customer interface unit: A keypad and display used by the consumer to enter credit into the MCU and display remaining credit in the MCU.

Integrated PPM: A meter control unit and customer interface unit housed in a single enclosure.

Meter control unit: The unit which measures the consumption of electricity and calculates the remaining credit.

Passive common base: A universal base with jaws to accommodate the terminals of a plug-in integrated PPM or CIU. The base has terminals for the connection of the supply and load conductors.

Point of control: The point at which an electrical installation on or in a premises can be switched off by a user from the electricity supplied from the point of supply at the boundary of the property.

Point of supply: The point where the service connection cable crosses the property boundary. It defines the point where the customer's wiring installation is connected to the City's supply network.

4. Normative references:

- (1) City of Cape Town Electricity Supply By-law.
(Sections 4, 5, 8, 41, 42, 43, 44, 45, 46, 47 & 48)
- (2) Credit Control and Debt Collection Policy.
(Section 26)

- (3) City of Cape Town Integrated Development Plan 2012 - 2017
(Programme 1.3)

5. Types of prepayment meter installed:

- (1) Split PPMs are now installed for all new electricity supply connections, as well as for the retrofitting of existing PPMs and conventional (credit/billed) meters, for all domestic and commercial supplies up to and including 100 A 3 phase. Alternatively, an AMI metering solution is available for commercial supplies.
- (2) A split PPM has the metering element (MCU) installed in an accessible kiosk outside the property and has a CIU that is typically installed onto a PCB inside the dwelling. The CIU consists of a display and keypad by means of which the consumer can monitor the consumption of electricity and enter credit into the meter.
- (3) The communication between the two parts can be wireless - mains borne (mains borne PPM) or radio communication (radio frequency PPM) - or by means of pilot wires (pilot wire PPM).
- (4) The choice of which type of split PPM is to be used (mains borne, radio frequency or pilot wire) shall be determined by the Department based on this policy and the circumstances of the particular site.

6. Circumstances requiring PPM installation:

- (1) The requirements for the installation of a split PPM, as set out in this policy, come into effect if:
 - (a) An application is received for a new connection up to and including 100 A, 3 phase.
 - (b) An application is received for a new connection for a block of flats or sectional title development.
 - (c) A consumer requests any change to the supply connection to his/her premises up to and including 100 A, 3 phase.
 - (d) The Department requires a change to the supply connection up to and including 100 A, 3 phase due to changes in the electricity network supplying the premises.
 - (e) A consumer requests a meter retrofit (e.g. from conventional (credit/billed) to PPM).
 - (f) The Department requires the retrofitting of any meter (including split PPMs, integrated PPMs or conventional (credit/billed) meters for any reason as determined by the Department.
- (2) The relative responsibilities in each case are set out in Annex A.

7. Basic requirements for the installation of split PPMs:

- (1) The basic requirements are applicable to all connections and are mandatory for new connections and any change to the supply connection. This allows for future changes in metering technology without physical changes being required to the installation on the consumer's premises/property.
 - (a) The metering element or MCU is to be installed in a street kiosk, a pole-mounted box, or a meter room on the boundary of the property as determined by the Department.
 - (b) Pilot wires (which may be integrated into the supply cable or provided separately in an approved manner) are to be installed between the MCU and the CIU in the dwelling. The consumer is responsible for the integrity of these pilot wires beyond the point of supply.
 - (c) A PCB, supplied by the Department, onto which the CIU is installed shall be fitted in the dwelling in the line of the service mains conductors from the point of supply at the boundary of the premises to the point of control on the main distribution board.

8. New connections and any change to the supply connection (single erven including single erven in group schemes served via public road) up to and including 100A, 3 phase:

- (1) Pilot wire PPMs are installed for all such domestic and commercial connections taking technical considerations into account.
- (2) For new supply connections and consumer requested changes to supply connections, the cost of the split PPM and the PCB is included in the price quoted for the connection. The installation of pilot wires and the Department supplied PCB is to be done by the consumer's electrical contractor at his/her cost.
- (3) The MCU is to be installed in an existing or new meter kiosk or pole-mounted box in the street. In cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, the consumer will be required to install an accessible meter box on the front property boundary wall to house the MCU. If the consumer is registered as indigent, the cost, in respect of a new connection only, will be carried by the Electricity Department.
- (4) For Department required changes to supply connections due to changes in the electricity distribution network, the installation shall be carried out at the cost of the Department. This includes work required on the network, the supply connection to and on the premises, the installation of the split PPM and PCB and the installation wiring changes that are required up to the point of control (the main Distribution Board). Work required within the consumer's property shall be surface mounted and undertaken by an electrical contractor appointed by the Department. If the consumer requires a different installation on their property, all work on the consumer's premises is to be done by the consumer's electrical contractor at his/her cost. The consumer remains responsible for the integrity of the pilot wires beyond the point of supply even when the installation was done by the Department's electrical contractor.
- (5) In all cases, the basic requirements for the installation of split PPMs are set out in Section 7 and connection will not be made until the requirements have been met to the satisfaction of the Department.

9. New connections and any change to the supply connections (blocks of flats and sectional title developments):

- (1) For new connections and any change to the supply connections to blocks of flats and sectional title developments where the design of the complex is such that it is technically feasible to cable from a single common meter room (directly accessible at all times from a public street) to each unit in the complex:
 - (a) Pilot wire split MCUs (one for each unit) shall be installed in the common meter room.
 - (b) Pilot wires shall be installed by an electrical contractor appointed by the body corporate between each MCU in the common meter room and the CIU in each dwelling unit. The body corporate is responsible for the integrity of these pilot wires.
 - (c) A PCB, supplied by the Department, onto which the CIU is installed, shall be fitted in each dwelling unit by the body corporate's electrical contractor, in the line of the supply conductors from the common meter room to the point of control on the main distribution board of each unit.
 - (d) A bulk supply point will not be provided.
- (2) Only where the complex is of such a size that the above arrangement is not physically possible, and distributed metering points within the complex are required from a technical design point of view, are bulk conventional metering systems to be installed. In such large complexes the body corporate will

have to sub-meter the electricity supplied to each dwelling and be responsible for collecting the revenue therefor.

Note: The Department does not allow distributed meter rooms or kiosks to house Department-owned metering, because of the risk that unmetered points can be created which can be tapped into, knowingly or unknowingly, thereby avoiding payment for the electricity consumed and resulting in losses to the Department. Also, the Department cannot maintain and may not be able to access infrastructure on private property.

10. Meter retrofits requested by consumers on single erven, including single erven in group schemes, up to a connection size of 100 A, 3 phase:

- (1) Split PPMs shall be used for retrofit cases to replace existing PPMs or conventional meters for domestic and commercial connections.
- (2) The MCU is to be installed in a street kiosk, a pole-mounted box, or a meter room on the boundary of the property as determined by the Department. In cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, the consumer will be required to install an accessible meter box on the front property boundary wall to house the MCU.
- (3) A PCB, supplied by the Department, onto which the CIU is installed, shall be fitted in the dwelling in the line of the service mains conductors from the point of supply at the boundary of the premises to the point of control on the main distribution board.
- (4) Where the retrofit is requested by the consumer, the installation of the PCB, any installation wiring changes up to the point of control and the erection of a meter box / meter room on the boundary of the property (if required by the Department) shall be carried out by the consumer's electrical contractor at his/her cost.
- (5) Where pilot wires exist, pilot wire split PPMs will be used.
- (6) Wireless split PPMs may be used where pilot wires do not exist or are not operational ONLY if it is technically feasible. If wireless split PPMs are not technically feasible and there is no history of tampering on the premises, an integrated PPM may be installed. Where there is a history of tampering, pilot wires are to be installed between the MCU and the CIU in the dwelling by the consumer's electrical contractor at the consumer's cost. The consumer is responsible for the integrity of these pilot wires beyond the point of supply.

11. Retrofitted PPMs requested by consumers in bulk metered premises (blocks of flats, sectional title developments, and full title developments served via private road):

- (1) The installation of a PPM in an individual dwelling unit forming part of a bulk metered block of flats or group scheme is not possible. The whole block or group has to convert from bulk to individual PPM metering as part of one process.
- (2) Due to technical considerations, only pilot wire PPMs are currently allowed in blocks of flats, sectional title developments and full title developments served via private road. Recognising the cost implications, two options are allowed. Alternatively, the retrofitting could be delayed until such time the policy is reviewed as technology changes dictate.

Option 1:

If the single common meter room is accessible from a public street at all times and if the design of the complex is such that it is technically feasible to cable from the common meter room directly to each

dwelling unit in the complex, pilot wires must be installed by the body corporate's electrical contractor between the MCU installed in the single common meter room (MCUs will be installed by the Electricity Department) and the CIU in each dwelling. The body corporate's electrical contractor shall install a PCB, onto which the CIU is fitted, in each dwelling unit in the line of the supply conductors from the common meter room to the point of control on the main distribution board of the unit. The PCBs are supplied by the Department, and the cost thereof included in the meter cost. The body corporate will be responsible for the maintenance of the pilot wires to ensure communication between MCU and CIU.

Option 2:

The body corporate provides one or more common locations (not within the single common meter room) that will accommodate the CIUs for the dwelling units. The body corporate's electrical contractor must reroute supply and load conductors from the single common meter room to the common CIU location(s). Pilot wires must be installed from each MCU in the common meter room to the corresponding CIU in the common CIU location/s. Each CIU must be housed in a lockable enclosure, for which the consumer will be responsible. The MCUs will be installed in the meter room by the Electricity Department. For this option, the body corporate must consider the consumer and the premises risks, take full responsibility for all matters thereto such as the Consumer Protection Act, Information Act, the security of CIU infrastructure, keypad mounting height and note that, if a CIU is not installed in the dwelling, it does not meet the objective of active consumption monitoring by the consumer.

12. Retrofitted PPMs required by the Department:

(1) The following applies where PPM retrofits are required by the Department:

(a) *Cases of bad debt:*

(b) *Cases of tampering/bypassing the meter:*

(c) *Cases where there is no access to read credit meters located on the premises:*

(i) A PCB, supplied by the Department, onto which the CIU is installed, shall be fitted in the dwelling in the line of the service mains conductors from the point of supply at the boundary of the premises to the point of control on the main distribution board by the consumer's electrical contractor at the consumer's cost.

(ii) The MCU is to be installed in an existing or new meter kiosk or pole-mounted box in the street. In cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, the consumer will be required to install an accessible meter box on the front property boundary wall to house the MCU.

(iii) Where pilot wires exist, pilot wire split PPMs will be used.

(iv) Wireless split PPMs may be used where pilot wires do not exist or are not operational ONLY if it is technically feasible. If wireless split PPMs are not technically feasible and there is not history of tampering on the premises, an integrated PPM may be installed. Where there is a history of tampering, pilot wires are to be installed between the MCU and the CIU in the dwelling by the consumer's electrical contractor at the consumer's cost. The consumer is responsible for the integrity of these pilot wires beyond the point of supply.

(d) *Cases where the consumer is registered as indigent:*

(i) PPMs are installed at the cost of the Electricity Department where individuals have been declared indigent by the Corporate Finance Directorate in terms of the City's Credit Control and Debt Management Policy.

- (ii) A PCB, supplied by the Department, onto which the CIU is installed, shall be fitted in the dwelling in the line of the service mains conductors from the point of supply at the boundary of the premises to the point of control on the main distribution board by the Department's electrical contractor at the Department's cost.
- (iii) The MCU will be installed in an existing or new meter kiosk or pole-mounted box in the street. In cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, the Department will fund and install an accessible meter box on the front property boundary wall to house the MCU.
- (iv) Where pilot wires exist, pilot wire split PPMs will be used.
- (v) Wireless split PPMs may be used where pilot wires do not exist or are not operational ONLY if it is technically feasible. If wireless split PPMs are not technically feasible and there is not history of tampering on the premises, an integrated PPM may be installed. Where there is a history of tampering, pilot wires are to be installed between the MCU and the CIU in the dwelling by the Department's electrical contractor at the Department's cost. The consumer is responsible for the integrity of these pilot wires beyond the point of supply.

13. Replacement of failed in-service PPMs:

A PPM of the same type shall be installed to replace the failed PPM, except where the failed PPM is of the proprietary type, when a PCB shall be installed by the First Line Response team and an integrated PPM shall be fitted.

14. Applications for a second meter to supply another separate dwelling on an erf:

This is dealt with under a separate policy.

15. Council owned properties:

Any application in terms of this policy in respect of Council owned properties must be submitted directly by the responsible Department.

16. General supplies:

Due to public safety considerations, PPMs are not installed on general supplies, (e.g., electrical circuits supplying lifts, gates, common lighting, etc.) These will be metered using an appropriate metering solution and charged according to the commercial tariff as determined by the Department.

17. The policy for reverting from PPM to conventional (credit/billed) meter:

Replacement of a PPM with a credit meter is not permitted as this contravenes the declared objective to move towards prepayment metering. The only exceptions to this policy are where for extreme health reasons the consumer is not physically able to buy credit for the PPM and enter such credit into the PPM, and other special cases as approved by the Director's appointed official. Such replacement will be carried out subject to the payment by the consumer of the actual cost of such work.

Note: With wireless installations the PCB CIU can be supplemented with a portable CIU purchased by the consumer from the manufacturer to provide easier access to the CIU.

18. Recovery of cost via the prepayment vending system:

- (1) Metering costs may be debited to a PPM account on the vending system (known as piggy-backing), to be paid off in instalments as energy credit is bought, in the following instances:
 - (a) The Department levied portion of the cost to retrofit a credit meter with a PPM, if requested by the consumer. This applies to single erven, individually metered single erven in group schemes and PPMs installed in sectional title developments and other group schemes converting from bulk to individual metering.
 - (b) If a consumer cannot afford the cost of relocating a readyboard from a temporary dwelling to a permanent dwelling on an erf.
 - (c) The Department levied portion of the cost (quoted according to current policy for second meters on a property) to replace a credit meter or integrated PPM in the main dwelling with a split PPM where a consumer has requested a second meter but cannot afford the cost.
 - (d) Subsidised connection fees.
 - (e) Where meter tampering has occurred, the adjusted outstanding amount and any contravention fees payable.
 - (f) The cost of the first 50 units loaded onto the PPM when a failed PPM is replaced.
- (2) Piggy-backing is not allowed for new or upgraded supply connections, or any other on-property cost payable by the consumer.
- (3) When a new PPM is installed, the first 50 units are loaded onto the PPM. The cost of this energy credit is factored into the electricity consumption tariff. As the consumer never pays this back, this is not a case of piggy-backing.

ANNEX A: PREPAYMENT METER POLICY MATRIX

Installation	New Connection, or Supply Cable Relocation or Upgrade	Department Required Change to Connection / network ³	Consumer Required Meter Retrofit (single even)	Consumer Required Meter Retrofit (bulk metered premises)	Department Required Retrofit				Meter Failure
					Bad Debt	Tamper	Meter Access Problems ²	Indigent	
Passive common base (PCB)	C	D _s	C	C	C	C	C	D _s	Install like for like meter. FLR installs PCB and integrated PPM if old PPM is proprietary.
Pilot wires	C	D _s	C _s	C _M	C _s	C _s	C _s	D _s	
Meter box ¹	C	D	C	C _R	C	C	C	D	
Meter kiosk	D	D	D	N/A	D	D	D	D	

Notes:

- 1 In cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, the consumer may be required to install an accessible meter box on the front property boundary wall to house the MCU.
- 2 In terms of By-law consumer must pay to relocate meter / have PPM installed
- 3 This includes consolidated overhead to underground projects

Legend:

- C Consumer pays
- D Department pays
- C_s Wireless is first option and therefore pilot wires are not typically required. If wireless option does not work and there is no history of tampering, install integrated PPM. If wireless option does not work and there is tampering history, pilot wires to be installed by customer.
- D_s Department pays for pilot wires, and surface mounted pilot wires and PCB in dwelling. Consumer pays if flush mounted pilot wires and passive common base, or if location of PCB other than in run of supply cable from point of supply to distribution board, is preferred.
- C_M Option 1: Body Corporate installs pilot wires from single common meter room to each unit, or
Option 2: Body Corporate installs pilot wires from single common meter room to CIUs in central location
- C_R Meter room or meter cubicle on property of body corporate, meeting policy requirements, used to house MCUs