Department of Energy & Climate Change

TBDG Design Note

Document Title:	Handling of Prepayment Customers at CoS

Purpose of Paper*	**FOR INFORMATION**	~~**FOR COMMENT**~~	~~**FOR DECISION**~~
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Summary of Document Purpose	To clarify aspects of the smart metering solution that pertain meters operating in Prepayment mode at CoS.		
Submitted By	Mike Bennett, DECC	**Meeting Date**	04/06/2014
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*Delete as appropriate

Approval				
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1. Introduction

1.1 Summary of action required from TBDG

1. TBDG is invited to note this paper and that no changes are required to existing baseline documents (SMETS, CHTS, DCC User Gateway Catalogue) or the drafting of SEC.

2. TBDG is invited to note that a number of suppliers, via Energy UK have considered options for ensuring the continuity of supply for customers whose meters are operating in prepayment mode at the Change of Supplier (CoS) event.

1.2 Identification of the issue

3. This Design Note describes how features of the smart metering solution[1] may be used when handling prepayment (PPM) customers at CoS. The issues addressed are:

- Action by the outgoing supplier to close a prepayment customer's account at CoS
- Steps available to suppliers for ensuring the continuity of supply throughout the CoS event
- Action by the gaining supplier at CoS, in particular to avoid the consumer losing energy supply
- Handling situations where a consumer tries to top-up using the identification details provided by their old supplier

2. Background and Context

4. Legacy (i.e. dumb) prepayment meters have a smart card/key which is paired to a meter and used to transfer information to the meter. Primarily, the card/key is used to transfer top-ups to the meter but it can also be used to transfer other information to the meter, for example to programme the meter to recover debt or to adjust the meter balance.

5. Under existing arrangements, as there is no remote communication capability for legacy prepayment meters, it is essential that the prospective supplier is aware that there is a prepayment meter installed prior to any Change of Supplier event taking place. If they are unaware that there is a prepayment meter installed, then the prospective supplier is not able to issue a new prepayment device (card or key) to the consumer. Currently, suppliers can determine if a prepayment meter is installed either by asking the consumer during the acquisition/sales process, or by retrieving data from the relevant registration systems.

6. At CoS the gaining supplier issues a new card/key (and in many cases resets the balance and parameters such as debt recovery) but the consumer can – and often does – continue to use the existing card/key. Topping up with an 'old key' is still feasible because the card/key is paired to a meter. The PPM Infrastructure Provider (PPMIP) manages a clearing system to ensure that payments taken by vending agents (i.e. Paypoint, PayZone, POCL – the National Service Providers (NSPs)) are transferred to the correct (i.e. the gaining) supplier.

[1] This Design Note covers both electricity and gas. Reference to fuel type is only included where there are specific differences between electricity and gas.

7. Legacy prepayment meters are generally operated on the basis that while the meter displays a running balance, the accounting balance is maintained by the supplier's back office billing system. At CoS the customer's final account is calculated from the billing system and any refund due to the customer is determined from this statement.

8. With smart metering there are a number of critical differences:

    - Smart meters can support both credit and PPM modes of operation. This allows suppliers to change payment mode via remote instruction at CoS (or any other time) without changing the meter
    - There is no card/key with a smart meter. The customer will need to present an ID reference (provided by the supplier) to the vending agent and the supplier will use this to route the top-up to the correct meter
    - There is likely to be a wider range of top-up channels: suppliers may choose to provide top-up services via ATM, call centres, or other innovative options (i.e. beyond the current NSPs)
    - There will be no PPMIP (and associated clearing mechanism): if the consumer presents invalid details at the vending point the transaction will be rejected

3. Smart Metering Design Approach

3.1 Determining the consumer's payment mode?

9. For smart meters, because the payment mode can be changed remotely, without a change of meter, there will be no requirement for registration systems to record whether a smart meter is operating in prepayment mode. Similarly the Payment Mode is not stored in any DCC databases and will not be accessible via the Self Service Interface (SSI).

10. Smart meters differ from legacy meters in that payment mode can be changed remotely in smart meters. Therefore there is no need for the gaining supplier to know the payment mode of a smart metering device and it is expected that a prospective supplier will agree payment mode and tariff with the consumer, make such arrangements (payment IDs) as required and configure the meter accordingly as part of, CoS activities.

11. As under legacy arrangements, there is an on-going assumption that the gaining supplier will advise their customer that the losing supplier will be responsible for settling the closing account and that the Meter Balance will be reset to zero at CoS.

3.2 Closing the old PPM account at CoS

12 The general security principle is that, with a few exceptions[2], Configuration Data (as defined in SMETS2) can only be updated by the supplier whose security credentials are held on the meter (i.e. in normal circumstances this will be the registered supplier).

13 At CoS the gaining supplier will submit an SR6.23 CoS Update Security Credentials service request. DCC will validate the request against its registration data to ensure that the supplier is

[2] The exceptions comprise Network Operators threshold configurations and their Security Credentials,

the current (or pending[3]) registered supplier. If the service request is valid, it will be processed by DCC and the gaining supplier's security credentials will be updated in the meter's configuration data. From this point the gaining – now registered – supplier can update the configuration data, and operational data fields such as Meter Balance.

14 After the security credentials have been updated, the losing supplier will be notified by an alert. that their credentials have been removed from the meter. It should be noted that the COS Update security credentials does not change any configuration data held by the meter other than: future-dated commands which are invalidated; security counter floor values which are reset; and, the supplier name for display which is taken from the new Supplier certificate.

15 From the above it is apparent that the timing of the security credentials update is driven by the gaining supplier. The gaining supplier is required by the Operational Licence Conditions to align this action with Supply Start Date (SSD) as set on the registration system and it is assumed that the losing supplier will close its account with the customer – including rejecting any top-up payments – at SSD.

Risk of losing supply at CoS

16 In exceptional circumstances the gaining supplier may fail to execute the CoS Update Security Credentials at SSD. If the losing supplier closes the consumer's account at SSD and rejects further top-ups, there is a risk that the customer will be unable to top-up the meter until the CoS update is performed.

17 A majority of suppliers have agreed that an effective mitigation of this risk is for the outgoing supplier, as one of their last actions, prior to their Supply End Date (SED) (and potentially a Future Dated command) to issue remote commands via the DCC to put the meter into credit mode and clear down the relevant balances.

18 These actions will be performed before the SR6.23 CoS Update Security Credentials service request is actioned at the meter.

19 Outgoing suppliers may voluntarily elect to take these steps. The likely reason for a COS Update Security Credentials service request to fail is a WAN communications issue and this may inhibit the outgoing suppliers activities as much as the gaining suppliers ability to update Security Credentials.

20 It should be noted that from SSD the gaining supplier is responsible for managing the energy supply . In the event of a failure of the COS Update Security Credentials service request there are a number of options available to gaining suppliers to resolve this situation:

- Invoke DCC Service Management processes to investigate why the COS Update Security Credentials service request has not been actioned
- Contact the consumer to check the status of the SMS – in some cases it could be that the meter has received and actioned the commands but that the response has not been returned to the supplier

[3] If registration is 'pending' the Update Security Credentials command can only be executed at or after Supply Start Date.

- Use of Emergency URTN – the old supplier is still able to generate UTRNs that the meter will continue to accept until CoS Update Security Credentials are updated. This could be a re-active process where the new supplier, once aware that their CoS Update Security Credentials update has failed, contacts the old supplier to ask for an Emergency UTRN; or it could be a pro-active process where the old supplier, once aware that their commands to put the meter into credit mode have failed (should they have elected to do so) sends an Emergency UTRN to the new supplier. Suppliers are considering the merits of both approaches.

- Site visit: the gaining supplier can request the CoS Update Security Credentials and other transactions be returned by DCC for downloading to a handheld terminal (HHT). The supplier can visit the premise and use the HHT to apply its security credentials and reconfigure the meter. The customer can then make top-ups using the payment channels provided by the gaining supplier, using manual entry of UTRN if electronic communications are unavailable

21 In summary, gaining suppliers will be responsible for energy supply from SSD. Losing suppliers may voluntarily elect to set meters into credit mode before SED. Suppliers are considering arrangements to exchange UTRNs instead of undertaking site visits.

Treatment of outstanding balances at CoS

22 As noted above, data items such as the Meter Balance are not changed when the security credentials are updated, and in any event the Meter Balance is generally not the definitive record of the amount owing to / owed by the customer (which is maintained by the supplier's billing system). Equally no arrangements are being developed by SMIP, or collectively by suppliers, to transfer account or meter balances between suppliers at CoS (with the exception of the existing arrangements for prepayment debt assignment as provided in Energy Supply Licences).

23 The losing supplier can retrieve information from the meter at SSD to enable the calculation of a closing account. The Daily Read Log contains register values and the Prepayment Daily Read Log contains Meter Balance, Emergency Credit Balance and Debt Balances as at midnight. Top-up credits and debt payments can be retrieved from the Billing Data Log. All these logs are available to the losing supplier for the period while they were the registered supplier, although it should be noted that they are circular buffers which are overwritten, generally after 31 days. Therefore the losing supplier has until the buffer is over written to retrieve the log. Having calculated the closing balance, the losing supplier will be responsible for refunding any credit balance and/or for recovering any outstanding debts.

3.3 Opening a PPM account at CoS and ensuring continuity of supply

24 The gaining supplier will configure the smart meter according to the payment method agreed with its new customer at the point of the CoS event taking place. In all cases where a smart meter is to be operated in prepayment mode the gaining supplier will be responsible for satisfying the "safe and reasonably practical" test.

Payment mode stays as PPM

25 After the Update Security Credentials transaction has been executed the gaining supplier will be able to configure the smart meter to match the terms agreed with the consumer. Until the gaining supplier changes any configuration parameters (e.g. supplier contact details – phone number) or operational data (e.g. Meter Balance) these data items will remain unchanged from before CoS, unless the outgoing supplier has elected to clear balances down (as described in para. 17 above). The supplier name is carried with the security credentials to ensure that the supplier name, as visible on the meter display, corresponds with the credentials stored within the meter.

26 As for all CoS events, the gaining supplier is obliged to update the tariff information and configure the meter to reflect the terms agreed with the customer. It is possible that the outgoing supplier has already cleared down balance and other prepayment information, although the gaining supplier will in any case have to configure the meter.

27 In advance of CoS the gaining supplier will need to issue the consumer with instructions on how to operate the smart meter in PPM mode, including details of payment channels. The consumer will also need to be issued with an ID reference which the supplier will use to route top-ups to the correct meter. Suppliers will need to ensure that the consumer receives and has understood the top-up process prior to CoS.

28 It will be for suppliers to decide the format of the ID and how such ID may be presented (e.g. on a magstripe card). In designing their solution, suppliers will need to take account of the capabilities of their payment agents and channels. It is assumed that a consumer will use the same ID reference across all channels provided by the supplier (e.g. cash vend and ATM).

29 Suppliers will also need to decide their policy with regard to an initial top-up: for example whether to make a nominal top-up to allow supply to continue or to grant emergency credit and instruct the consumer in how to invoke it, prior to them making a top-up.

30 In considering the options around initial top-up, the risk that the consumer's energy supply is inadvertently disconnected at CoS may be mitigated by the following:

- The outgoing supplier may put the meter into credit mode and clear down prepayment balances
- Suppliers may, where the meter is in prepayment mode, set the non-disablement parameters to 'permanently non-disable' before resetting the balance to zero. The non-disablement parameters can be set back to 'normal' once the top-up has been successfully processed
- In any case, where CoS happens at night it will generally fall within a Non-Disablement Period, assuming that one has been set (although the meter could be disabled at the end of this period if WAN service were interrupted without a top-up having been processed)

31 The gaining supplier will need to notify the consumer that, following CoS, the ID reference (and/or any presentation media such as a magstripe card) from their previous supplier will be

invalid. The consumer will need to be aware that – for top-ups - CoS will only have completed successfully when the name of the gaining supplier appears on their meter display[4].

Payment mode switched to PPM at CoS

32 This scenario is simpler in that there will be no brought forward balance or 'old' top-up ID to handle. From a supplier's viewpoint this process should be very similar to switching an existing customer from credit to prepay.

33 Steps that a supplier will need to consider are as follows:

- Issue a prepayment ID reference and top-up instructions to the consumer so they are able to top-up as soon as the meter is switched to PPM
- Confirm that the ID reference and top-up instructions have been received and understood
- Submit service requests to change the payment mode, issue any initial top-up, and set / reset the emergency credit and other prepayment parameters[5]

Payment mode switched from PPM to Credit at CoS

34 Following the Update Security Credentials command the gaining supplier configure the meter's payment mode to Credit and update other configuration parameters such as tariff. The gaining supplier will not need to do anything else in respect of the pre-CoS prepayment operations. Responsibility for closing the PPM account will lie with the losing supplier, including to refund the consumer the value of the Meter or Account Balance and/or to recover any outstanding debts (see section 3.2).

3.4 Consumers trying to top-up with 'old' ID

35 As meters in PPM mode can only process top-ups from the supplier whose security credentials are held by the meter, it follows that the consumer will only be able to make a top-up if they present a valid ID reference from their current supplier. An ID reference issued by the losing supplier (which the consumer may mistakenly present in the hope that 'smart' top-ups work in a similar manner to 'dumb' top-ups) cannot be used to top-up the Meter Balance and should be rejected at the point of vend, regardless of payment channel. There will be no PPMIP function – as in the legacy prepayment arrangements– to redirect payments to the current supplier.

36 Gaining suppliers will therefore need to develop business processes which ensure that ID references and top-up instructions have been received and understood by the consumer prior to CoS. These instructions will need to cater for situations where payment channels are unavailable (e.g. due to a communications failure between a payment agent and the supplier).

[4] In the case of a dual fuel CoS, there is the possibility that the CoS date/time for gas and electricity may not coincide. Consumers will need to be advised of this possibility and the need to look for the change of supplier name on both meters.

[5] Suppliers may wish to reset all PPM-related parameters and operational data items in case the meter had previously been in PPM mode and the parameters were not reset when the meter was switched to credit mode.