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Smart pre-payment in Great Britain

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Smart Meter Research for Sustainability First by Gill Owen and Judith Ward

Gill Owen and Judith Ward are widely published on policy relating to GB household smart meters. Their published reports and working papers available from the Sustainability First website include :

Smart Meters: Commercial, Policy and Regulatory Drivers. March 2006

Smart Meters in Great Britain: the next steps ? July 2007

International Smart Meter Trials. Selected Case Studies. Tariffs and Customer Stimuli (with Engage Consulting). May 2008

The Consumer Implications of Smart Meters. A report for the National Consumer Council. July 2008.

Smart Tariffs and Household Demand Response for GB. March 2010.

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Executive summary

Prepayment meters are used by millions of consumers in Great Britain although their use is not so widespread in many other countries. While prepayment meters have both advantages and disadvantages, they are generally popular with those who use them - largely because of the budgeting control which such meters give them. The rollout of smart meters should help to provide major improvements in prepayment – greater convenience, flexibility, new services and lower prices.

Three key factors have limited the attractiveness of prepayment as a payment method from a customer point of view. These are : the higher prices paid by pre-payment meter users; inconvenience; the risk of self disconnection either due to lack of money or difficulties adding credit. These factors have led to gas and electricity prepayment being perceived as a payment method of last resort for people who have got into debt or have difficulties in budgeting.

The smart meter specification developed by the Energy Retail Association (ERA) includes every gas and electricity meter being able to operate in prepay and credit mode and to be remotely switched between the two modes. Suppliers believe that the availability of a universal pre-pay platform will enable them to improve customer service and offer greater competition in pre-pay tariffs. However, the Government is not yet committed to including pre-pay functionality for all gas meters and has commissioned further work on the technical, commercial and operational issues. Common functionality in all meters could help to reduce the costs of procuring, installing and managing meters and provide the opportunity to equalise costs and service between credit and pre-payment for both fuels. Take up of smart pay-as-you-go will be assisted if customers can switch without changing their meter but could be hindered if meters have to be changed.

New smart meters could therefore support a number of new functions related to prepayment. There are four key areas to explore : ways to add credit; costs, prices and tariffs for prepayment; options for reducing self disconnection; remote switch between credit and pre-pay.

Ways to add credit

Based on experience with pre-pay in Northern Ireland and pre-pay mobile phones, the range of ways of topping up credit is likely to expand. Payment over the over the phone and internet will be the earliest additions, but others could include ATMs and supermarket checkouts. The more the prepay market grows the more cost effective it may be for suppliers to offer a wider range of credit top up methods.

Suppliers will be keen to move more customers to electronic means of adding credit as the costs of doing so are likely to be lower than those for cash transactions via Paypoint/Payzone. However, customers will need debit cards (and hence bank accounts) to access some of the new payment methods – e.g. to top up their smart pre-pay credit by phone or over the internet. 7-12%of low-income households do not have a bank account (and some only have limited functionality accounts without debit cards).

Other than debit cards there are two other options that might enable customers to add credit to their prepayment meters electronically. Firstly, using mobile phones – i.e. some of the credit added to the pre-pay mobile phone account via cash – at a supermarket checkout or Paypoint/Payzone for example - could be transferred to the electricity or gas account. Several of the mobile phone operators are very interested in offering this facility to energy suppliers and their customers. A second option could be electronic cash cards (e.g issued by VISA or Mastercard), although there may be some issues with charges for some of these cards. These might be used for payment of benefits (e.g. rather than Post Office Card Accounts) and would then provide the facility of a debit card to pay for credit on the prepayment meter. Alternatively, customers might be able to obtain an electronic cash card themselves or energy suppliers could enter into partnerships with banks to offer electronic cash cards to customers.

Prepayment prices

The cost differentials between credit and prepay should reduce as smart meters are rolled out assuming there will in future be a common type of meter for every property, for electricity and gas. This will therefore eliminate the difference in capital costs of the meters and eliminate the costs of having to visit properties to change a meter from credit to prepay. With the roll-out of smart metering, suppliers will need to update all their administration systems and there may be less need for a separate differentiated system for prepayment. Also, if the numbers of customers on prepay increase, then this would mean that any extra fixed costs of prepayment administration would be spread over more customers. Clearly some of these potential cost savings would be more limited if gas prepay functionality is not included in all gas smart meters.

There are some extra costs of prepayment that may not reduce with the introduction of smart meters and the extent to which prepayment prices reduce will also depend upon the effectiveness of competition for prepayment customers. Overall, however, the costs of prepayment will reduce and the attractiveness of prepayment customers to suppliers should increase. These factors should therefore lead to some increase in competition for prepayment meter customers with a consequent improvement in price and tariff offers. Furthermore, costs could also fall if prepayment meter customers can reduce the frequency with which they top-up credit and do so in larger amounts, although this may not be practical for some very low income consumers. Suppliers could encourage this through the sort of incentives used by prepay mobile phone operators (e.g. top up for a minimum of £10 and get £1 free credit). Similarly, customers could be offered incentives to switch to electronic means of topping credit.

New ways of reducing self disconnection

One of the key features of prepayment meters is that when credit is exhausted the supply runs out- this ensures that debt cannot be built up. However, this also means that the household can "self disconnect". Self disconnection may occur because the household has forgotten to top up their credit, or due to some practical difficulties in doing so (e.g. access to a charging point) or because the household does not have the money to top up the credit.

At present in Great Britain, most suppliers provide customers with an amount of emergency credit (typically £5 worth), that can be used if they are unable to top up the credit on the meter. Some suppliers operate a "no disconnection" policy in the evenings. The cost of any fuel used during such emergency credit or no disconnection periods is paid for when the meter is next credited (at the same rate as normal).

Research suggests that self disconnection is a significant problem for only a minority of prepay customers – between 10-25% - and most of those who self disconnect do so rarely (once or twice a year) and usually for periods of 1 day or less. However, as found in Northern Ireland, limiting the times at which supply can be disconnected does make prepayment a more attractive option and thus will help to make prepaying for gas and electricity more mainstream. There are a number of ways to minimise self-disconnection. The main options include :

- Emergency credit – i.e. a fixed value of gas or electricity (e.g. £5) available to be consumed at any time of day regardless of credit status.
- Specific non-disconnection or "friendly credit" periods (in Northern Ireland this is 4pm-8am and all day Saturday and Sunday) where supply will not disconnect at certain times of the day regardless of credit status and however much is used.
- Trickle flow or load limiting. This is only applicable to electricity, allowing a minimal amount (e.g. to keep lights on), to be available at all times regardless of credit status – as in Argentina and Belgium.

More extended "emergency or friendly credit" periods would be likely to help those who forget to charge their cards/keys and those who have run out of money at the end of the week when they are waiting for their next wages or benefit payment. However, as the emergency or friendly credit has to be repaid when the meter is next re-charged, it is not a panacea. Furthermore, more credit flexibility may provide more limited help for the small minority who have serious shortage of money or budgeting problems that result in them self-disconnecting frequently and for longer periods than on average. For the customers with the most severe money problems therefore, the solutions lie beyond the meter, in areas such as tariffs, incomes, and improving energy efficiency.

Remote switching from credit to prepay

Smart meters will be able to be switched from credit to prepay mode remotely by suppliers. This will deliver cost savings to suppliers which should help to reduce prices for prepay customers. Another very important benefit to customers is that it should effectively end statutory disconnection for debt as suppliers would have the ability in every case to switch a property to prepayment. However, there are some concerns about how the current customer protection mechanisms will work when remote switching becomes possible.

At present, energy suppliers offer a prepayment meter to customers who have debt and have not been able to agree or maintain another payment arrangement. The energy supplier has to gain access to customers' homes to install a prepayment meter or disconnect supply. If the customer refuses access or never answers when the supplier

calls, the energy supplier has to obtain a right of entry warrant from a magistrates court to enter and either fit a prepayment meter or disconnect supply.

Clearly, access will not be an issue with smart meters – this will avoid the costs associated with obtaining entry warrants. However, the concern that arises is whether remote switching capability could lead to customers in debt, or with poor payment histories, being switched from credit to prepay, without the safeguards and processes that currently apply. Energy suppliers will still need to follow existing procedures for debt recovery and disconnection, irrespective of smart meters. The supply licence conditions governing debt recovery and disconnection, as well as the Energy Retail Association's protocol, are also designed to minimise disconnections or prevent them altogether in the case of vulnerable households. However, licence conditions may need to be changed at least at the final stages of debt recovery/ disconnection –i.e. when at present the supplier would have to obtain a warrant and

Main recommendations

The main recommendations are summarised below.

- The Government should mandate prepay functionality for gas smart meters as well as electricity smart meters. In so doing it will need to consider the commercial, regulatory and operational impacts which may arise.

- Ofgem needs to ensure adequate protection before a customer is remotely switched from credit to prepay - it should review the relevant legislation, licence conditions and codes of practice.

- Ofgem should explore with consumer organisations and suppliers about setting friendly credit and emergency credit periods and amounts.

- Ofgem needs to discuss the pros and cons of self disconnection monitoring with consumer groups and with suppliers. There will also be the need for this idea to be tested with groups of consumers.

- There is a need for further research into the pros and cons of trickle flow or load limiting before they could be offered to consumers.

- Ofgem should use its Smart Meters Consumer Advisory Group, to begin discussion of the various prepayment meter issues and how they should be resolved. Clearly more formal consultation will also be required with consumer organisations, suppliers and others on any new licence conditions, codes of practice and other agreements.

Conclusions

Smart meters will reduce prepayment costs for suppliers and bring major benefits to consumers - including new payment methods, more customer friendly forms of emergency and friendly credit and lower prices. At the same time the new technology will bring some new consumer protection issues to address. Common functionality in all meters could greatly assist the wider take up of smart prepayment, including for dual-fuel. Smart meters will thus provide the opportunity to make prepayment a more mainstream method of payment as has occurred in Northern Ireland.

Introduction

Prepayment meters for gas and electricity have a long history of use in Great Britain, dating back to the coin-in-the-slot meters that were used until the 1980s, when they began to be replaced by meters using tokens, keys or cards. The meters are used extensively – 3.6 million for electricity and 2.3 million for gas – and are popular with users. They are not used exclusively by low income households but some types of low income household – notably single parent families - are the main users. Prepayment meters have a single unique advantage over all other currently available payment methods for households on a tight budget – they prevent the household from getting into debt as the supply is only delivered when the meter account is in credit. This facility is also seen by some as a major drawback because the household can "self disconnect" – although this is a problem only for a minority of prepayment meter users. The other disadvantage of prepayment meters to date has been the extra costs of the payment method, which mean that households using prepayment meters have tended to pay significantly more for the electricity and gas than those who pay by other methods – particularly compared to direct debit and online tariffs - although many suppliers have recently reduced the differentials.

The Government has decided that all homes should have gas electricity and gas smart meters by 2020. The roll-out of smart meters will provide the opportunity to improve prepayment systems, reduce costs for suppliers and therefore prices for customers. New smart meters will enable suppliers to develop a range of new services for customers including new payment means and facilities, information to the user for better management of payments, better awareness of energy usage A wider range of more customer friendly forms of emergency and friendly credit could provide new solutions to the risk of self disconnection. At the same time the new technology will bring some new consumer protection issues to address.

This report examines the future for prepayment in a smart meter world and makes a number of recommendations. It does not address broader issues of the smart meter roll-out, many of which were covered in a Sustainability First report for the National Consumer Council published in 2008. [1]

[1] Owen, G and Ward, J. The consumer implications of smart meters. National Consumer Council, 2008.

1.Prepayment in Great Britain and elsewhere

1.1Prepayment for gas and electricity in Great Britain

Prepayment meters for gas and electricity have a long history of use in Great Britain, dating back to the coin-in-the-slot meters that were used until the 1980s, when they began to be replaced by meters using tokens, keys or cards which overcame many problems with coin-in-the-slot meters (notably risks of theft from the meters themselves and from the staff collecting the money). Following the advent of the newer technology the numbers of prepayment meters (which had been falling as energy companies phased out the cash meters) began to rise – for example, from around 2 million electricity prepayment meters in 1990 to 3.6 million in 1997.[2] Whilst electricity prepayment numbers have remained broadly constant since 1997, gas prepayment numbers have continued to rise substantially from the 1.2 million in 1997.[3]

The increase in numbers of prepayment meters has coincided with a fall in disconnections, as prepayment has come to be seen as the solution to debt problems. In 1987 more than 60,000 gas consumers were disconnected from supply; in 1986 more than 100,000 households lost their electricity supply as a result of non-payment of bills.[4] By 2008 these figures had reduced to around 3000 for each fuel.[5]

There are currently (mid-2009) 2.5 million gas prepayment meters (eleven per cent of domestic gas customers) and 3.7 million electricity prepayment meters (14 per cent of domestic electricity customers).[6] Almost all gas pre-payment meters are Quantum meters, which use smart-card technology. Of the 3.6 million electricity PPMs: about 100,000 are token meters; 2.7 million are key meters; 0.8 million are smart card meters. Virtually all token meters will have been replaced with key meters by the end of 2010.

Prepayment meters are not used exclusively by low income households but some low income and vulnerable groups are amongst the main users. 52 per cent of prepayment meter users are in social groups D and E. [7] More than 30 per cent of single parent households, the unemployed and those with long term illness or disability use a prepayment meter for gas and/or electricity. Prepayment use is relatively low in households with older people - 7 per cent for pensioners dependent upon state benefits. Twenty-five per cent of the fuel poor use pre-payment meters, while 75 per cent pay by either standard credit or direct debit [8]

[2] Offer. Report on customer services, 1997.
[3] Gas Consumers Council, Debt and disconnection newsletter, 1997.
[4] NEA web site.
[5] Ofgem. Domestic suppliers' social obligations 2008 report. 2009
[6] As at June 2009. Source : Ofgem. Monitoring company performance. Quarterly report. Quarter 2, 2009.
[7] http://www.ofgem.gov.uk/Markets/RetMkts/ensuppro/Documents1/Energy%20Supply%20Probe%20-%20Initial%20Findings%20Report.pdf
[8] Ofgem. Domestic Retail Market Report. June 2007

1.2 Prepayment outside Great Britain

There are around 50 countries where some use of prepayment meters is made, although some of these are small island states. Prepayment is widely used in a relatively small number of countries outside Great Britain – e.g. Northern Ireland, Tasmania, South Africa. Outside Great Britain prepayment metering is almost always used just for electricity and not for gas. In a number of countries there is often considerable opposition to the use of prepayment from consumer organisations and parliamentarians.

In the US very few customers have prepayment metering – those who do are mostly in municipal and co-operative utilities serving small or rural communities.. One of the obstacles to prepayment metering in the US has been the cost of the meters but more fundamental has been opposition from regulators, politicians and consumer groups. The self- disconnection facility is the major barrier to acceptance by utility regulators and others of prepayment meters in the US, because this is considered incompatible with rules banning disconnection except in very limited circumstances. The disconnection ban and attitude to prepayment came about because many households use electric heating and/or air conditioning and many parts of the US have very hot summers or very cold winters – so access to electricity is considered absolutely essential in these extremes. For this reason, use of coin prepayment meters (which could not offer the no disconnect facility that became possible with cashless prepayment meters developed in the 1980s), was considered unacceptable in the US, whereas it was accepted in the UK. When more modern electronic PPMs became available the lack of pre-existing (coin-operated meter) regulations in the USA often made it difficult to introduce token PPMs. In the UK on the other hand the development of electronic PPMs fostered a rapid changeover from coin-operated meters from the mid-1980s and wider use as technology and features continued to evolve.

A recent example of the strength of this opposition is the Massachusetts Department of Public Utilities' (DPU- the energy regulator for the state) dismissal (in summer 2009) of a proposal by Western Massachusetts Electric Company to pilot the use of prepayment meters among the company's low-income customers. The proposal was opposed by the Massachusetts Attorney General, state energy officials, and low-income energy advocates who said it would threaten electrical service for hundreds of low-income families and allow the utility to bypass the state's existing consumer protection rules. The DPU agreed with advocates that the program would circumvent Massachusetts' consumer protection laws and said that it unfairly targeted low-income consumers. It ordered the utility to come up with a revised pilot program that includes all income classes within 90 days. The proposal was prompted by the state's Green Communities Act of 2008, which requires utilities to conduct pilot programs to test how so-called "smart grid technologies," which include prepayment meters, can help consumers cut energy use.[9]

Woodstock Hydro in Ontario, that has used prepayment meters for 20 years will no longer be able to do so when smart meters are rolled out as the energy regulator (Ontario

[9] http://liheap.ncat.org/news/july09/ma.htm

Energy Board) has not approved a prepayment form of smart meter. All customers on prepayment will be switched to credit meters.[10]

Prepayment is also not used in most European countries. This seems to be down two main reasons. Firstly, there is the incompatibility with disconnection bans, as in the United States. Secondly, there is possibly less of a problem with debt (a key motivation for suppliers to introduce prepayment meters in the UK in the past) in some European countries that have monthly billing which lessens the risk of debt build-up compared to quarterly billing as in the UK. Monthly billing is also common in the United States.

Prepayment meters are widely used in Tasmania, where around 20 per cent of electricity consumers prepay for electricity this way. Prepayment meters are also used in the Northern Territory (mainly in Aboriginal communities) and South Australia, although absolute numbers are much smaller than in Tasmania.[11] Prepayment meters are not used in other parts of Australia. New Zealand has around 60,000 prepayment meters representing around 3% of the residential customers.

Prepayment for electricity started in South Africa in 1992 and since then over 4 million prepayment meters have been installed. Other countries that use prepayment include Argentina and Belgium (see below for details), whilst a number of countries including China and the Philippines are starting to use it as electrification spreads to more customers. Turkey is installing pre-payment for household gas.

[10] www.woodstockhydro.com

[11] Allen Consulting. Prepayment meter systems in Western Australia. Cost benefit analysis and regulatory impact assessment. Final report to the Economic Regulation Authority May 2009

2.Pointers to the future of pre-payment

2.1 Lessons from pay-as-you-go mobile phones and other sectors

There is very wide usage of pre-pay mobile phones in the UK and elsewhere in the world. In the UK 61% of mobile phone subscriptions are pre-pay.[12] There is also very high usage of pre-pay mobile phones amongst older customers - nearly 90% of those aged over 65 who have a mobile phone have a pre-pay phone.[13]. This is very different from traditional energy pre-payment where (as noted in the previous section) use amongst older customers is very low (the biggest users of pre-payment for electricity and gas are single parents).

It is unlikely that these very high penetration rates of prepayment in the mobile phone sector would be replicated in the energy sector however customer friendly and low cost prepayment might become, for a number of reasons.

- Many pre-pay mobile phones are used by children, teenagers and students for whom this payment method has been integral to driving take-up (given that parents are paying or the young people are living on restricted incomes).
- There are also pre-pay subscriptions for second phones for people who may have a main (work) phone on contract and a pre-pay phone for more limited private use (e.g. on holiday). 57% of customers with mobile phones say that a pre-pay phone is their main subscription.[14]
- The high usage of pre-pay mobile phones by people over 65, reflects the fact that most older people make very limited use of mobile phones, probably because they did not grow up with them (they would have been fifty plus when mobiles became widely available). A pre-pay mobile phone may make better economic sense than a contract phone if it is used infrequently. Whether this pattern will continue amongst people who have used mobile phones since a much younger age as they grow older remains to be seen. Having been used to extensive usage of a mobile phone many may wish to continue this and thus remain on contract – however, those who feel the need to economise when they retire may well switch to pre-pay.

Outside the mobile phone sector, the use of pre-pay has also been growing elsewhere. For example, :

- Oyster cards for public transport in London
- Payment cards (Mastercard or VISA) – a card which is loaded with credit and then used instead of a debit or credit card. These cards are popular for use by people travelling who want to stick to a budget; for parents to give to teenagers to use for internet purchases (e.g. iTunes downloads).

[12]Ofcom, UK Communications Market Report **2009** http://www.ofcom.org.uk/research/cm/cmr09/cmr09.pdf
[13] Ibid.
[14] Consumer Experience Research Report December 2009 p.20 http://www.ofcom.org.uk/research/tce/ce09/research09.pdf

This growing acceptance of pre-payment as a normal method of paying for telephone, travel and other services could help to change attitudes to prepayment for electricity and gas. From a supplier perspective, there could be significant cash-flow and other business benefits if the majority of customer payments were to be made in advance for electricity and gas, and not in arrears. Over time, we could see a convergence in approaches to payment, whereby more customers in effect pay not 'in arrears' but rather 'in advance' for the energy they consume.

2.2 Pre-pay electricity in Northern Ireland

NIE (the main electricity company in Northern Ireland) has been installing the Liberty Keypad meter (manufactured by PRI) , since 2000. The Keypad meter in fact operates as a "semi smart" meter, because it does not incorporate a two way communication module. Communication between the meter and the supplier and vice versa (credit activation, meter readings etc) is via the customer inserted vend code, obtained when the customer buys credit either from agents (such as pay point) or by telephone or internet using a debit card. In effect, therefore, the keypad meter operates in a similar way to the key and smart card (including Quantum) prepayment meters used in Great Britain. The main difference between the GB meters and the NI Keypad is that the latter does not involve anything being inserted into the meter – the customer types in a 16 digit code to activate the credit. So it cuts out a lot of the problems (and costs) associated with tokens/keys/cards that can be damaged or lost. Another difference is that the Northern Ireland keypad meter has a conveniently placed customer display that enables them to monitor consumption, credit available etc.

30% (230,000) of all electricity customers in Northern Ireland were using the keypad prepayment meters by mid-2009, with new connections continuing at the rate of 2000 per month. About 58% are on low incomes but 32% are on middle or higher incomes including 17% who are "wealthy achievers" (Acorn classification).

Three key factors have driven the high levels of take up of these prepayment meters.

- Firstly, customers receive a discount compared to standard credit of 2% (this compares to a discount of 4% compared to standard credit for direct debit customers). This discount is considered cost reflective by NIE because of the reductions in bad debts, meter reading costs, call centre costs, billing and debt management costs.
- Secondly, the range of credit top-up facilities (including phone and internet) is felt to have attracted a broader range of user and removed the stigma of prepayment. Whilst 86% of top-ups are still done in cash at Paypoint or Payzone outlets, internet and phone top-ups increased 37% in 2009 compared to 2008. Top-ups by phone and over the internet are also high in value on average and NIE have introduced a minimum top-up amount of £15 for such transactions, with no adverse reaction from customers.
- Thirdly, the "friendly credit" means users cannot self disconnect at weekends or between 4pm-8am (and this can be extended to 11 am on request). This safeguard was required by Ofreg (the Northern Ireland regulator) due to concerns from

consumer groups and others about self disconnection. Clearly, electricity used during periods of friendly credit has to be repaid at the next top-up.

These examples from other sectors and from Northern Ireland all suggest that prepayment can become an accepted and normal method of payment, provided that it is made attractive to customers through tariffs reflecting the cost-savings made by suppliers, credit top-up arrangements and limiting the scope for self disconnection at certain times.

3. Key issues for prepayment

There are three key factors that have limited the attractiveness of prepayment as a payment method and have raised concerns amongst charities and consumer groups. These are the higher prices paid by pre-payment meter customers; the inconvenience of having to add credit; the risk of self disconnection either due to lack of money or difficulties adding credit. These factors have led to gas and electricity prepayment being seen as a payment method of last resort for people who have got into debt or have difficulties in budgeting. As a result, prepayment has become stigmatised and indeed, (as outlined in Section 1) is strongly opposed by consumer groups, regulators and politicians in many countries.

3.1 Prepayment prices

The higher prices for prepayment are due to the fact that the current separate prepayment meters cost more than credit meters and have higher servicing costs. Other extra costs include the infrastructure needed to support the payment processes and the charges made by Paypoint/Payzone (to the electricity and gas suppliers) for handling payments through their payment network and terminals. However, that being said the actual cost differences are not wholly understood and of course, vary according to what costs are included and excluded from each payment method. Importantly, these extra costs are only partially offset by the cash flow advantages to energy suppliers and the elimination of debt. Customers in debt can be prevented from switching and although only around 13 per cent of prepayment customers are in debt at any one time (compared to 4% of credit customers), around 80 per cent initially have a prepayment meter fitted because they are in debt.[15]. For every prepayment customer that wishes to switch, energy suppliers need to check whether they have a debt which represents another cost.

Ofgem have estimated that the higher costs of prepayment are £85 compared to direct debit and £65 compared to standard credit for a household with both gas and electricity on prepayment[16]. However, differentials have tended to be significantly higher than this, although a number of suppliers have been reducing the differentials particularly between prepayment and standard credit. Another factor in the higher prices for prepayment customers is the state of competition in this sector of the market. Prepayment meter customers are less likely to switch supplier, partly because there have been fewer good deals for them to switch to (compared to customers who pay by direct debit or online). When prepayment customers do switch it is usually in response to direct sales and nearly 50% of them have switched to a worse deal. This relative lack of effective competition has tended to limit innovation and cost reduction for prepayment.[17]

Despite reductions in the differentials and the introduction of new licence conditions (see below) consumer groups still have concerns that prepayment meter customers are being charged more than the costs to serve their payment method.

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[15] As at June 2009. Source : Ofgem. Monitoring company performance. Quarterly report. Quarter 2, 2009.
[16] Ibid.
[17] Ofgem. Energy Supply Probe, Initial Findings, October 2008. http://www.ofgem.gov.uk/Markets/RetMkts/ensuppro/Documents1/Energy%20Supply%20Probe%20-%20Initial%20Findings%20Report.pdf

3.2 Adding credit to prepayment meters

Compared to pre-pay mobile phones (where credit can be topped up from the phone itself, over the internet, at ATMs, supermarket checkouts etc), topping up credit for a gas or electricity prepayment meter is not nearly so convenient. To add credit to a prepayment meter customers have to visit a charging point (most commonly a Paypoint or Payzone outlet in a shop), hand over their card or key and the cash they wish to add and then insert the re-charged card or key into the meter to add the credit when they return home. Whilst these outlets have become much more numerous in recent years (and are often located in corner shops, with relatively long opening hours), the need to go out to add credit does cause some problems of inconvenience, whilst in some cases it contributes to the self disconnection problem.

3.3 Self disconnection

One of the key features of prepayment meters is that when credit is exhausted the supply runs out. This is why they are so effective as a budgeting device, as this facility ensures that debt cannot be built up. At present in Great Britain, most suppliers provide customers with an amount of emergency credit (typically £5 worth), that can be used if they are unable to top up the credit on the meter (e.g. if the cannot get to a charging point for some reason or have run out of cash). Some suppliers operate a "no disconnection" policy in the evenings. The cost of any fuel used during such emergency credit or no disconnection periods is paid for when the meter is next credited (at the same rate as normal).

Self disconnection is defined as interruption to supply because the card or key for the prepayment meter has not been charged and inserted into the meter. Technically, the terminology (as used in metering standards) is "interruption" and "self-interruption", as the supply to the property has not been disconnected in the legal or technical sense – it can be reinstated as soon as further credit is added. However, self disconnection is the term that is in wide use and therefore is used in this report. Self disconnection may occur because the household has forgotten to top up their credit, or due to some practical difficulties in doing so (e.g. access to a charging point) or because the household does not have the money to top up the credit. Aside from self disconnection another concern is whether households may self ration their use of electricity or gas. Self rationing is a less well defined concept, but the definition used most frequently is that the respondent reports not being able to afford sufficient fuel to heat the home adequately for their needs.

A 2001 survey aimed to establish how prevalent were self disconnection and self rationing amongst low income energy consumers.[18] The research included 3417 households, with and without prepayment meters. Most households tried to economise on their use of fuel; only 27% reported that they neither self disconnected nor self rationed. A quarter of

[18] Affording Gas and Electricity: Self Disconnection and Rationing by Prepayment and Low Income Credit Consumers and Company Attitudes to Social Action Centre for Management under Regulation, University of Warwick Centre for Competition and Regulation, University of East Anglia, 2001

prepayment consumers had self disconnected in the previous year, and most of these had done so only for periods of less than seven hours. Pensioners did so less than average. However most of those who had self disconnected had done so more than once in the previous twelve months, and some had done so more than twenty times. Self-disconnection from gas was more common than from electricity, but this seemed to be because gas pre-payers had lower average income than electricity pre-payers. Most of those who had self disconnected attributed this to having forgotten to recharge the card, rather than to shortage of money. However self disconnection for money reasons clearly was a significant problem for a minority of prepayment users, but the sensitivities of the of the issue could lead to under-estimates.

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Self disconnection is a problem that affects only prepayment meter users, but self rationing can affect other households as well. 17% of all households surveyed undertook some self rationing, but the incidence was greater amongst those with prepayment meters - 21%, compared to 10% of those with credit meters. Turning off the heating was more common among households with prepayment meters than for those using credit, for both types of fuel. Pensioners were least likely to self disconnect, and most likely to report neither self disconnection nor self rationing. Households with both gas and electricity prepayment meters were most likely to both self disconnect and self ration.

More recent surveys into the extent of self disconnection amongst prepayment meter users were undertaken in 2008 and 2009 for the National Housing Federation. [19] The 2008 research surveyed 400 customers, some with gas only prepayment, some with electricity only prepayment and some with both. The 2009 research surveyed only customers with gas prepayment. The 2008 survey found that the majority of respondents had never gone without gas or electricity because of shortage of funds to top up the PPM in the last 12 months (Gas: 86%; Electricity: 91%). Of those who had gone without electricity or gas in the last 12 months, the majority claimed the reason was not having access to funds to top up the meter. On average, respondents who self-disconnected due to not having enough money, did so twice in the last 12 months. Gas PPM respondents were slightly more likely to self-disconnect compared with electricity PPM respondents. Electricity PPM respondents were more likely to be self-disconnected for a day or less than gas PPM respondents. On average, electricity self-disconnection periods were found to be shorter than gas self-disconnection (1.14 days and 2.1 days respectively). The findings for gas were broadly the same for the gas prepayment meter users surveyed in 2009.

The findings of the 2001 and 2008/09 surveys were clearly somewhat different, with the 2001 survey finding greater incidence of self disconnection (25% in 2001 compared to 14% for gas and 9% for electricity in 2008). Most of those who had self disconnected in the 2001 survey attributed this to having forgotten to recharge the card, whereas in 2008 more than 50% said it was due to shortage of money. Average frequency of self disconnection (twice in 12 months) was around the same in the 2001 and 2008 surveys, although average length of period self disconnection was higher in 2008. There were a

[19] National Housing Federation. Pre-Payment Meter Utilities Customers, Final Report June 2008; National Housing Federation. Pre-Payment Meter Utilities Customers, Wave 2, Final Report April 2009.

number of differences in methodologies that may account for these differences between the surveys.

3.4 Popularity of prepayment

While prepayment meters have both advantages and disadvantages from the customer perspective they are popular with those who use them. Prepayment meters are popular with users largely because of the budgeting control which such meters give them – they cannot get into debt once they have a prepayment meter. In a large scale survey[20] of prepayment meter users, 85% preferred this method of payment, even though most realized that it was more expensive than alternatives. Even when pressed, half of prepayment meter users could cite no disadvantages. For those who could find disadvantages, the possibility of self disconnection was the predominant drawback cited. Only 6% of those who had considered switching to direct debit had rejected it because they had no bank account. Preference for prepayment meters was particularly high among the very low income households.

Prepayment meters in effect help low income households to budget for their fuel and avoid the anxiety of bills and debt - this benefit outweighs the disadvantages. However, very few households with middle or higher incomes currently choose to pay by this method in Great Britain (in contrast with Northern Ireland where the numbers of better off households using the keypad meters has been growing) because of the inconvenience, and higher tariffs.

[20]Affording Gas and Electricity: Self Disconnection and Rationing by Prepayment and Low Income Credit Consumers and Company Attitudes to Social Action Centre for Management under Regulation, University of Warwick Centre for Competition and Regulation, University of East Anglia, 2001

4. International approaches to consumer protection for prepayment customers

In other countries that have prepayment there are various different approaches to consumer protection for prepayment meter customers, including ways of minimizing self disconnection. As noted earlier, In Northern Ireland, households cannot self disconnect between 4pm and 8 am or at weekends. Other examples are as follows.

4.1 Tasmania

Decisions on whether to allow pre-payment metering are made at individual state level in Australia. Only Tasmania makes significant use of prepayment meters for electricity- it has had them since 1995 and about 22% (47,000) of customers in Tasmania currently pay for electricity in this way. There is no usage of prepayment meters for gas.

The electricity retailer in Tasmania is Aurora, which uses two types of meters: the Siemens PAY AS YOU GO Meter and the ACTARIS Talexus PayGuard. Both use a Smart Card to add credit to the meter. The pre–paid electricity meter displays what credit is left and which electricity rate applies, based on the time of year and time of use during the day.

As there has been considerable opposition to use of prepayment meters from consumer and welfare groups, the codes of practice established by the regulators have built in a number of customer protection standards to alleviate the concerns.

A 'prepayment meter code' was introduced in Tasmania in May 2007 as Chapter 9A of the Tasmanian Electricity Code.[21] This code makes some distinctions between new and existing prepayment meters in respect of some of the conditions. New prepayment meters are defined in the TEC Glossary as, 'A prepayment meter installed or to be installed, or existing prepayment meter equipment reconditioned, on or after 1 January 2008'. The newer meters are the ACTARIS Talexus PayGuard meters. The code has a number of very detailed provisions that include :

- New prepayment meters cannot disconnect the customer between the hours of 2:00pm and 8:00am. Older prepayment meters cannot disconnect the customer between 8:00 pm and 8:00 am. In addition all prepayment meters must provide an amount of emergency credit(i.e. which can be used at any time of the day including in the daytime when self-disconnection is allowed) of not less than $10. This amount is reviewed by the Regulator every two years to ensure that emergency credit is maintained at a level equivalent to the average cost of three to five days electricity supply.

- All new prepayment meters "…must be capable of identifying to the Electricity Retailer every instance on which the Customer supplied under a prepayment meter agreement has self-disconnected and the duration of that self-disconnection. (TEC 9A.5.1)"

[21] www.economicregulator.tas.gov.au

- For new prepayment meters (where Retailers will have this information), the Retailer is required to contact any customer who has self-disconnected three or more times, for at least 240 minutes on each occasion, in a three month period. The Retailer is required to offer advice on whether alternative payment methods would suit them better, provide advice on Government assistance and (if the customer consents) make a direct referral to sources of Government assistance.

- A customer display has to be provided with all prepayment meters. This has to show : current consumption information (in kWh and dollars); the number of electricity units consumed in total and at each rate; the standing charge including any pre-agreed 'progress rate' (debt recovery) amount; when emergency credit becomes available; the remaining credit available or amount of emergency credit used; whether the meter is operating in normal credit or emergency credit mode.

- Where a customer has used emergency credit, no more than seventy percent of the next top-up made to the prepayment meter account may be directed towards repaying the debit. The remainder of the payment must be directed towards recommencing electricity supply to the customer.

There has not to date (end 2009) been a review of how these new conditions are working.

4.2 South Australia

Prepayment meters for electricity have been allowed in South Australia since 2006, but to date take up has been limited. The South Australian customer code of conduct does not permit a prepayment meter system to disconnect supply to a customer other than between the hours of 10:00am and 3:00pm on a weekday. The South Australian code also requires that a retailer's prepayment meter system be capable of identifying to the retailer every instance on which a small customer has self-disconnected and the duration of that disconnection.[22]

4.3 Argentina

In Argentina some companies have adopted a metering technology that allows for either "conventional" prepayment or the "Fixed Invoice" with additional (prepayment) purchases. The Fixed Invoice option provides a limited quantity of either free electricity for households eligible for the Government subsidized social tariff or for a fixed payment for others (in both cases with the option to purchase more when needed via the prepayment system). The fixed invoice approach has been likened to a "faucet dripping small quantities of electricity into the meter,". The "drip" operates every 15 seconds making a credit of 0.0008kwh (cumulatively being 0.2 kwh/hour and 5 kwh per day). The "drip" approach prevents the customer from using all of the allotment too quickly, e.g., by

[22] Allen Consulting. Prepayment meter systems in Western Australia. Cost benefit analysis and regulatory impact assessment. Final report to the Economic Regulation Authority.May 2009

inadvertently running a high consumption appliance, and is like a load limiter with a prepaid override option.

The system includes a separate customer display (located where the customer wishes inside the house), which shows the current electricity supply/demand balance and the cumulative credit. There is also an audible alarm warning of low credit. Customers with this system typically use 132 kwh per month compared to 210 kwh per month usage by low income customers without prepay.[23]

4.4 Flanders, Belgium

Every household in the Flanders region in Belgium annually receives a free amount of electricity- 100 kWh per household, plus a further 100 kWh per family member. Senior citizens and disabled people receive the first 500 kWh free as part of a social tariff provision. Electricity suppliers have no obligation to maintain supply to customers who cannot or do not pay their bills. Instead, the Flemish government has placed social obligations on the distribution network operators (DNOs), requiring them to serve customers in their area who are unable to stay with their existing supplier or find a new one willing to take them on.[24]

Eandis - the DNO for about 2.45 million electricity customers and 1.45 million gas customers in the Flanders region - is one such social supplier. Eandis installs a prepayment meter, operated with a budget meter card, for each customer it takes on in this way. Credit can be loaded at Eandis customer centres and at the municipal social service department. When the customer has consumed the free electricity and has also run out of credit that they have added , (including the emergency credit), a minimal supply of electricity is still delivered, so households cannot completely self-disconnect. Eandis started to provide a similar service with gas prepayment meters in June 2009.[25]

4.5 South Africa

South Africa also provides some free electricity for qualifying households. 50 kWh per month are provided free to poor customers. The 50kWh is based on what is assumed to be needed for basic lighting, small black and white TV, small radio, basic ironing and basic water boiling through an electric kettle for grid-connected consumers. For pre-paid meters, households receive a non-interchangeable voucher or token each month loaded with the free basic unitsWhen the free units have been used up, the consumer needs to buy additional units at the prevailing rates. The voucher is valid for one month only, and units do not accumulate to the next month (claim it or loose it) .[26]

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[23] Proceedings of the USAID Workshop "Improving Electricity Service for the Urban Poor" December 4-6, 2007.

[24] Karolien Verhaegen, Leonardo Meeus and Ronnie Belmans. The influence of public service obligations on distribution network tariffs. Katholieke Universiteit Leuven. 2006

[25] METERING.COM, July 22, 2009

[26] http://www.dme.gov.za/energy/elect_fbe.stm

5.Smart prepay

The roll-out of smart meters will provide the scope for significant changes to prepayment in terms of the services offered to customers and in the costs of prepayment. This section considers what some of these changes might be.

5.1 Smart meter specification and pre-pay functionality

The smart meter specification developed by the Energy Retail Association (ERA) includes every gas and electricity meter being able to operate in prepay and credit mode and to be remotely switched between the two modes. The specification also includes the following functionalities relevant to prepayment.[27] :

- load limiting – electricity only (maximum load control);
- manual credit updates (i.e. to enable the customer to key details into the meter);
- remote credit updates - to support a range electronic payment options and infrastructures;
- to display to the customer ongoing values for credit available;
- an emergency credit facility that can set remotely – to enable suppliers to offer different periods;
- remotely configurable non-disable (disconnection) periods, where energy is supplied regardless of credit balances. Non-disable periods will be time bound, with a start and finish time and may also be configured to cover a specific date or day of the week;
- The fuel debt recovery rate will be capable of remote configuration to allow customers and suppliers to make individual arrangements for the amount and nature of the recovery of fuel debt;
- The metering system will be capable of configuration to display a "Low Credit" warning message to the customer which could also be replicated on any separate display used by the customer.

Work is still being done by the ERA on the ability of suppliers to remotely configure the recovery rate by the meter for energy that has been consumed in a non-disable period where there was no remaining credit balance. In terms of an ability for suppliers to monitor self disconnection - i.e. to know when customers have self disconnected and for how long - as is now required in Tasmania, the functionality should enable this but how far suppliers will use this has not yet been decided. In 2010 the ERA will continue their work on functionality in conjunction with the work being done by DECC and Ofgem

However, although the ERA specification does provide for all meters to be credit and prepay, the Government is not yet committed to including pre-pay functionality for all gas meters and has commissioned further work on this. The Government has taken this position as responses to the smart meter consultation were divided on whether a valve should be included in all gas meters to enable remote switch between credit and

[27] For the full details of functionality see : (http://www.energy-retail.org.uk/documents/SRSMMeteringSystemRequirementsv2.pdf)

prepayment. Some argue that this approach would lead to higher costs because meters with valves cost more and a large proportion of customers would never use the functionality. Others argue that a single specification will be the most cost effective because, although costs may be higher, the extra benefits will outweigh the extra costs. Other arguments put forward against including a gas valve were : about the safety of the remote operation of the valve, after a long period of dormancy in properties that had not used the meter in prepayment mode for many years; that it would maximise the stranding of legacy gas meters and thereby increase the costs of the smart meter roll out.

Meter manufacturers do not think that there are any safety issues. On the costs side, as outlined in the next paragraph, the overall benefits of including prepayment functionality in all gas meters should outweigh the overall costs. However, the cost implications will differ between market actors and therefore the commercial, regulatory and operational issues need to be considered.

If a gas valve is not included this would significantly limit the scope to deliver many of the benefits that smarter prepay could deliver. Common functionality in all meters could help to simplify (and reduce the costs of) the processes for procuring, installing and managing meters. A gas valve in every gas smart meter could provide the opportunity to equalise costs and service between credit and pre-payment for both fuels, reducing costs of administration and costs associated with debt and credit risk management.. It would also avoid the additional asset and installation costs for changing meters when a customer moves from credit to pre-payment. Take up of smart pay-as-you-go (which is likely to become attractive to more customers) will be assisted if customers can switch without changing their meter but could be hindered if meters have to be changed.

New smart meters could therefore support a number of new functions related to prepayment. There are four key areas to explore in relation to smart prepayment meters : ways to add credit; costs, prices and tariffs for prepayment; options for reducing self disconnection; remote switch between credit and pre-pay.

5.2 Greater variety of ways to add credit

In Northern Ireland 86% of credit top-ups are made in cash via Paypoint, Payzone etc, but the proportion made by phone and internet (i.e. using bank debit cards) rose by 37% from 2008 to 2009, probably reflecting the wider customer base for prepayment that is developing there. Based on experience with pre-pay in Northern Ireland and pre-pay mobile phones, the range of ways of topping up credit is therefore likely to expand. Payment over the over the phone and internet will be the earliest additions, but others could include ATMs and supermarket checkouts. Scottish Power is saying it will soon offer a service to all existing prepayment customers and any new customers, to top up their meter credit directly from a secure internet page on ScottishPower's website using a new plug-in device called a PowerPod.[28] The more the prepay market grows the more cost effective it may be for suppliers to offer a wider range of credit top up methods.

Suppliers will be keen to move more customers to electronic means of adding credit as the costs of doing so are likely to be lower than those for cash transactions via Paypoint/Payzone. However, customers will need debit cards (and hence bank accounts) to access some of the new payment methods – e.g. to top up their smart pre-pay credit by phone or over the internet. 82% of adults have a debit card,[29] but the figure is likely to be lower amongst existing pre-pay users. We do not have data on the proportions and numbers of prepayment customers without bank accounts but there is data on low income households and bank accounts.

The proportion of low-income households without a bank account fell sharply from 20-25% in the mid-1990s to 7% in 2006/07.[30] This fall largely coincided with the introduction (encouraged by the Government) of two new types of account, namely basic bank accounts and post office card accounts. If, as some argue, post office card accounts should not be included as a proper account because of their limited functionality (e.g can only accept money from benefits, can only be used to take money out at post offices and cannot support direct debits), the proportion of low-income households without an account rises from 6-7% to 11-12%. Virtually all households with a post office card account are in the poorest 40% of households. Although some 3% of households with above-average incomes have no account whatsoever, almost none have a post office card account only. The majority (91%) of respondents to a 2008 survey[31] of prepayment meter users had a bank account, but it is likely that some of these had a post office card account only.

Over time more prepayment meter customers will get bank accounts and many customers who take up prepay in a smart meter world may well have bank accounts (as has happened in Northern Ireland), but for the short term the lack of a bank account or debit card could limit the ability of some prepayment customers to access lower cost

[28] METERING.COM October 1, 2009

[29] Payments Council (2008). National Payments Plan. Consulting on change in UK payments

[30] www.poverty.org.uk

[31] National Housing Federation. Pre-Payment Meter Utilities Customers, Final Report June 2008

methods of adding credit to their meters. However, other than debit cards there are two other options that might enable customers to add credit to their prepayment meters electronically.

- Firstly, using mobile phones for credit top-up – i.e. some of the credit added to the pre-pay mobile phone account via cash – at a supermarket checkout or Paypoint/Payzone for example - could be transferred via the mobile phone to the electricity or gas account. Technically this would not be difficult to do with smart meters and several of the mobile phone operators are understood to be very interested in offering this facility to energy suppliers and their customers. Given the cash flow benefits, the mobile operators may be willing to offer this at little or no cost to energy suppliers, thus it could be a much cheaper way of adding credit than the Paypoint/Payzone option. This could be very valuable addition to payment methods for prepayment customers, many of whom are likely to have prepay mobile phones.

- A second option could be electronic cash cards (e.g issued by VISA or Mastercard). These might be used for payment of benefits (e.g. rather than Post Office Card Accounts) and would then provide the facility of a debit card to pay for credit on the prepayment meter. There have been a number of pilot schemes to test these cards for benefit payments. One example is the London Borough of Lewisham, which provides a weekly allowance to young people leaving the council's care as they continue in education or look for a job. As an alternative to the young people having to collect cash from Council offices the Council has worked with VISA to provide a prepaid card service.[32] Alternatively, customers might be able to obtain an electronic cash card themselves or energy suppliers could enter into partnerships with banks to offer electronic cash cards to customers. In either of these two cases, customers could load some cash onto it when they collect their benefit from the Post Office using their Post Office Card account (or when they cash their wages for those in employment). They could then use the cash on this card to purchase prepay meter top-ups by phone or over the internet.

There is also interest in the creation of a new Post Office bank. Consumer Focus has proposed that the Post Office creates a new bank account for low-income consumers, that would have a debit card and new forms of electronic bill payment better suited to the needs of low-income consumers.

5.3 Costs, prices and tariffs for prepayment

The cost differentials between credit and prepay should reduce as smart meters are rolled out assuming there will in future be a single type of meter for every property, for electricity and gas that can be operated as a credit or prepayment meter. This will

[32] London Borough of Lewisham Prepaid Card Case study. VISA Europe 2009 www.visaeurope.com

therefore eliminate the difference in capital costs of the meters and eliminate the costs of having to visit properties to change a meter from credit to prepay.

There should also be savings in administration costs. At present, one of the cost differentials is due to the specialised back-office administration system (known as prepayment meter infrastructure provision or PPMIP) which provides for the allocation of payments from customers to suppliers. This has had to be developed over the years and operates as a separate system from the administration of credit accounts. With the roll-out of smart metering, suppliers will need to update all their administration systems and there may be less need for a separate differentiated system for prepayment. Also, if the numbers of customers on prepay increase, then this would mean that any extra fixed costs of prepayment administration would be spread over more customers.

Clearly some of these potential cost savings would be more limited if gas prepay functionality is not included in all gas smart meters. Other costs will reduce due to :

- Eliminating the need to insert a card or key into the meter- breakages and loss of cards or keys lead to costs of replacement, risks of fraudulent use and in some cases necessitate a visit (for example to repair a meter). Transco undertake 1 million visits a year at a cost of £50 a visit; British Gas makes around 7000 visits a week in response to requests from customers to sort out problems with prepayment meters.
- Eliminating misdirected payments - Some customers continue to use the old suppliers' key or card when they switch supplier. This is a significant operational cost – there are various estimates, but some put the value of payments sent to the wrong supplier at £150 million a year[33]

Some extra costs of prepayment compared to credit could remain, notably the costs to suppliers of charges for adding credit to meters (e.g. charges made by Paypoint/Payzone; any bank charges for using electronic systems). Although there are charges for other payment methods (e.g. direct debit) these tend to be lower per transaction and another factor is that such transactions are relatively infrequent (monthly or quarterly) whereas most prepayment customers buy credit for their meters at least once a week and a significant minority do so several times per week. The more that customers can switch to lower cost methods (and/or encouraged to top up credit less frequently) of adding credit (e.g. via phone, internet) therefore, the more the costs of prepayment should reduce.

These cost factors clearly feed into the prices and tariffs for prepayment, but there are two other important factors determining prices and tariffs for different groups of customers :

- The amount of revenue a supplier expects to earn from each type of customer. Evidence from company submissions to the Ofgem price probe suggests that average PPM consumption is 8 per cent below average in electricity and 20 per cent below average in gas.[34] Assuming that each unit of gas or electricity supplied

[33] Logica CMG newsletter, Vision Online, Issue 6, 2005.

[34] Ofgem. Energy supply probe – initial findings report. October 2008. p.88

is profitable, PPM customers may thus on average be less valuable to suppliers than credit customers. This could start to change however if prepayment spreads among a wider base of customers and average consumption of prepayment customers were to rise. With the potential that smart meters will provide for greater time of use charging in the future, patterns of consumption may also matter as much as or more than the amount of consumption.

- The effectiveness of competition for the type of customer. Clearly, this is determined in part by the previous point – how valuable the customers are to suppliers, plus also whether some customer groups are less attractive for other reasons (if they are high cost to serve, which is the case for prepayment meter customers). The effectiveness of competition for specific groups of customers is also affected by their propensity to switch supplier – the best offers are likely to be made to those who are most likely to switch, as suppliers seek to gain and retain market share. PPM customers have been at various times more or less likely than other customers to switch supplier, although as the Ofgem probe found, this was often to a worse rather than a better deal. So another important component of the effectiveness of competition is whether customers are undertaking informed or uninformed switching. As the Ofgem probe found, over 70 per cent of PPM customers switched in response to direct sales (mostly doorstep, but some shopping centre, telephone etc), compared to 52% of customers on average, where they would be unlikely to be able to compare prices.[35] In contrast, customers who switch using internet comparison sites to compare offers are not only more likely to get a better deal, they will also be exerting more pressure on suppliers to provide better offers – and the best offers currently are for direct debit and particularly internet only tariffs, which are not available to PPM customers.

Looking at all these factors together, the costs of prepayment will reduce and the attractiveness of prepayment customers to suppliers should increase. These factors should therefore lead to some increase in competition for prepayment meter customers with a consequent improvement in price and tariff offers. One aspect of customer behaviour could also help to reduce costs – if prepayment meter customers can reduce the frequency with which they top-up credit and do so in larger amounts. This will not be possible for all prepayment meter customers but it could be for many and suppliers could encourage this sort of behaviour through the sort of incentives used by prepay mobile phone operators (e.g. top up for a minimum of £10 and get £1 free credit). Similarly, customers could be offered incentives to switch to electronic means of topping credit. Although the customers who adopt these forms of behaviour would benefit most, by reducing the costs of prepayment some of the benefits should also be seen by all prepayment customers,.

[35] Ibid.

5.4 Options for minimizing self disconnection

Prepayment meters in Great Britain provide a period of emergency credit immediately prior to disconnection – typically for a fixed value such as £5. A number of GB suppliers have also configured their prepayment meters so that they will not disconnect during the late evening and night-time when Paypoint outlets are likely to be closed.

In the 2001 survey, use of emergency credit was much higher than self disconnection - nearly three quarters of electricity prepayment consumers had used emergency credit in the previous year, 92% of electricity prepayment users were aware of the emergency credit facility, however only 88% knew how to use it. Both awareness and knowledge were lowest amongst pensioners (85% and 77% respectively). The main reason for using emergency credit for electricity was personal difficulty in recharging the card (57%). The next most common reason was money difficulties (21%), with 12% related to the meter or the service itself. Both awareness and knowledge of how to use the emergency credit for gas were slightly lower (83% and 79% respectively) with similar relative patterns for the household groups (pensioners again are least aware and knowledgeable). A lower proportion of the project sample had used the emergency credit for gas (61%). There were similar reasons to electricity for using the emergency credit.

Self disconnection is a significant problem for only a minority of prepay customers – between 10-25% - and most of those who self disconnect do so rarely (once or twice a year) and usually for periods of 1 day or less. However, the fact that customers can self disconnect may be one of the key factors limiting take up of prepayment meters. As found in Northern Ireland, limiting the times at which supply can be disconnected does make prepayment a more attractive option to more customers and thus will help to make prepaying for gas and electricity more mainstream. Thus the benefits of having more customer friendly ways of limiting the times at which meters disconnect supply will extend far beyond the minority of customers for whom self disconnection is a serious problem. As the examples from other countries included in this report show, there are a number of ways to minimise self-disconnection. The main options include :

- Emergency credit – i.e. a fixed value of gas or electricity (e.g. £5) available to be consumed at any time of day regardless of credit status. This is the current provision for most existing GB prepayment meters.
- Specific non-disconnection or "friendly credit" periods as in Northern Ireland and parts of Australia, where supply will not disconnect at certain times of the day regardless of credit status and however much is used. Typically these periods cover evenings and night times and sometimes all day at weekends. (A number of GB suppliers also currently configure their prepayment meters not to disconnect overnight although none do so in the daytime at weekends.)
- Emergency credit and friendly credit can be offered together – with the emergency credit ensuring that some supply is always available even outside the friendly credit periods. However, it is important that customers are aware that a significant proportion, if not all, of the all supply used during emergency and friendly credit periods has to be paid for when credit is next added – to ensure that supply is still maintained, the meter can be configured to take only a proportion of each new

credit added, to recoup the debt run up during emergency and friendly credit periods.

- Trickle flow or load limiting. This is only applicable to electricity, allowing a minimal amount (e.g. to keep lights on), to be available at all times regardless of credit status – as in Argentina and Belgium. Before considering introducing load limiting or trickle flow it would clearly be important to : decide which services would be considered essential to maintain (e.g. just light and refrigeration or other uses as well); assess and how much electricity would be needed by the average prepayment user to provide this level of service ; identify what other assistance could be provided to consumers regularly relying on this minimal amount of electricity.

The two main reasons for self disconnection are shortage of money or forgetting to charge the card or key. More extended "emergency or friendly credit" periods would be likely to help those who forget to charge their cards/keys and those who have run out of money at the end of the week when they are waiting for their next wages or benefit payment.

However, as the emergency or friendly credit has to be repaid when the meter is next re-charged, it is not a panacea. Furthermore, more credit flexibility may provide more limited help for the small minority who have serious shortage of money or budgeting problems that result in them self-disconnecting frequently and for longer periods than on average. Friendly credit would also be unlikely to provide significant help those who are self-rationing due to lack of money. For the customers with the most severe money problems therefore, the solutions lie beyond the meter, in areas such as tariffs, incomes, and improving energy efficiency.

5.5 Remote credit / pre-pay switch

Smart meters will be able to be switched from credit to prepay mode remotely by suppliers. As noted above, this will deliver cost savings to suppliers (because they will not have to change meters) which should help to reduce prices for prepay customers. Another very important benefit to customers is that it should effectively end statutory disconnection for debt as suppliers would have the ability in every case to switch a property to prepayment. However, there are some concerns amongst consumer groups about how the current customer protection mechanisms will work when remote switching becomes possible.

At present, energy suppliers offer a prepayment meter to customers who have debt problems and have not been able to agree or maintain another suitable payment arrangement. The energy supplier has to gain access to customers' homes to install a prepayment meter or disconnect supply if a prepayment meter is refused by the customer or is not suitable for some reason. Disconnection or the installation of a prepayment meter for gas can take place seven days after the bill has been outstanding from 28 days; for electricity this can take place not less than two working days after the bill has been outstanding for 20 working days. If the customer refuses access or never answers when

the supplier calls, the energy supplier has to obtain a right of entry warrant from a magistrates court to enter and either fit a prepayment meter or disconnect supply.

The warrant application process currently requires the supplier to show that : the customer has been given at least twenty-four hours' notice; **and** the supplier's representative has asked to be admitted and the customer has refused; **or** the premises are unoccupied.

A Court may require evidence of a debt, and of a supplier's efforts to recover debt. Consumers should be advised when and where the supplier will apply for a warrant, and can defend the application. Some households may settle (or contest the warrant if the arrears are disputed) at this stage (although they will still have to pay court costs).

Clearly, access will not be an issue with smart meters. In many respects this will be a positive development as it will avoid the costs associated with obtaining entry warrants. However, the concern that arises is whether remote switching capability could lead to customers in debt, or with poor payment histories, being switched from credit to prepay, without the safeguards and processes that currently apply. Energy suppliers will still need to follow existing procedures for debt recovery and disconnection, irrespective of consumers using smart meters. The supply licence conditions governing debt recovery and disconnection, as well as the Energy Retail Association's protocol, are also designed to minimise disconnections or prevent them altogether in the case of vulnerable households. Licence conditions may need to be changed is at the final stages of debt recovery/ disconnection –i.e. when at present the supplier would have to obtain a warrant.

5.6 Linking smart pre-pay with social tariffs or other price support

Clearly, smart prepayment would open up new possibilities for ease of administration of social tariffs or other price support as the relevant assistance (e.g. a free or low price allowance of gas or electricity) could be remotely credited to the meter by the supplier or a third party (e.g a government department). However, it would not be desirable from a customer perspective to make having a pre-pay meter a prerequisite for such support as this would limit customer choice of the payment method that suited them best. The technology should be seen purely as a facilitator of such payments.

6. Recommendations

In terms of recommendations, some matters are likely to require some changes to regulation whereas others can probably be left to the market -i.e. for suppliers to compete.

The rollout of smart meters that all have prepay capability should help to provide major improvements in prepayment – greater convenience, flexibility, new services and lower prices for prepayment. The Government review of pre-pay capability for gas, should take account of these wider and longer term benefits.

The Government should therefore mandate prepay functionality for gas smart meters as well as electricity smart meters. In doing so, it will need to consider the commercial, regulatory and operational issues.

Smart meters will provide the opportunity to make prepayment a more mainstream method of payment - i.e. a payment method of choice - as has occurred in Northern Ireland. In terms of ensuring the customers benefit from the opportunities that smart prepayment will create there are a number of recommendations that can be made.

6.1 Matters for regulation

The areas where regulation is likely to be required are those that will benefit customers but may be less desirable from the suppliers' perspective and hence may not be provided if left to suppliers to decide.

- **Ofgem needs to ensure adequate protection before a customer is remotely switched from credit to prepay - it should review the relevant legislation, licence conditions and codes of practice.** The important requirements will be to provide customers with : adequate notice of when the meter will be switched from credit to prepay; what the customer would need to do if they do not want this to happen (i.e. debt repayment); and how to obtain credit for the meter. Clearly, any changes to customer protection should be ideally be made in such a way that the potential cost savings that remote switching will provide are not lost.
- Friendly credit (i.e. supply remains on at ceratin times of day – typically evenings and/or weekends - even if the credit has been exhausted) is an area where suppliers may want to differentiate their services but where from the consumers perspective some commonality would be helpful. One option might be for Ofgem to set minimum periods but suppliers could be free to set longer ones (for all or some customers) if they wish. In setting periods for friendly credit (and also amounts of emergency credit – see next point), it is important to balance the value of such "no disconnection" periods with the fact that they do put the customer into a position of owing money which will need to be repaid when the meter is next credited. **Ofgem should explore with consumer organisations and suppliers about setting friendly credit periods.**
- Similar considerations for friendly credit also apply to emergency credit – (i.e. an amount to be available outside friendly credit no disconnection periods). **Ofgem**

should consult with consumer organisations and suppliers about setting emergency credit periods.

- Suppliers will be keen to move customers to electronic payment and this will benefit customers as it will reduce costs. But for some time to come many customers are likely to want and need to continue to top up in cash. Eventually, suppliers might seek to discourage cash payment and therefore, for those customers who will have a continued need to use cash, the availability and relative costs of cash payment may need monitoring.
- Suppliers may wish to set minimum amounts for electronic (over the phone, internet, mobile phone and cash card) payments to reduce the number of transactions and hence costs, or to incentivise customers to top-up in larger amounts as mobile phone providers do. Incentives are likely to be better from a customer perspective than actual limits. Competition in this area should be beneficial to customers. However, it is likely that some customers who continue to top up using cash (e.g. at Paypoint/Payzone) will want and/or need to be able to do so frequently and in small amounts. If suppliers set minimum amounts for cash top-ups this could disadvantage some very low income customers. It therefore seems desirable that there should be no minimum top-up amount in cash, but suppliers could consider using incentives to encourage customers to top-up in larger amounts. Whether this needs to be mandated should be discussed between consumer groups, suppliers and Ofgem - a voluntary agreement may suffice.
- New smart pre-pay meters will enable suppliers to monitor self disconnection –they will therefore enable much more robust and cost effective assessment of the prevalence of this phenomenon, which to date has relied on surveys of customers. When suppliers have this information they would therefore also be able to contact customers who self disconnect frequently and/or for long periods and offer various forms of advice and help (as required in parts of Australia) - e.g. advice on payment methods, benefits health checks, energy efficiency measures,? Some regulation will be essential in this area as whilst there are potential benefits to customers there may also be concerns about consumer privacy – e.g. should consumers have a choice about whether their use is monitored in this way ? **Ofgem needs to discuss the pros and cons of self disconnection monitoring with consumer groups and with suppliers. There will also be the need for this idea to be tested with groups of consumers.**

- Whether to offer trickle flow/load limiting ? Most customers are likely to be best served by a combination of periods of friendly credit, backed up by emergency credit, as these provide flexibility for whatever use they need in periods when they have not charged the meter. Trickle flow/load limiting (which would only be relevant to electricity anyway) would be a lot less flexible as it might only allow enough electricity to keep a fridge freezer and a few lights going. Some customers might prefer this option to emergency and friendly credit as it would help keep down their usage in debit periods (thus reducing the likelihood that they have to add a large amount of credit when they next top-up to pay off the debt). However, it seems like a less desirable option for most customers. **There is a need for further research into the pros and cons of trickle flow or load limiting before they could be offered to consumers.** This should include testing the idea with groups of consumers and, if there is interest, some trials could be undertaken.

Ofgem should use its Smart Meters Consumer Advisory Group, to begin discussion of the various prepayment meter issues and how they should be resolved. Clearly more formal consultation will also be required with consumer organisations, suppliers and others on any new licence conditions, codes of practice and other agreements on such issues as : appropriate periods for friendly credit; appropriate amounts for emergency credit; appropriate notice periods for credit to prepay switchover etc etc.

6.2 Matters that can be left to suppliers and the market

Matters that can probably be left to suppliers and the market are essentially new services that they might offer prepay customers. These are things that it would be in suppliers' interest to provide and so they would not need to be mandated. It would also probably be beneficial to customers for suppliers to compete in these matters , as this would be likely to produce a greater variety of offers to suit different customers.

- Incentives to switch to cashless methods of top-up –e.g. buy £5 electricity get £1 free.
- Incentives for customers who top up less frequently or for more money at a time
- New methods for topping up credit – e.g. via mobile phones, cash cards etc

7.Conclusions

The introduction of smart meters will provide the opportunity to improve prepayment systems, reducing costs for suppliers and bringing major benefits to consumers - including new payment methods, more customer friendly forms of emergency and friendly credit and lower prices. Smart meters that can be remotely switched between credit and prepay should mean an effective end to statutory disconnection for debt. At the same time the new technology will bring some new consumer protection issues to address and the need for Ofgem, suppliers and consumer groups to work together to ensure the benefits are maximised.

Common functionality in all meters could greatly assist the wider take up of smart prepayment, including for dual-fuel. Smart meters will thus provide the opportunity to make prepayment a more mainstream method of payment - i.e. a payment method of choice - as has occurred in Northern Ireland.

Appendix

Prepayment technology

There are two main types of prepayment meter in use around the world today :

Non-smart token meters - where the customer buys a token from a Paypoint/Payzone outlet for a fixed amount (say £5). When the token is inserted into the meter, the meter operates with the energy credit/debt value on the token but does not gain any other information . These meters have to be manually re-set (requiring a supplier visit) when tariffs change and are being phased out in many places for this reason (e.g. in Great Britain).

Semi-smart key or card meters or keypad meters - where the customer buys credit from a Paypoint/Payzone outlet for a fixed amount (say £5) which is added to the key or card or embedded in a vend code (keypad meters). When the card or key is inserted into the meter, (or the code is typed into the keypad) the meter operates with the monetary credit/debt values and also receives any updates needed to tariff rates (prices and any TOU times). These semi-smart meters have advantages compared to the non-smart token meters :

- The credit balance can be shown in more meaningful money terms.
- The costs per day or week etc can be calculated and displayed by the meter.
- A wide range of TOU tariffs can be handled.
- Updates to prices and tariffs are dealt with automatically so the supplier does not have to visit to re-set them.

Full smart prepayment meters will have further advantages over the meters in use today, particularly due to the two-way remote communication facility between the meter and the energy supplier. This will enable :

- Different ways of adding credit to the meter – by phone and over the internet etc with credit transferred automatically to the meter.
- Better information to the user for management of payments and awareness of energy usage (e.g. days of credit remaining, costs for yesterday plus today and last week plus this week, cost per hour at present load).
- Use of emergency credit and self-interruption (self disconnection) could be recorded in the meter and used for statistical analysis or targeted assistance to customers getting into difficulty.