

# **Second Class Customers: Pre-Payment Meters, the Fuel Poor and Discrimination**

**Andrea Sharam**  
**Energy Action Group**

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Energy Action Group  
PO Box 136 North Melbourne 3051  
[www.vicnet.net.au/~eag1/](http://www.vicnet.net.au/~eag1/)  
Tel: 041 7362709  
email: [eag1@vicnet.net.au](mailto:eag1@vicnet.net.au)

Written by Andrea Sharam  
Design and Layout Marcia Leonard

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# Executive Summary

Utilities have a profound impact on the welfare of households not just because they deliver essential services, but because the delivery itself can be highly regressive.

Pre-payment Meters (PPM) are primarily a credit management tool promoted by utilities to recover debt on the one hand and prevent the future accumulation of debt on the other. The termination of the credit relationship in favor of pre-payment effectively removes the role of the utility from the disconnection process. The act of disconnection is for all intents and purposes privatised. This enables utilities to avoid public reporting of disconnection rates (as they relate to inability to pay) and allows them to abrogate social responsibilities. PPMs do not address inability to pay, and are often the most expensive payment option. This reduction in affordability exacerbates rather than limits the impact of fuel poverty. Fuel poverty itself remains largely un-addressed in Australia for reasons that are perplexing, as many opportunities exist to eradicate it with benefits to customers, utilities and governments. Sadly, in an era in which the market is supposed to empower the customer, poorer vulnerable users of gas and electricity are being relegated to expensive and discriminatory residual markets such as that created by PPMs.

# Recommendations

1. That legislation be passed to prohibit the introduction of PPM into Victoria
2. That comprehensive 'hardship' policies set out as a formal guideline of the Essential Services Commission become a license condition of all energy retailers in Victoria.

# The Context: Housing, Income and Utility Costs

The following statements are extracts from Burke and Ralston's (2003) analysis of ABS Confidentialised Unit Files:

- Real housing costs in Australia increased 32.9% between 1975-1999;
- Real household disposable income for all Australians fell by 11.4% for the same period;
- Private rental is the growth sector, but 57% of private tenants are in a situation of non-affordability. The budget standard measure of well-being shows that substantial proportions and absolute numbers of low income tenants, both public and private, cannot live at an adequate standard, even after receiving a rebated rent or rent assistance.
- Around 30–40%, depending on household type, also experience financial problems such as inability to pay utilities and inability to raise money for emergencies, suggesting an underlying predisposition to rental arrears problems for both public and low income private tenants;
- A sizeable proportion of public tenants (21%) and low-income private tenants (38%) had formal debts at a level that could trigger arrears and perhaps loss of tenancy. A disproportionate amount of this debt was with high-interest, short-term loan finance companies;
- Two-thirds of public tenants and over half of low income private tenants stated they would be unable to raise \$2,000 in an emergency, while those who could do so depended highly on families or friends. This suggests how vulnerable such tenants are to any financial crisis – e.g. appliance or car breakdown, funeral, property damage – and therefore to arrears and potential loss of tenancy.

The following analysis of domestic electricity costs was provided by the author.

- On average, residential consumers of electricity in Victoria (GD/GR tariff) experienced a 3% real increase in the cost of their annual consumption in the period 1991 to 2003. For residential customers who had also had off-peak electric hot water heating (Y6/T6) the increase was on average 8.2%.

**Table 1 Change in end cost electricity general domestic customers 1991-2003 (%), including GST. (low volume = 2500kwh pa; Medium = 4000kwh pa; high = 6000kwh pa)\***

<b>Retailer</b>	<b>Low</b>	<b>medium</b>	<b>high</b>	<b>average</b>
Citipower	6	(0.32)	(5.5)	0
TXU	11.3	5	(2.8)	5
Origin	13.8	8	5	9
Pulse	6.7	0	(3.3)	1
AGL	6.7	1	(2.6)	2
average	8.9	3	(1.8)	3

\* Two-block inclining tariff, with differential between first 1020 consumption per quarter and balance per quarter. An assumption is used regarding how much annual consumption is charged at the higher rate given the lack of actual consumption data. This assumption is that consumption is uniform over each quarter.

- Looking more closely at the distribution of costs inside the residential class, the comparison over time reveals that low-volume users – who correlate strongly with low-income households – fared badly. For a low-volume TXU customer with off-peak water the increase was 24%;
- High volume Citipower customers were the only off-peak hot water customers to obtain savings (6.1%), although this still only represents about half a percent per year;
- For those without off-peak hot water, the biggest saving also went to high volume users in Citipower (5.5%) or *less* than half a percent per year.

Cuts to Citipower and other urban network areas are not unexpected given the dismantling of the traditional urban/rural cross-subsidy. Likewise, as subsidies for off-peak hot water are also being unwound, and as these systems are more prevalent in rural areas where there is no mains gas, it is not surprising that there has been more change in rural areas than in the Melbourne metropolitan region.

**Table 2. Percentage change in end cost of consumption to general domestic customer also taking supply under Y6/T6 off-peak hot water, including GST.** (low volume = 2500kwh pa; Medium = 4000kwh pa; high = 6000kwh pa)\*

<b>Retailer</b>	<b>Low</b>	<b>medium</b>	<b>high</b>	<b>average%</b>
Citipower	7.3	1.3	(6.1)	0.8
TXU	24	15	3.9	14
Origin	18	12	7.8	11.2
Pulse	15	7	1.7	8
AGL	11	4.7	0.4	5
average	15.2	3	1.5	8.2

# Background

Access to electricity is widely regarded as a 'right' in many western countries (Ernst 1994, Zajac 1996). Australia is not exceptional in this regard. The claim of right made today is usually centered on broader human rights principles and gains its legitimacy from the socio-economic rights expressed in the *Universal Declaration of Human Rights*. The formal designation of access to electricity as a 'human' right, however, is relatively recent. There is little room for argument about the improved amenity afforded by domestic electrification; but its growth in stature as an essential service and as a 'right' reflects the increasing penetration of electricity into domestic life and the decline of alternative means of heating, cooking and lighting. That is, the greater the monopoly of this form of energy (over materials such as wood), the more it has assumed the role of 'essential' service.

Historically, utilities have been considered to have special obligations (Taggart 1995). Taggart suggests the statutory obligations of utilities have their origins in the UK common law doctrines of 'common callings', Hale's principle of a 'business affected with a public interest', and the doctrine of 'prime necessity'. In essence, these common law doctrines place obligations on private businesses that have a public role to ensure that they (usually as common carriers) deliver their services at a fair price and do not discriminate. As the 'prime necessities' doctrine suggests, there was a view that certain services are essential and must be guaranteed. These ancient obligations were held by courts even into the nineteenth century to override private property rights. While statutory duties effectively put these ancient rights to bed in the UK and Australia, they continue to have currency within the popular understanding of the role of these services. These doctrines still strongly inform US public utility regulation, and have been used in a number of important NZ legal cases (Taggart 1995).

The state of Victoria is in a fairly unique situation in that it has had specialist energy advocacy and research bodies since the late 1970s. As a result it has considerable expertise and a small but commendable body of work on which to base analysis. The work of the Centre for Urban Research and Action (CURA), and the Energy Action Group (EAG) in the 1970s and 1980s lead to significant tariff reform, codification of the rights and responsibilities of utilities and customers, the establishment of a specialist state agency, the Home Energy Advisory Scheme (which undertook retrofits), setting of appliance standards; uniform concessions program, and the provision of energy related emergency grants.

Over time various reports (Kiers 1983, Backman et al 1987, Crossley et al, Date Rate Working Party 1991, Deasey and Montero 1983, Kymantis 1986, Mills 1988, Kliger 1998, Neilson c2001, Dept of Industry, Technology and Resources 1985) established that 'fuel poverty' arises as a result of an intersection of inadequate income, poor thermal efficiency of housing, inefficient appliances, needs (life cycle stage), and tariff structures. The fundamental mismatch between income and expenditure means that even very small changes in circumstances or charges can precipitate a minor financial crisis capable of cascading into major crisis (Benvenuti and Walker 1995, Romeril 1998, Nielson c2001). Traditionally, electricity customers in Victoria have been provided with 3 months credit, as the volume of electricity consumed forms the basis of the customer's bill. This necessitates billing after usage. The provision of credit is instrumental in maintaining supply to the fuel poor. However, by definition it means all customers accrue debt. For some of the fuel poor payment cannot necessarily be made when due. The threat of disconnection works to prioritise utility payment over other essential household expenditures. Disconnection itself is the ultimate sanction; but in relation to the fuel poor, its purpose is punitive and unhelpful. There are typically two groups of fuel poor who struggle with debt. The first are those who have an outright incapacity to pay. The second are those who have an inability to pay within the specified period (Dufty 2003). Therefore, customers who experience fuel poverty require flexible payment arrangements in order to juggle competing demands for their scarce financial resources, and in some cases recourse to debt forgiveness if disconnection is to be avoided (Kilger 1998).

In relation to adequacy of income, two themes emerge from the literature (to the limited extent that exists). Firstly, affordability of energy/heating was set in relation to the basic (male) wage. Secondly, the benefits of government policies on income security –whether it be Commonwealth payments for pensions and private rental housing subsidies, or state utility concession programs – are undermined by the absence of government standards for housing quality and appliances, utility pricing, debt and disconnection policies (Kiers 1983, Siemon 1995 ).

The fuel poor are not homogenous. While self-rationing is an inevitable response, different customers prioritise their needs differently. Lawrence found that aged pensioners cut back on vital food intake (Lawrence 2002). Conversely, families are more likely accrue arrears and seek emergency financial assistance.

Finally, almost all writers on fuel poverty (and many economists) suggest that demand for electricity – being an essential and not easily substitutable service – is highly inelastic. This would appear to hold true for middle and higher income households; but the observation in relation to fuel poverty is that low-income customers are highly price sensitive and responsive.

Utilities attract attention not simply because they are regarded as ‘essential services’ but because in themselves they are capable of generating significant inequity and disadvantage (Kiers 1983, McColl-Kennedy and Dann 1989). The electricity system, as it connects and collects payment from virtually every household and firm, is a quasi-taxation system that has been regressive in practice. As a service – whether monopoly or market – it has a profound capacity to transfer wealth between customer classes and between customers within each class.

‘Fuel security’ is a long-standing issue as aged pensioners can testify. They have campaigned for many decades and are indeed the earliest beneficiaries of state intervention on the issue – with free firewood being issued by local government for decades up to the mid 1980s! Pensioners recognised – as did the unemployed during the Great Depression – that electricity prices and price structures are basically set in relation to the basic (male, full-time) wage. Pensioners, those with disabilities and women-headed households not only had a lesser capacity to pay but also greater need. This has not changed, but an increasing number of working households – under pressure from the deregulated job market and increasing housing costs – is also joining the ranks of those experiencing ‘fuel poverty’.

When EAG produced *Fuel Poverty in Victoria* in 1983 they highlighted the extent to which fuel poverty is the product of poor housing and poor appliances. Whilst easy to imagine the dark, cold and damp terraces of inner suburbs like Fitzroy before gentrification, much housing currently under construction is poorly designed, of low thermal quality, lack eaves, and have full west facing windows. Furthermore, as a result of privatisation and deregulation of the utilities, many of these houses tend to rely on single fuel (electricity) even in areas where there is reticulated gas.

Home ownership provides distinct advantages but does not provide impunity from fuel poverty. For example, a high percentage of aged pensioners own their own homes outright, and aged pensioners do not feature in large numbers among those who are disconnected and/or seek financial assistance/counseling. Yet evidence exists that age pensioners engage not only self-restriction, foregoing heating in winter (Sharam 2003), but also cut back on vital food intake (Lawrence 2002). They do this to avoid the embarrassment of debt and disconnection.

Tenants in general are disadvantaged, low-income tenants in particular having little or no control over the quality of their housing and appliances. The split incentive between landlord and tenants tends to result in cheap appliances that are expensive to run. If landlords were to bear the costs of their investment choices, they would soon incorporate operating costs into the decision of capital expenditure. There has been a chronic reluctance on the part of government to address housing quality in the rental sector despite – at least in Victoria – the state and the utilities traditionally providing some compensation for this through utility related social programs. Since deregulation, however, this compensation has diminished greatly.

Kiers (1983) pointed out that the income security measures of government – income payments made by the Commonwealth, state government utility concessions programs and emergency relief provided by both – are undermined by utility policies and practices that increase the cost of service. Permitting regressive pricing structures and allowing households to be locked into unnecessary but unavoidable consumption undoes some of the benefits of income support. Utilities traditionally have seen no problem in engaging in punitive debt recovery. For a while in Victoria a ‘whole of government’ approach was taken. In the 1980s the Cain government took very commendable action in regularising concessions<sup>1</sup> establishing a major retrofit<sup>2</sup> program to fix poor housing and appliances<sup>3</sup> in undertaking tariff reform, creating a energy relief grant

scheme, and ensuring resourced user representation in policy making. By the early 1990s a virtual non-disconnection policy existed based on these reforms and the availability of emergency relief funds. Since the election of the Kennett government in 1992, most of these reforms have been scrapped, forgotten or undermined.

No government in Australia today currently has a fuel poverty strategy.

## **Market reform**

The risk of bad debt prior to the dis-aggregation of the SECV was assumed by the entire organization and hence the entire industry. Since the introduction of competition, the risk of bad debt is now assumed entirely by the retailer (Dufty 2003, Sharam 2002). It would be appropriate to open discussion as to how the risks could be shared differently, as the affect of the increased risk on the retailers has perverse outcomes for social policy – of which PPM is a preeminent example.

# Pre-Payment Meters (PPMs)

At the present time in Victoria electricity and gas retailers are required by the Essential Services Commission (ESC) to obtain approval from that office prior to introducing a PPM scheme. This requirement is a condition of holding a gas or electricity license in Victoria

The **Licensee** must not implement a pre-payment meter scheme without the prior approval of the **Office**.

To date there have been no formal applications made to the ESC, although retailers are currently advocating changes to the Retail Code in order to facilitate PPM. As an application has not been made, the ESC is yet to determine a process or criteria for approval. However, other than being able to satisfy that a PPM scheme would conform to the Retail Code, the ESC's legislative requirement to promote competition and maintain a 'light-handed' regulatory approach would be likely to predispose the ESC to granting approval (as in NSW, SA and Tasmania). This is able to occur primarily because the weakness of the ESC's obligation to ensure that low-income and disadvantaged customers should benefit from competition, and the apparent underlying assumption at the Commission that competition delivers benefits exclusively, not disadvantage. The introduction of PPM can only be averted by legislative prohibition.

Victorian retail licensees have been looking at introducing PPM for some time. Aurora in Tasmania has already rolled out around 24,000 units; AGL has conducted trials in SA; and trials are planned by retailers in NSW and QLD. As retailers operate within a national environment, and in the context of the attempt to create a truly national electricity market, the pressure is on Victoria to align itself with the other states. Primarily PPM are promoted as providing 'choice' to consumers, but policy decisions to permit PPMs have largely occurred in the absence discussion about fuel poverty and strategies to address it. The idea of 'choice' is very attractive to neo-liberal governments, but the question that should be asked is: whether the poor ever had any real choice? Some retailers suggest there is latent demand for PPM, inferring that the introduction on PPM is in essence customer driven. There is no evidence that this is the case. As the Australian Consumers Association is at pains to point out there is a fine line between 'choice' and coercion of low-income customers. They dispute

“that contracts with small consumers will be individually negotiated in any meaningful sense. Even if they were, there is a significant power asymmetry between large corporations and small consumers. The end result is that consumers are always at risk of contracts skewed against their interest. This is a consistent finding of the consumer movement in investigating mass-market contracts” (ACA 2003).

For example, Tasmanian retailer Aurora provides customers moving into a dwelling with a pre-existing PPM considerable inducement to keep the PPM, as they pay only half the regular connection fee. For many low-income households immediate needs tend to take priority over future expenditures. This strategy of Aurora's is also of concern as it will ensure the rapid spread of PPM into low-income private rental. In Victoria, low-income households are likely to be persuaded by market contract PPM because the current deemed and standing offer tariffs are the most expensive tariffs on offer – and deliberately so to encourage customers to move into the market.

PPMs are being sought in the context of increasing poverty and in spite of the development of so-called 'hardship policies' by Victorian retail licensees. Notably, these 'hardship plans' are not the subject of broad consultation with advocates. Perhaps this is not surprising, as a hardship policy that was genuinely effective – that met with the approval of the ESC's Customer Consultative Committee – would render PPMs obsolete. PPMs do not address fuel poverty and are the antithesis of a hardship policy. PPM are about bypassing state consumer protections and undermining universal service (Howat 2001). The alternative “for credit and collection purposes is the installation of cost-effective utility financed demand side management measures. Such measures have been found to be both effective and cost-effective in accomplishing not only improving credit and collection, but in achieving each of the budgeting and energy consciousness” (Colton 1998:19). The problem is that technological focused industries find it difficult to think outside technological 'solutions'. Moreover, the electricity and gas industries have long been characterised by strongly paternalistic management that sets apart 'good' customers and 'bad' customers.

What PPMs are able to do for utilities is:

- Hide the level of disconnection (effectively privatising the act of disconnection);
- Permit the utility to bypass existing disconnection procedures;
- Provide a cheap method of debt recovery;
- Permit a formally segmented market;
- Reduce operating costs;
- Improve cash flow.

However, it is questionable whether PPMs are cost effective, except to the extent that costs can be recovered from the PPM customer.

## Some myths and problems of PPM

### 'Pay as you go'

PPMs are not 'pay as you go' as many proponents misleadingly suggest. 'Pay as you go' more appropriately describes coin operated meters. As *pre-payment* meters, PPMs involve outlays in advance of usage. The customer foregoes the interest, which is effectively collected by the retailer (whom it should be said can invest it at higher rates than, say, a aged pensioner without savings). The use of tokens or smart card technology involves considerably greater transaction and time costs for the customer than does cash. Loss of credit (time to pay) to consumers is significant. Low income consumers in particular suffer from lack of flexibility if credit is taken away as they lose the ability to juggle bills.

### Prepayment meters provide for another flexible payment option

Proponents of PPMs claim that PPMs assist households to budget. However, bill smoothing, and Easyway payment type schemes allow households to budget, and to save for higher usage periods like winter. PPMs cannot do this.

### Customer may track their use of electricity

The view that PPMs helps the customer track their consumption and permits better budgeting is based on the false assumption that – contrary to existing research – customers accumulate arrears because they are inadequate managers of their own money (Colton 1998, Sharam forthcoming). Importantly – it must be stated again and again – this assumes the issue is unwillingness to pay rather than inability to pay.

Consumption by households should be divided into discretionary and non-discretionary consumption (Colton, 1998). The latter in low-income/low-volume households is generally largest. Non-discretionary usage relates to space heating, hot water heating and refrigeration. These appliances and/or forms consumption do not easily lend themselves to reductions unless there is a corresponding impact upon the welfare of the households. To the extent to which households can reduce their non-discretionary consumption, low-income households already do so. Restriction or load limitation is therefore likely to impose serious hardship. Sharam (2003) found that 42% of Victorian domestic electricity users self-restricted because of too little income or because of perceptions that electricity was too expensive.

PPMs offer nothing particularly distinctive in regard to customer awareness of consumption other than the need to be conscious of consumption in order to avoid running out of credit and being disconnected. It presumes that the meter will be a readily observable position or will provide the data. It also assumes that people are able to distinguish the cost of each appliance/usage. A recent survey of Victoria households showed that 74% of household always looked at their consumption graph that compares the current period with the previous four quarters, and 20% sometimes did (Sharam forthcoming). This suggests that

customers are aware of their consumption in general terms and effectively benchmark themselves against their previous consumption.

It is claimed by proponents that an advantage of PPM is that they can provide time of use (TOU) pricing signals. ACTARIS (2003) state that “the introduction of TOU PrePayment meters around the world, including Australia, has shown that, on average, consumers do NOT adjust their consumption pattern when paying a TOU tariff, unless the difference in price is really restrictive”. The TOU debate needs to be separated from the PPM: they are different issues. However, emphasis for policy making needs to be given to the twin issues of ability to gain savings from usage changes, and the relative value of the rewards of doing so. These two hurdles largely determine responsiveness to pricing signals. PPMs as an energy management tool also suppose that the householder has control of the thermal efficiency of the housing and the appliance quality – which is often not the case, particularly for tenants and many low-income homeowners such as aged pensioners.

Policy regarding PPM needs to be considered in relation to the likelihood that there may be a mandated roll out of interval meters (IM). The ESC is currently of the view that at least a partial roll out should occur. Most of the alleged benefits of PPM – the ability to monitor consumption, for example – will be available through IM technology. It is also the case that if IM were universally rolled out and had real time communications, demand responsiveness, and the appropriate allocation of costs and risks, this would increase energy affordability for many of the households that are the targets of PPM<sup>4</sup>.

### **Prepayment meters will be adopted on a purely voluntary basis by electricity retailers and customers and will operate only under negotiated contracts**

The experience of PPM in the UK is that the choice is between PPM and disconnection: we do not regard this as voluntary. Customers can be induced to ‘choose’, but we would question whether it would ever be truly voluntary, as the alternative is not being provided: utilities continue to resist the alternative of debt forgiveness as part of hardship policies.

### **Emergency credit and prohibition on self-disconnection after hours**

It is contradictory to talk about “consumer protection” whilst failing to provide a safety net that prevents disconnection. The provision of emergency credit (i.e. debt facility) only delays the evitable disconnection if affordability is the issue.

### **Right to revert to conventional meters**

If costs of removal are borne by the customer then the likelihood of the customers ever returning to traditional credit provision is low. As is evidenced in the UK, a large group of PPM customers (40%) ‘inherit’ the PPM as tenants. PPM in the UK are a feature of low-income housing, and as a consequence of supply to low-income groups.

### **Caravan parks and protection of caravan park residents**

The issue for these customers is not the same. Considerable advances in metering and IT could provide alternatives for these customers where the more traditional arrangements are proven to be unsatisfactory.

### **Card security**

Smart card (two way) PPM technology would require physical security measures to protect cards from being stolen, as most meters are externally located. In many circumstances, the virtual technologies (one way) would entail considerable installation costs, especially in multi-unit dwellings.

# Concessions

The Victorian Government and other state governments provide a range of concessions that form Community Services Obligations (CSOs). The CSOs policy involves government funding of 'social objectives'. Current examples of CSOs for the electricity industry include the:

- Winter Energy Concession
- Utility Relief Grant Scheme
- Multiple Sclerosis Concession
- Service to Property Charge Concession
- Life Support Machines Concession

In all cases, the concessions are delivered by calculating the consumption after a specified period of time. In the case of the Winter Energy Concession, Multiple Sclerosis Concession and Service to Property Charge Concession, a percentage concession (deduction) is applied when the bill is issued.

The Utility Relief Grant Scheme (URG) is designed to give financial assistance to households that through unforeseen circumstances find themselves temporarily unable to meet gas or electricity bills. Similarly to concessions outlined above, delivering the URG Scheme requires the issuing of an account after a period of use. If the household is unable to pay this amount, they inform the utility who provides the URG application forms to customers.

In either situation - concessions and Government financial assistance - the process for delivery of concession is depends on an account being issued after a period of consumption (3 months for the electricity industry, two months for the gas industry). The introduction of PPMs would need to be consistent with the current provision/process for the delivery of CSO's. Conversely, if PPMs were to be introduced, thus changing the billing cycle, there would need to be an extensive overhaul of the concession and financial assistance schemes' eligibility and accessibility criteria.

Similarly, many community agencies offer services to low income and disadvantaged energy consumers, including emergency relief and financial counselling agencies. The current process for providing such assistance relies upon a detailed knowledge/understanding of a client's bills and income. With the introduction of PPM, there is doubt about the availability of cost and consumption information, affecting the quality and level of assistance that is provided to consumers to ensure better budgeting and energy management.

In essence, PPM would compromise the delivery of the state's CSOs unless new means are made to deliver the concessions and programs. It also needs to be noted that the Victorian concession program underwrites consumer purchases of energy to the cost to the taxpayer of some \$76m. The potential of this subsidy not being delivered to those who need it is not just a matter for consumers. Retailers need to think about the impact on sales represented by a reduction in affordability and an anticipated increase in self-disconnection.

## Debt recovery

"...Disconnecting after the meter has run up a significant deficit such as \$25 in our view is not a good idea. Firstly it promotes the concept of customers living in debt which is contrary to a pay-as-you-go system. Secondly after disconnecting customers must pay more than the money owed to put the meters account back into positive credit before they can restore their supply, something that might not be possible for some customers who might have opted for prepayment because of their financial situation.... (Nilsen Technologies 2003).

The recovery of debt via a PPM raises an interesting conundrum. Utilities need to recover debt within a specific time frame or PPM will not be cost-effective for the utility. Any non-payment – including delayed payment – constitutes a loss for the utility. Utilities therefore wish to limit the extent of the liability by setting parameters on how long debt can be outstanding. In addition, utilities do not want customers accumulating further debt. In some industries late payment attracts a fee or interest is charged. In the UK there is considerable controversy over the setting of the percentage of debt that can be recovered via the PPM: some customers have 30% of payment going to arrears. There are also issues regarding how the PPM is programmed to account for collection once the debt is repaid.

For many vulnerable customers the flexibility of the credit relationship provides them with a buffer against the many other contingencies that cause financial distress. Later payment does not mean non-payment. Essentially with PPM debt recovery is prioritised over current consumption, and as a consequence the customer is more likely to self-disconnect.

The current consultation in NSW on the Market Operating Rules for PPMs exposes just how and why PPMs are intended for vulnerable customers. The supply side of the industry argues that the proposed \$25 emergency credit limit is far too much, as demonstrated by the quote above. The Victorian Retail Code, however, prohibits disconnection of a credit based customer for debts that are far higher than \$25. If PPM were permitted but were required to have an emergency credit facility that mirrored the Retail Code, retailers would be very unlikely to proceed with them. It would allow PPM customers to accrue debt by accessing the emergency credit provision. If the customer was moving out of the premises then the debt could not be recovered using that particular PPM and potentially not at all.

## **Meter reading, settlement, and demand management**

There are two types of PPM: one-way communications (sometimes called ‘virtual payment, or keypad technology), and two-way, smart cards. Either way, as Nilsens Technologies (2003) point out, PPM “are far more complex in their operation, require vending support and must have the physical ability (a switch) to disconnect customers loads...” Unless the retailer and the distribution business are the same, PPM technology is quite problematic in the National Electricity Market (NEM).

Distribution businesses (DBs) as the network or ‘poles and wires’ business require timely information to enable NEM settlements and network billing<sup>5</sup>. As it is, final settlement is more than six months after consumption. This is a source of risk. In the case of one-way technology, meter reading is still required and therefore one source of savings is eliminated. In the case of the two-way systems consumption data is only up-loaded when the customer re-charges the card. There have been suggestions that PPM customers be required to recharge their cards within minimum time frames, but this rather defeats some of the so-called benefits of PPM such as increased flexibility and choice. The uploading of consumption data may never take place if cards are lost or stolen. As AGL (2003) says, “situations may arise where customers have no incentive to recharge their smart card when they are vacating a property if the card has little or no available credit left on it.” This imposes considerable difficulty for the relationship between retailers and distributors, as distributors should only be billing retailers on the basis of metered data. For settlements it means more estimation and cost smearing. The second important point about this uploading of data occurring after the fact is that self-disconnection cannot be monitored. A customer could be off supply for weeks before raising sufficient funds to pay back the emergency credit and having enough pre-paid credit.

Key pad/one-way systems require customers to use electronic fund transfer (EFT) methods such as telephone or internet. Low-income customers are far less likely to have internet at home, and increasingly they are being relegated into pre-paid mobile phone ‘residual market’ that is more expensive than traditional credit-based home landlines. Disadvantage is being compounded. For those customers who require emergency relief, funds would need to be accredited to their bank account for the EFT; but ER agencies increasingly reluctant to deal in cash. It is difficult to see how key-pad technology would work in this situation.

Currently DBs own the meter and the meter is included in the DB’s asset base on which a rate of return is provided. Will retailers compensate the DB for stranding of this asset? And would the customer be faced with this cost in addition to the potential cost of the PPM?

## PPM costs

The purported cost differential between PPM and other payment types in the UK is disputed by the New Policy Institute, the Right to Fuel Campaign, and the National Energy Action. Colton also suggests that as PPMs involve a loss of benefits to the customer who had enjoyed the traditional credit, PPM customers therefore should see a corresponding reduction in price that goes with a downgraded service (Colton 1998). It is nonsensical to make a customer with affordability problems adopt a more expensive payment method. It increases the likelihood of arrears and disconnection. The alternative is to improve affordability – through energy efficiency retrofits, more flexible payment arrangements and debt forgiveness.

A strong business case for the alternative has been established, in the US (Colton 1998). In Melbourne some water retailers have developed comprehensive hardship policies in conjunction with their Customer Consultative Committees. Early findings show that in many cases debt waiver is cheaper than the legal cost of debt collecting. These schemes find that a proactive strategy of dealing with disadvantaged customers, including the incentive of debt forgiveness, increases the propensity of the customers to make some contribution. By contrast, in the past, faced with an insurmountable debt, contribution would not have been made as it would not have staved off the disconnection and/or debt recovery processes.

Energy and water users are customers for a lifetime. The individual rate of return of a customer over a 50 or 60 year period will alter little with the odd occasion of debt forgiveness. Punitive approaches make it harder to come back from poverty and alienate householders. Utilities need to think about the extent to which their low-income customers self-restrict and what this means in terms of loss of sales. Increased affordability could actually grow sales.

## The formation of a residual market

In the UK, Ofgem research on the domestic response to the market found that only around 10% PPM customers would change back to credit payment despite knowing that they could achieve price cuts (MORI 2001). They believed this indicated ‘satisfaction’ and should be read as consumer preference. What is obvious and has been confirmed by US research is that any customer who knows that they are likely to have difficulties paying for their electricity or gas also knows that they will need to pay reconnection fees, spend time negotiating with the utility over payments of arrears, be unsure of when disconnection would occur, and go through the ‘public’ embarrassment of the disconnection (Colton 1998). PPM do not provide flexibility or budget help but they do allow low-income customers a small amount of discretion and privacy in relation to which essential item they forego when ends do not meet. They know that the cheaper price of paying by credit is illusory because payments cannot be maintained. The fact that PPM customers in the UK are participating in market (although not to the same extent as credit or direct debit customers) – to the extent that it is available for them to do so (as transfers can be blocked because of arrears<sup>6</sup>) – shows that these customers are very price sensitive. It has also meant that they may be susceptible to misleading and deceptive marketing and, as PPM customers, not necessarily obtaining discounts when switching.

Brigham and Waterson (2003) seem to suggest the retailer acquisition effort in relation to low-income households is simply a lack of contract management. Their research found that retailers had not intended to market door-to-door to such neighborhoods, but that door-knockers working on commission shied away from their assigned targets – wealthy suburbs. Baker found competition had differential impacts on customer groups in the UK describing it as “uneven development” (Baker 2000:8). Citizens Advice Scotland (CABx) confirmed this finding. In April 1999 CABx looked at the experience of gas consumers, following the opening up of the gas market after 1996. The benefits of deregulation, through the ability to switch suppliers, were not reflected then in the evidence of CABx clients. This continues to be the case following further liberalisation of the energy markets. Though there has been a great deal of research which shows deregulation to be of overall benefit to consumers, the evidence suggests that the benefits have not been evenly distributed (Boardman 2001).

A recent study in Victoria on the experience of customers since FRC found that poorer customers were the largest group looking for cheaper prices (Sharam 2003). These customers were seeking to make household economies wherever they could – out of need not preference because, as the research also revealed, they did not actually expect the market to deliver benefits for them.

The UK experience is also the prime example of technology being used in the service of a residual market. The UK has a highly formalised, segmented market. The most marginal low-income and vulnerable households have been 'moved' onto PPMs. Customers who pay by direct debit are offered the lion's share of price discounts. As the poor in the UK tend not to have bank accounts, energy retailers can use the direct debit payment method as a screening process to ensure they are not attracting the wrong sort of customer – much as loyalty schemes can be used. The idea that provision of bank accounts would remove this barrier (Conaty and Bendle 2002) fails to recognise the existence of discrimination and residual markets in the banking sector, and more obviously the financial penalties imposed by banks for dishonoured direct debit requests.

In effect, a hierarchy exists in which PPMs are a pernicious 'provider of last resort', the most expensive and discriminatory payment method. The most affluent household segment is cherry-picked through the offering of discounted direct debit deals. Most customers stay where they have always been: with the traditional credit system, paying something in between these two other extremes. The NOA reported that in one region PPMs were 20% more expensive than direct debit (NOA 2001). SRC International reported the gap to be 30% in 1998 (SRC 1998). There is also a 'Fuel Direct' scheme that operates like Centrepay in Australia. Such schemes are also pernicious. They guarantee payment to providers like utilities, removing the householders' capacity to juggle expenses: that is, the utility gets paid even though there may be no food in the house for a week.

When Baker and Boardman discuss competition delivering uneven benefits they are identifying market segmentation. Markets act to exclude those without the entry price, and where possible they will extract monopoly rents. In the case of essential services the danger of exploitation is great. PPMs are a case in point. They allow retailers to extract the maximum surplus value from the customer – without risk to themselves and certainly without any social obligation.

It is erroneous to assume that competition and markets provide choice to all customers. Market segmentation explicitly works to exclude or to exploit certain types of customers, and cherry-pick attractive customers. Government should not assume competition will deliver lower prices to the most vulnerable customers. Moreover, suggestions such as that put forward by Department of Trade and Industry and New Policy Institute in the UK that PPM customers be subsidised – i.e. that universal service be maintained through cross-subsidies from other customers – fails to recognise the cost of residual markets and the underlying causes of fuel poverty. There are better alternatives.

## Comparison with status quo

It is interesting to compare the Credit Management Guideline issued by the ESC in Victoria with PPM. Far from suggesting that the former is an enlightened piece of regulation, the point is to demonstrate that the discrimination at the heart of PPM relates to policies that refuse to address the central issue of fuel poverty. The Credit Management Guideline permits retailers to require a security deposit (bond) from customers who have a poor credit history<sup>7</sup>. Whilst the Guideline stipulates that only utility related debts can be used for the purpose of the credit risk assessment, it overlooks the likelihood that these debts have been incurred as a result of severe hardship. The consumption of water and energy as essential services is hardly discretionary, and households – especially families – would rarely 'choose' to disconnect. Those with outstanding debts are also likely to have been disconnected and are likely to have non-utility related debts as well. The imposition of security deposits is a form of 'pre-recovery' credit management strategy in which 'insurance' is paid by the customer to cover the risk of default. In Victoria, those with such credit histories are easily avoided in the market (consent for a credit check is a feature of many offers) and these customers are hence reliant of the *standing offer* – the "safety net" tariff. This means that they pay the highest tariff in the market, a monopoly price sanctioned by the Victorian government. In paying this higher price, they again insure the retailer against losses. This of course predisposes them to a greater likelihood of default. Retailers are also permitted to impose 'recovery' mechanisms in the form of reconnection charges. The mechanisms designed to protect the retailers simply reduce affordability and add to the likelihood that the customer will experience arrears and periodic disconnection. The *standing offer* in Victoria – the so called "safety net" – is an example of an expensive and discriminatory 'provider of last resort'. PPMs take it one step further and hide its effects.

Further information on market segmentation and residual markets can be found in the documents “From Universal Service to No Service: The Redlining of Vulnerable Electricity Customers in Victoria”, and “Paying Too Much: Redlining, Economic Discrimination and Essential Services”. A discussion of the Victorian safety net is found in the attachment “Provider of Last Resort: Can Vulnerable Customers be Protected in Deregulated Electricity Markets?”, available at [www.vicnet.net.au/~eag1/](http://www.vicnet.net.au/~eag1/).

While the Retail Code in Victoria shies away from stating that debt forgiveness must comprise part of the response to arrears, it does infer that this is what should happen. This interpretation is supported by the Energy & Water Ombudsman Victoria (EWOV) in its decision to issue a Binding Decision (GD/2001/13) ordering a retailer to write off debt in a specific case of arrears.

It is arguable that the Binding Decision is a trigger for utilities to take more seriously the capacity to pay issue. Equally, it is arguable that the Binding Decision reinforces the preference utilities have for PPM technologies. The EWOV more recently has been actively promoting debate about PPM technology. The Energy & Water Ombudsman of NSW (EWON) Clare Petre openly supports PPM, publicly stating that “pay-as-you-go meters helped families to understand their energy consumption and to budget accordingly” (Needham 2002).

It may not be well understood by the public that since privatisation and deregulation of the energy industry, energy retailers have been required by a condition of their license to participate in a formal complaint scheme acceptable to the jurisdictional regulator. In most states this has resulted in the establishment of industry schemes. The term ‘ombudsman’ is used although they are not statutory offices as Australians have understood the function in the past. EWOV for example is a ‘Company Limited by Guarantee’ whose members are utilities representatives who pay a levy to operate the scheme. The scheme is managed by a Board, in which the Chairperson appointed by the members holds the deciding vote. Consumer directors, in numbers equal to that of industry directors, are appointed by the ESC. The EWOV is partially funded on the basis of the number of complaints incurred in relation to each member. Given that PPM reduces the interaction between customer and utility, it is arguable that the number of complaints against utilities may also be expected to drop and hence the cost of the scheme to the industry would be reduced.

## Rising prices in the NEM

Howat (2001) notes the pressure for PPM in the US coincides with rising prices in the market and decreasing affordability of basic energy requirements. In terms of the NEM, participating jurisdictions need to address the increase in wholesale prices since the NEM commenced. There are significant problems with the National Electricity Code such as re-bidding and lack of demand side management. The cost of full retail competition itself is high (somewhere between \$1.5b and \$4b over the first five years<sup>8</sup>). The idea is ludicrous that domestic prices should rise to provide “headroom” for competition (that is, putting prices up so that they can then be competed down) but that those who cannot afford these increases should be shunted onto the most expensive payment method.

Then there is *Ramsey pricing*, which is a convenient tool for the electricity distributors/retailers to use to ensure cost recovery and promote consumption growth. Senator Harradine pointed out during the passage of the *National Competition Act Bill* that *Ramsey pricing* is a form of highly regressive taxation based on the opportunity for monopoly exploitation. It is the height of economic rationalist hypocrisy to apply a mark up on those customers with least elasticity in order to subsidise those customers who might otherwise react to higher prices by reducing demand. It also contradicts energy conservation practices.

## A customer protection framework for social justice

It is the obligation of government to articulate the rights and responsibilities of customers and utilities, and it is these that will inform the objectives of “consumer protection”. Does government support or not support the delivery of sufficient energy to households to ensure their essential needs for heating, cooking, hygiene and security? If it does believe that households should have these essential needs met, then it cannot support policies that require disconnection for inability to pay. Appropriate consumer protection in this case would be to ensure that consumers are not penalised for inability to pay, and that barriers to achieving the minima of welfare are removed. Conversely, if government feels no responsibility to ensure a minima

of welfare, then it can embrace policies that include disconnection for inability to pay. The former would exclude PPMs, whilst the later would certainly adopt them.

Sadly, 'consumer protection' under competition is increasing literal. To have protection one needs to be a 'consumer': that is, literally consuming, able and committed to paying. 'Consumer protection' is increasing *not* intended to provide a framework for full participation where the prospect of not being able to pay exists. For example, the universal service obligation under the Telecommunications Act guarantees a landline telephone but where affordability becomes an issue it is provided on a limited basis (being the 'InContact' service). This gives the users the ability to receive but not make calls – a second-class service. Likewise, PPMs are a second-class service and are highly discriminatory.

In Victoria disconnection has risen with the advent of full retail competition. Despite the existence of a 'safety net' of concessions and emergency grants, disconnection is still used as the ultimate sanction to demand payment. Disconnection is a highly prescribed process that delays but does not avert the inevitable outcome if a person is experiencing fuel poverty. "Consumer" rights (procedural rights) are guaranteed but citizenship rights (substantive rights) are not. PPMs avoid any delay in the act of disconnection, and effectively subvert the current requirement of retailers to report on the number of households disconnected. The current reporting of retailer initiated disconnection and re-connection in the same name reveals not 'skippers', but the extent to which people go without because they cannot afford to pay the bill and cannot raise funds to avert disconnection<sup>9</sup>. In the UK, the introduction of PPMs meant the rate of disconnection fell to 1%. Customers facing disconnection were given a choice: be disconnected or accept a PPM calibrated to recover the debt (Ernst 1996). Collecting data on self-disconnection amongst PPM users is difficult from a research point of view. The delivery of state concessions also becomes exceedingly problematic. The National Audit Office (NAO) in the UK reported that 40% of PPM customers there inherited PPMs as part of their tenancy (NAO 2001). PPMs are avoided by the well off, and are not considered to be the payment method of choice of the poor either as 72% low-income customers still do not use them (NPI).

# Conclusion

PPMs do not address fuel poverty and affordability issues and are therefore inappropriate in the management of customers who face an inability to pay. PPMs are predicated on self-disconnection that is removed from public scrutiny and social policy measures. As a more expensive payment method, this technology is detrimental to the interests to those customers who experience fuel poverty. In Victoria alternatives have been successfully developed that provide benefits to customer and utility alike.

# Recommendations

1. That legislation be passed to prohibit the introduction of PPM into Victoria
2. That comprehensive 'hardship' policies set out as a formal guideline of the Essential Services Commission become a license condition of all energy retailers in Victoria.

# Notes

## Background

<sup>1</sup> having developed an appreciation of the impacts on the health budget of self-restriction of fuel by the elderly

<sup>2</sup> energy conservation

<sup>3</sup> the Home Energy Advisory Service that focused not only on housing stock but also on usage and implementing usage and behavioral changes for consumers without reducing comfort

## Notes to Pre-payment meters (PPMs)

<sup>4</sup> Pareto Associates 2003 *Smart Meters for Smart Competition? Will Current Proposals Hand Back Power to Consumers? 2003 Update*, prepared for the Energy Action Group, North Melbourne <http://www.esc.vic.gov.au/apps/page/user/pdf/IMRO%20EAG%20-%20Pareto7%20April%2003.pdf>

## Concessions

<sup>5</sup> the DBs currently use the metered data so that they can bill retailers for the costs of transporting the energy to the point of use.

<sup>6</sup> The National Energy Action (2002) said in reaction to changes to permit PPM customer with debt to transfer "...this protocol will allow at least some consumers in debt to take advantage of lower prices available from alternative suppliers. We regret that it has taken more than three years to devise a workable solution and have some difficulty in understanding suppliers' reluctance to countenance the simple solution of abolition of debt blocking, particularly for prepayment customers where collection of arrears is in any event assured via calibration of the meter." EAG speculates as NEA itself does that the reason has to do with the fact that the period of time it required to pay arrears using a PPM is sufficiently long to wipe out any profits that may be gained by a new retailer 'effectively' buying the debt. PPM have to consume in order for the debt to get paid which they do not if they are self-disconnecting.

<sup>7</sup> Or if the retailers has offered an instalment plan that the customer has not accepted (the retailers are permitted to seek that debt is recovered in a 12 month period, which may not be feasible for the customer. That is, where affordability is the issue the Retail Code fails to prevent the use of security deposit and disconnection. A retailer can also request a security deposit where the customer refuses to provide acceptable identification.

<sup>8</sup> Energy Action Group 2002 Submission to the COAG Review of Energy Markets

<sup>9</sup> See Dufty G 1995 *Unplugged* VCOSS, Melbourne

# Bibliography

- Australian Consumers Association 2003 *submission to the NSW Ministry of Energy and Utilities Proposed Market Operation Rule on Prepayment Metering*
- Brigham B and Waterson M 2003 *Strategic change in the market for domestic electricity in the UK* Centre for Management under Regulation, University of Warwick
- Backman H, Ceballos Y, Kane V, Pasiopoulos and Skrobek M 1987 *Unequal Access A Study of the Energy Needs and Fuel Poverty Amongst Tenants in Fitzroy,*
- Baker W 2001 *Competitive Energy Markets and Low Income Consumers.* National Right to Fuel Campaign and Centre for Sustainable Energy. London.
- Benvenuti J and Walker D 1995 *Switched Off: Case studies of consumers' experiences with energy and water utilities* Consumer Advocacy and Financial Counselling Association of Victoria, Melbourne
- Boardman B 2001 *Response to the UK Fuel Poverty Strategy,* Citizens Advice Scotland, May
- Burke T and Ralston L 2003 *Analysis of Expenditure Patterns and Levels of Household Indebtedness of Public and Private Rental Households, 1975 to 1999,* Australian Housing and Urban Research Institute Swinburne-Monash AHURI Research Centre April
- Colton 1998 *Prepayment Meters and the Low-Income Utility Consumer,* Fisher Sheehan and Colton, Public Finance and General Economics. Belmont, Maine (<http://www.fsconline.com/downloads/PREPAY.pdf>)
- Conaty P and Bendle S 2002 *Ending Fuel Poverty and Financial Exclusion* New Economics Foundation and National Energy Action
- Crossley D, McKenzie B, Parin J and Taylor N nd *Predicting Household Responses to Energy Conservation Policies* Environmental paper no. 5, Graduate School of Environmental Science, Monash University, Clayton, Victoria
- Date Rate Working Party 1991 *Day Rate Retrofitting Study Part 1,* Melbourne
- Deasey L and Montero K 1983 *Fuel Poverty in Victoria,* A report by the Energy Action Group to the Minister for Minerals and Energy may 1983, Carlton Victoria
- Dept of Industry, Technology and Resources 1985 *HEAS Energy Savings Study Phase 2 Report,* Victoria
- Duffy G 2003 *Automated Metering Technologies: The New Face of Customer Service?* St Vincent De Paul Discussion Paper, Melbourne
- Ernst, J. 1994. *Whose Utility?: The Social Impact of Public Utility Privatization and Regulation in Britain.* Open University Press. Buckingham.
- Fish R 2001 comment to forum Good Shepherd Youth and Family Service St, Albans 26 November
- Howat J 2001 *Wave of the Future for Low-Income Utility Ratepayers?* National Consumer Law Centre, Washington??
- Kiers D 1983 *Tariff Reform and the Social Obligations of Energy Policy,* Centre for Urban Research and Action, Fitzroy
- Kliger B 1998 *Unfair Deal* Stegley Foundation, South Yarra
- Kymantis K 1986 *Social Welfare Pilot Project Report,* State Electricity Commission and Gas and Fuel Corporation, Geelong

Lawrence J, 2002 comment to Low-Income Electricity Consumers Project Forum, South Australian Council of Social Service Adelaide

McColl-Kennedy J and Dann S 1989 *Electricity Tariffs: Social Policy Implications* Australian Journal of Public Administration Vol 48, No. 3 September

Mills S 1988 *The Heat Report* Public Tenants' Union of Victoria, Richmond North September

MORI 2001 *Experience of the Competitive Market* The Domestic Electricity and Gas Markets, prepared for Ofgem, January

National Audit Office 2001 *Giving Domestic Customers a Choice of Electricity Supplier* Office of Gas and Electricity Markets, A Report by the Comptroller and Auditor General, 5 January

National Energy Action 2002 *Proposed debt assignment protocol for prepayment customers: the response from NEA* November <http://www.nea.org.uk/publications/responses/debtprotocol.htm>

Needham K 2002 *New meter to stop plug being pulled* Sydney Morning Herald November 23 2002

Neilson H c2001 *Staying Connected* Good Shepherd Youth and Family Service, St Albans Melbourne

Nilsen Technologies P/L 2003 *submission to the NSW Ministry of Energy and Utilities Proposed Market Operation Rule on Prepayment Metering*

Romeril B 1998 *Powerless in a Privatised State, The Impact of Privatisation on Domestic Electricity Disconnections Victoria 1985 to 1997*, Financial and Consumer Rights Council, Melbourne

Siemon D 1995 *The Restructuring and sale of Victoria's electricity industry: is it worth it?* Brotherhood of St Laurence, Melbourne

Sharam A 2002 *Provider of Last Resort: Can Vulnerable Customers be Protected in De-regulated Electricity Markets?* Discussion paper, Energy Action Group North Melbourne  
Sharam A 2003 *Power Failure: Why Victorian households are not plugging into electricity competition*, Institute for Social Research, Swinburne University

Sharam A forthcoming PhD research at the Institute for Social Research, Swinburne University, Hawthorn Victoria

Taggart M 1995 *Public Utilities and Public Law* in *Essays on the Constitution*, Joseph P (ed), Brooker's Wellington NZ

Zajac E 1996 *Political Economy of Fairness*, The MIT Press, Cambridge Mass

