The Allen Consulting Group

# Prepayment meter systems in Western Australia

## Cost benefit analysis and regulatory impact assessment

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Final report to the Economic Regulation Authority

The Allen Consulting Group

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# Executive summary

### *Prepayment meter systems*

In Western Australia, electricity customers typically pay for electricity after consumption. An alternative metering and billing arrangement is the use of "prepayment" meters that require customers to pay for electricity before it can be consumed.

As a relatively new innovation, electricity prepayment meters are being installed by Horizon Power as part of the Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program in the North West of Western Australia.

The *Code of Conduct for the Supply of Electricity to Small Use Customers* (the Code of Conduct) imposes regulatory constraints to a more widespread use of prepayment meters.

### *Scope of the current study*

The Economic Regulation Authority is currently considering whether the Code of Conduct should be amended to allow the use of prepayment meters in Western Australia outside of the communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program. The Allen Consulting Group was engaged by the Authority to undertake a cost benefit analysis and prepare a regulatory impact statement on the current and possible future operation of prepayment meters in Western Australia. This report comprises:

- an assessment of the costs and benefits of use of prepayment meters in the communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program ("the remote communities");
- an assessment of the costs and benefits of wider use of prepayment meters throughout Western Australia; and
- a preliminary regulatory impact statement for changes to the Code of Conduct to allow wider use of prepayment meters.

### *Costs and benefits of prepayment meters in remote communities*

The economic costs and benefits from use of prepayment meters in the remote communities have been estimated on the basis of:

- a comparison to a status quo or base case of use of standard credit meters for individual customers in these communities; and
- the use of prepayment meters having no effect on retail electricity prices, reflecting that retail electricity prices are set by regulation and, in the foreseeable future are likely to be maintained at substantially below the cost of providing electricity services.

The principal parameters of the analysis were:

- a base number of prepayment meter customers of 1,660 customers by 2011, escalated by 2.6 per cent per annum (reflecting forecasts by the Australian Bureau of Statistics of growth rates of indigenous communities);
- a cost per prepayment meters of $410 (including protective metal covers and installation) and a life of 15 years, compared to a cost per standard credit meter of $250 (including protective metal covers and installation) and a life of 30 years;
- a disconnection rate of 31 per cent per annum amongst prepayment meter customers and a disconnection rate of 10 per cent per annum amongst standard credit meter customers living in remote communities;
- an average electricity bill of $383 per household every second month; and
- the existing provisions for prepayment meters in the Code of Conduct.

Estimates are provided in Table ES.1 of the net economic costs and benefits from use of prepayment meters in the remote communities.

Table ES.1

**ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS (EXCLUDING TRANSFER PAYMENTS)**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Infrastructure costs | -$37.79 | -$819,675 |
| Up-front metering system support costs | -$3.18 | -$68,882 |
| Audit costs | -$28.27 | -$613,134 |
| Consequential costs of disconnection | -$5.94 | -$128,743 |
| Regulatory framework | -$0.60 | -$13,000 |
| Benefits | | |
| Reduction in disconnection and reconnection costs | $114.00 | $2,472,709 |
| Savings in billing costs | $6.30 | $136,650 |
| **TOTAL** | ***$44.53*** | ***$965,924*** |

Source: Allen Consulting Group

The benefit of use of prepayment meters in remote communities instead of standard credit meters is estimated to be a present value over 20 years of around $966,000, corresponding to an average annual net benefit of about $44.53 per prepayment meter customer. The primary benefit is a reduction in the costs to retailers of disconnecting and reconnecting standard credit meter customers that do not pay their electricity bills with a present value of around $2.5 million over 20 years.

The net economic benefits and costs ignore a range of transfer payments that occur between electricity retailers, electricity customers, the Western Australian Government and other stakeholders. While these transfer payments are not important in considering the overall benefit or cost for the Western Australian community in total, they are important in considering the effects of prepayment meters on individual stakeholders.

Estimates are provided in Table ES.2 of the economic costs and benefits to individual stakeholders from use of prepayment meters in the remote communities.

Table ES.2

**ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS (INCLUDING TRANSFER PAYMENTS)**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| **Electricity retailers** | | |
| Costs | | |
| Infrastructure costs | -$37.79 | -$819,675 |
| Up-front metering system support costs | -$3.18 | -$68,882 |
| Commissions to card retailers | -$68.94 | -$1,495,391 |
| Audit costs | -$28.27 | -$613,134 |
| Loss of revenue from late-payment and reconnection fees | -$3.16 | -$68,542 |
| Benefits | | |
| Prepayment for electricity | $20.60 | $446,731 |
| Reduction in bad debts | $1.48 | $32,060 |
| Reduction in disconnection and reconnection costs | $114.00 | $2,472,709 |
| Savings in billing | $6.30 | $136,650 |
| ***Sub-total*** | ***$1.04*** | ***$22,525*** |
| **Costs and benefits to electricity consumers** | | |
| Costs | | |
| Costs of prepaying for electricity | -$20.60 | -$446,731 |
| Costs of reduced opportunity for late payments | -$1.48 | -$32,060 |
| Reduced access to subsidy payments | -$50.00 | -$1,084,522 |
| Consequential costs of disconnection | -$5.94 | -$128,743 |
| Benefits | | |
| Avoidance of late-payment and reconnection fees | $3.16 | $68,542 |
| ***Sub-total*** | ***-$74.85*** | ***-$1,623,514*** |
| **Costs and benefits to the broader community** | | |
| Costs | | |
| Regulatory framework | -$0.60 | -$13,000 |
| Benefits | | |
| Commissions to card retailers | $68.94 | $1,495,391 |
| Reduced cost to government of subsidy payments | $50.00 | $1,084,522 |
| ***Sub-total*** | ***$118.34*** | ***$2,566,913*** |
| **TOTAL** | **$44.53** | **$965,924** |

Source: Allen Consulting Group

The main findings of the cost-benefit analysis are as follows.

1. Horizon Power will incur net additional benefits from installing prepayment meters in remote communities, including reductions in disconnection and reconnection costs and cash-flow benefits from up-front payment for electricity.

2. Prepayment meter customers will incur net additional costs primarily arising from not being able to access government subsidies under the Hardship Utility Grant Scheme.

3. There is a benefit to the broader Western Australian community primarily arising from not being required to pay government subsidies under the Hardship Utility Grant Scheme. (This benefit to the community is a transfer from prepayment meter customers.)

There is a net benefit to the electricity retailer with a present value over 20 years of $23,000, a net cost on average to electricity customers of around $75 per annum, and a net benefit to the wider community with a present value over 20 years of $2.6 million.

Over a 20 year period, Horizon Power is expected to be better off as a result of installing prepayment meters in remote communities. The main items of cost reduction are costs savings from the avoided need to physically disconnect and reconnect customers that are in arrears with payments ($2.5 million) and the prepayment by customers for electricity and the value of this in lower working capital requirements ($447,000).

The benefits to Horizon Power are partially offset by some increased costs. The main cost items are the payment of commissions to retail outlets selling prepayment meter credit (almost $1.5 million) and administration costs incurred in auditing reports submitted by retail outlets ($613,000).

The finding that prepayment meters result in a net cost to residents of remote communities arises primarily from an assumed inability of prepayment meter customers to obtain financial assistance grants under the Hardship Utility Grants Scheme that would otherwise be available with standard credit meters. The value of this foregone benefit is estimated at $50 per customer.

This cost to prepayment meter customers could be avoided by developing mechanisms to ensure that customers on prepayment meters continue to have appropriate access to hardship assistance payments. Maintaining this assistance would reduce the cost of prepayment meters to customers in remote communities to around $25 per customer per annum.

The use of prepayment meters in the remote communities is estimated to result in a net benefit to the Western Australian community of $2.6 million over a 20 year period. The finding that the use of prepayment meters results in a net benefit to the Western Australian community primarily arises from the benefit to retailers in remote communities that sell prepayment meter cards on behalf of Horizon Power because they receive commissions on the value of cards sold (estimated to have a present value benefit of around $1.5 million over a 20 year period).

The use of prepayment meters may also result in some social costs and benefits for people living in remote indigenous communities. It is considered likely that the use of prepayment meters will result in an increase in the number of households being disconnected from their electricity supply each year. Episodes of disconnection from electricity supply can impose a number of socials costs on households, particularly on already vulnerable people. Some of the possible social costs of disconnection include health and safety costs (such as increased rates of illness and accidents) and emotional and psychological costs (caused by distress from trying to cope without electricity).

The extent of any such costs is uncertain. There is no clear evidence for the incidence and severity of the adverse social effects. The likelihood and severity of the social effects will depend upon the individual circumstances of the affected household and the duration of the disconnection.

Prepayment meters may even potentially reduce these social effects by reducing the duration of disconnections and by engendering a perception of disconnection being under the personal control of the electricity customer rather than something that is imposed upon the customer by the electricity retailer. Moreover, there may also be positive social effects arising through increasing personal accountability and responsibility for the consumption of, and payment for, electricity services on behalf of the electricity customer.

### *Costs and benefits of wider use of prepayment meters in Western Australia*

The benefits and costs of a wider use of prepayment meters were assessed under a scenario under which customer could voluntarily elect to have a prepayment meter installed or to utilise the prepayment meter function of a "smart" meter.

Consistent with the assessment of benefits and costs of prepayment meters in the remote communities, the assessment of costs and benefits of wider use of prepayment meters in Western Australia were estimated on the basis of:

- a comparison to a status quo or base case of use of standard credit meters for individual customers; and
- the use of prepayment meters having no effect on retail electricity prices, reflecting that retail electricity prices are set by regulation and, in the foreseeable future are likely to be maintained at substantially below the cost of providing electricity services.

The principal parameters of the analysis were:

- an assumption that, within the South-West Interconnected System, use of prepayment meters will start at 1 per cent of customers and increase to 6 per cent by 2018 and after 2018, the use of prepayment meters will increase more rapidly with the introduction of full retail contestability to a maximum 20 per cent in 2028;
- an assumption that outside the South-West Interconnected System the starting level of penetration will be about 1 per cent and will increase linearly to 20 per cent of customers in 2028;

- a cost per prepayment meter of $215 for Synergy (including installation costs) and $245 for Horizon Power (including protective metal covers and installation costs) and a life of 15 years, compared to a cost per standard credit meter of $220 for Synergy (including installation costs) and $250 for Horizon Power (including protective metal covers and installation) and a life of 30 years;
- for customers with prepayment meters, a disconnection rate of 20 per cent per annum for Synergy and mainstream Horizon Power customers and 31 per cent per annum for Horizon Power customers living in remote indigenous communities
- for customers with standard credit meters, a disconnection rate of 0.58 per cent per annum for Synergy customers, 5.8 per cent per annum for mainstream Horizon Power customers and 10 per cent for Horizon Power customers in remote indigenous communities;
- an average electricity bill per household every second month of $155 for Synergy customers, $274 for mainstream Horizon Power customers and $383 for Horizon Power customers living in remote communities; and
- installation and use of prepayment meters under regulatory provisions similar to the Prepayment Meter System Code of the Australian Capital Territory.

On the last of these pints, the code applying to the Australian Capital Territory was selected because it is also representative of the codes operating in South Australia and Tasmania to the extent that it influences the cost-benefit analysis. Provisions of the code operating in the Australian Capital Territory that influence the modelling in the cost-benefit analysis are that: prepayment meters must be used voluntarily by customers; meters must be capable of recording and reporting to the retailer the number and duration of disconnections and retailers must make data on electricity consumption available to customers on request. These parameters in turn influence the rate of adoption of prepayment meters, the types of meters used and the need for retailers to continue meter reading.

Estimates are provided in Table ES.3 of the net economic costs and benefits from use of a wider use of prepayment meters.

Table ES.3

**ESTIMATED PRESENT VALUE OF COSTS AND BENEFITS OVER A 20 YEAR PERIOD OF PREPAYMENT METERS IN WESTERN AUSTRALIA COMPARED TO USE OF STANDARD CREDIT METERS (EXCLUDING TRANSFER PAYMENTS)**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Infrastructure costs | -$0.11 | -$117,254 |
| Up-front metering system support costs | -$0.55 | -$596,988 |
| On-going metering system support costs | -$0.54 | -$577,979 |
| Consequential costs of disconnection | -$4.21 | -$4,533,067 |
| Learning costs | -$1.36 | -$1,464,079 |
| Regulatory framework | -$0.07 | -$75,000 |
| Transitional costs | | |
| Meter replacement costs - Horizon Power | -$0.29 | -$311,200 |
| Benefits | | |
| Reduction in disconnection and reconnection costs | $3.28 | $3,532,927 |
| Savings in billing costs | $6.30 | $6,787,131 |
| **TOTAL** | ***$2.45*** | ***$2,644,491*** |

Source: Allen Consulting Group

The benefit of electricity customers being permitted to use prepayment meters on a voluntary basis in Western Australia is estimated to be a present value over 20 years of around $2.6 million, corresponding to an average annual net benefit of about $2.45 per prepayment meter customer. The primary benefit is a reduction in the costs to retailers of issuing bills for electricity accounts (with a present value of $6.8 million over 20 years) and a reduction in the costs of disconnecting and reconnecting standard credit meter customers that do not pay their electricity bills (with a present value of around $3.5 million over 20 years).

Estimates are provided in Table ES.4 of the economic costs and benefits to individual stakeholders from wider use of prepayment meters, including transfer payments.

Table ES.4

**ESTIMATED PRESENT VALUE OF COSTS AND BENEFITS OVER A 20 YEAR PERIOD OF PREPAYMENT METERS IN WESTERN AUSTRALIA COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| **Electricity retailers** | | |
| Costs | | |
| Infrastructure costs | -$0.11 | -$117,254 |
| Up-front metering system support costs | -$0.55 | -$596,988 |
| On-going metering system support costs | -$0.54 | -$577,979 |
| Loss of revenue from late-payment and reconnection fees | -$0.29 | -$314,841 |
| Benefits | | |
| Prepayment for electricity | $8.78 | $9,457,331 |
| Savings in billing | $6.30 | $6,787,131 |
| Reduction in disconnection and reconnection costs | $3.28 | $3,532,927 |
| Reduction in bad debts | $0.08 | $87,237 |
| ***Sub-total (excluding transitional costs)*** | ***$16.95*** | ***$18,257,564*** |
| Transitional costs | | |
| Meter replacement costs - Horizon Power | -$0.29 | -$311,200 |
| ***Sub-total (including transitional costs)*** | ***$16.66*** | ***$17,946,364*** |
| **Costs and benefits to electricity consumers** | | |
| Costs | | |
| Costs of prepaying for electricity | -$8.78 | -$9,457,331 |
| Costs of reduced opportunity for late payments | -$0.08 | -$87,237 |
| Reduced access to subsidy payments | -$1.01 | -$1,084,522 |
| Consequential costs of disconnection | -$4.21 | -$4,533,067 |
| Learning costs | -$1.36 | -$1,464,079 |
| Benefits | | |
| Avoidance of late-payment and reconnection fees | $0.29 | $314,841 |
| ***Sub-total*** | ***-$15.14*** | ***-$16,311,395*** |
| ***Costs and benefits to the broader community*** | | |
| Costs | | |
| Regulatory framework | -$0.07 | -$75,000 |
| Benefits | | |
| Reduced cost to government of subsidy payments | $1.01 | $1,084,522 |
| ***Sub-total*** | ***$0.94*** | ***$1,009,522*** |
| **TOTAL** | **$2.45** | **$2,644,491** |

Source: Allen Consulting Group

The main findings of the cost-benefit analysis are as follows.

1. Electricity retailers will experience net benefits from installing prepayment meters in Western Australia, primarily from the interest benefit from customers prepaying for electricity and from avoiding the costs of sending electricity bills to prepayment meter customers.

2. Prepayment meter customers will incur net additional costs primarily arising from the interest cost of prepaying for electricity.

3. There is a benefit to the broader Western Australian community primarily arising from not being required to pay government subsidies under the Hardship Utility Grant Scheme.

Under a voluntary use scenario, retailers in Western Australia would be permitted to offer prepayment meters as a payment option, as part of supply provided to customers under a standard form contract and with customers paying the same regulated retail electricity tariffs as for standard credit meter customers.

Allowing the use of prepayment meters in Western Australia is estimated to have a net economic benefit. The net present value of allowing use of prepayment meters in Western Australia is estimated to be $2.6 million under the voluntary use scenario.

The benefits of prepayment meters to electricity retailers arise from a reduction of costs. Over a 20 year period, these benefits are estimated to have a present value of about $17.9 million. The main items of cost reduction are the prepayment of electricity charges by customers and consequent savings in costs of working capital (estimated present value cost of around $9.5 million) and savings in billing costs (estimated present value cost of around $6.8 million).

The use of prepayment meters in Western Australia in place of some standard credit meters is estimated to result in a net cost to prepayment meter customers with a present value of $15.14 per prepayment meter customer per annum or $16.3 million over 20 years under the voluntary use scenario.

The finding that prepayment meters result in a net cost to prepayment meter customers in Western Australia arises from the conclusion that customers must pay up-front for their electricity and lose the time value of money over the billing cycles applying to standard credit meter customers. The present value of this foregone benefit is estimated to be $8.78 per prepayment meter customer per annum.

All of the other costs and benefits would only arise for customers that have difficulties paying their electricity bills. However, a customer that ordinarily incurs bad debts, is disconnected once per annum and would be eligible for the full amount of Hardship Utility Grants Scheme could be worse off with a prepayment meter installed by as much as $304 per annum for a Synergy customer, $515 per annum for a mainstream Horizon Power customer and $532 per annum for a Horizon Power customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

The use of prepayment meters in Western Australia in place of some standard credit meters is estimated to result in a net benefit to the Western Australian community of $1 million over a 20 year period.

The primary benefit to the Western Australian community is the benefit of not being required pay subsidies to customers with prepayment meters that can not pay their electricity bills. This benefit is partially offset by a cost to the Western Australian community of $75,000 to develop a code to regulate the use of prepayment meters in Western Australia.

The use of prepayment meters throughout Western Australia may result in some social costs and benefits for prepayment meter customers. The costs may include health and safety costs and emotional and psychological costs arising from an increased rate of disconnections from electricity. These costs are uncertain because they depend upon the personal circumstances of each household. Prepayment meters may in fact lead to a reduction in these costs by reducing the duration of any episodes of disconnection. A social benefit from the use of prepayment meters may include improved budget management skills through the engendering of a greater level of personal responsibility for paying and managing electricity supply.

### *Customer protection issues*

Any wider use of prepayment meters in Western Australia would need to be accompanied by changes to the Code of Conduct and to other welfare and regulatory mechanisms to afford customers with prepayment meters the same consumer protection and welfare entitlements as customers with standard credit meters.

In particular, further consideration may need to be given to whether and how prepayment meter customers have access to grants under the Hardship Utility Grants Scheme. The Scheme pays grants to people who are assessed as being in genuine financial hardship and are unable to pay their electricity (or other utility) bill. The objective of the scheme is to avoid disconnections.

The Department of Child Protection (which administers the Scheme) has advised that prepayment meters customers are not precluded from accessing the Scheme. However, prepayment meter customers cannot access the Scheme for several practical reasons. These include because the electricity retailer is not able to assess whether a prepayment meter customer is experiencing financial hardship, the minimum grant paid under the Scheme exceeds the maximum amount of debt owed on a prepayment meter and the grant is paid to the retailer rather than to the customer.

Regulatory frameworks in the Australian Capital Territory, South Australia and Tasmania include a number of consumer protection measures that are not included in the Western Australian Code of Conduct. Additional measures that could be considered on the basis of codes operating in other jurisdictions include the following.

- A condition in the Code of Conduct that retailers are not permitted to harass or coerce customers into accepting a prepayment meter. The three other jurisdictions have slightly differing requirements about customer acceptance of prepayment meters. All three require customers to provide informed consent before a retailer is permitted to install a prepayment meter, but only South Australia explicitly states that customers cannot be harassed or coerced into accepting one.

- A requirement that electricity retailers be able to give customers information on total energy consumption, average daily consumption and average daily cost of consumption for the previous two years or since the commencement of the prepayment meter contract. This requirement is common to all three jurisdictions.
- A requirement that retailers offer prepayment meter customers a mandatory trial period (for example, three months), at or before the expiry of which customers can request to have the prepayment meter removed at no cost. This requirement is common to all three jurisdictions.
- A requirement that retailers immediately respond to a request by a prepayment meter customer to revert back to a standard credit meter. A charge may be levied if the customer requests that the meter be changed outside of the mandatory trial period. This requirement is common to all three jurisdictions.
- Restrictions on the extent to which retailers can recover outstanding debts from individual customers through adjustments to prepayment meter charges. For example, the South Australian and the Australian Capital Territory prepayment meter codes do not permit a retailer to recover any debts from a customer by adjusting the charges in the prepayment meter to recover the amount of the debt. The Tasmanian code permits the electricity retailer to apply a 50 cent per day surcharge on the standard fixed charge to recover outstanding debts.
- A requirement that prepayment meters be programmed not to disconnect a prepayment meter customer from their electricity supply at certain times of the day. For example, the Australian Capital Territory and the South Australian codes do 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, while Tasmania does not permit disconnections other than between the hours of 8:00am and 2:00pm on any day.
- A requirement 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. This requirement is common to all three jurisdictions.
- A requirement that, in certain circumstances, the retailer must contact prepayment meter customers as soon as is reasonably practicable to replace the prepayment meter with a standard credit meter at no cost to the customers. These circumstances may include if a prepayment meter customer informs their retailer that they are having difficulty paying or the retailer identifies that a customer has self-disconnected three or more times in any three-month period for longer than 240 minutes on each occasion. The retailer would be required maintain verifiable records of such contacts. These requirements are common to all three jurisdictions.
- A requirement that retailers must immediately check that a prepayment meter is operating correctly if requested by a customer. This requirement applies in South Australia and the Australian Capital Territory, whereas Tasmania permits the electricity retailer 15 business days to perform the checks.

It is likely that the effect of some of these requirements would be to reduce the extent of hardship amongst prepayment meter customers compared to if there were no consumer protection requirements. However, there is insufficient data to quantify the effect of these requirements, for example through a reduction in the rate of disconnections that are associated with an unacceptable level of hardship.

### *Regulatory impact assessment*

A regulatory impact assessment has been conducted on the use of prepayment meters in Western Australia, compliant with a prepayment meter code similar to that operating in the Australian Capital Territory. This regulatory impact assessment was undertaken in accordance with guidelines produced by the Department of Treasury and Finance for reviews of this type.[1]

The use of prepayment meters will have a number of effects on electricity retailers, customers with prepayment meters and the broader Western Australian community. These effects are briefly summarised below.

- Effects on retailers
  - A potential improvement in financial position resulting from a decrease in costs associated with working capital and some retail functions.
  - A potential deterioration in financial position resulting from an increase in costs associated with meter infrastructure and on-going support costs.
- Effects on prepayment meter customers
  - Decreased consumer well-being from a net increase in financial costs associated with electricity consumption.
  - Decreased consumer well-being from an increase in social costs associated with an increased rate of electricity disconnections.
  - Increased consumer well-being by engendering a greater sense of personal responsibility for managing electricity supplies.
- Effects on the Western Australian community
  - Weakened financial position of the Western Australian Government through costs incurred in development of a regulatory framework to support prepayment meters.
  - Improved financial position of the Western Australian Government through a reduction in payment of assistance to electricity customers.

Allowing use of prepayment meters in Western Australia is considered to be, in aggregate, in the public interest. This is primarily because the benefits to electricity retailers and the Western Australian community of using prepayment meters exceed the costs to prepayment meter customers associated with the use of prepayment meters.

[1] Department of Treasury and Finance, Competition Policy Unit, November 2001, Public Interest Guidelines for Legislation Review.

There is, however, potential for the use of prepayment meters to make some electricity customers significantly worse off. Avoiding this would require developing mechanisms to ensure that customers on prepayment meters continue to have appropriate access to hardship assistance payments.

*Chapter 1*

# Introduction

## 1.1 Project background

### *Prepayment meter systems*

In Western Australia, electricity customers typically pay for electricity after consumption. An alternative metering and billing arrangement is the use of "prepayment" meters that require customers to pay for electricity before it can be consumed.

As a relatively new innovation, electricity prepayment meters are being installed by Horizon Power as part of the Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program in the North West of Western Australia.

There are regulatory constraints to a more widespread use of prepayment meters. At present, sections of the *Code of Conduct for the Supply of Electricity to Small Use Customers* (the Code of Conduct) that deal with metering, billing and payment are premised on the use of "credit" meters and billing in arrears of electricity consumption. Part 9 of the Code of Conduct exempts a retailer from having to comply with these requirements for customers with prepayment meters in communities in which the Aboriginal and Remote Communities Power Supply Program or Town Reserve Regularisation Program has been implemented. Although the Code of Conduct does not explicitly preclude retailers from installing prepayment meters outside of these communities, it is not practicable or possible for retailers to use prepayment meters and still comply with the obligations under section 9 of the Code of Conduct. In practice, therefore, the effect of Part 9 of the Code of Conduct is to prevent current electricity retailers (Horizon Power and Synergy[2]) from offering prepayment meters to electricity customers that do not reside in an Aboriginal and Remote Communities Power Supply Program or Town Reserve Regularisation Program town or communities.

### *Review of the Code*

The Economic Regulation Authority (the Authority) established the Electricity Code Consultative Committee in August 2006 to undertake a review of the Code of Conduct as required under section 88 of the *Electricity Industry Act 2004* (the Act). The objective of the review is to reassess the suitability of the provisions of the Code of Conduct in achieving the purpose and the objectives of the Code of Conduct.

Amongst the matters considered by the Committee was whether the Code of Conduct should be amended to allow the use of prepayment meters in Western Australia outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

[2] The retail electricity market in Western Australia is not fully contestable. Customers consuming less than 50 megawatt hours per annum of electricity are supplied by either Synergy or Horizon Power, depending on their geographical location.

The Committee recommended that the Authority commission independent research (including a cost benefit analysis and a regulatory impact statement) into the current and possible future operation and regulation of prepayment meters in Western Australia.

## 1.2 Scope of this report

The Allen Consulting Group was engaged by the Authority to undertake a cost benefit analysis and prepare a regulatory impact statement on the current and possible future operation of prepayment meters in Western Australia. The scope of work is provided in Appendix B.

Specifically, the Allen Consulting Group was engaged to:

- assess the costs, benefits and risks associated with the implementation of prepayment meters as part of the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program programs (relative to standard credit meters having been installed as part of these programs); and
- undertake an assessment of the costs, benefits and risks of a broader roll-out of prepayment meters in Western Australia.

It was not within the scope of the study to consider whether or not prepayment meters should be rolled-out more broadly in Western Australia. Rather, the study examined the expected costs, benefits and risks that may arise if prepayment meters were permitted to be rolled-out in Western Australia outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

In undertaking the study, the Allen Consulting Group reviewed existing literature on the use of prepayment meters and consulted with a range of stakeholders (refer to Appendix C). This study did not involve direct consultation with Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities or with Horizon Power's prepayment meter customers in these communities. Information and data on the customer experience with prepayment meters in these communities was obtained from the results of a formal survey of prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities that was conducted by the Office of Energy in September 2008[3].

## 1.3 Structure of this report

This report comprises a cost benefit assessment and regulatory impact statement, and is structured as follows.

- In Chapter 2, a description of prepayment meter systems is provided, including information on types of prepayment meters, the attributes of prepayment meters and the customer issues associated with prepayment meters.

[3] The survey instrument was developed by the Office of Energy and Horizon Power, and was administered by an independent third party.

- In Chapter 3, a review is provided of the characteristics of remote Aboriginal and town-reserve communities, and the historical electricity supply arrangements in these communities. Descriptions are provided of the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program, the type of prepayment meter that is being installed as part of these programs, and regulatory arrangements that govern the use of prepayment meters in Western Australia.
- In Chapter 4, the social and community impacts of the use of prepayment meters are described.
- In Chapter 5, a cost-benefit analysis is presented for the use of prepayment meters under the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program.
- In Chapter 6, a future scenario for the use of prepayment meters through out Western Australia is described, based upon the voluntary use of prepayment meters under existing "standard form contracts" for electricity supply.
- In Chapter 7, a cost-benefit analysis is presented for the future use scenario.
- Chapter 8 comprises a preliminary regulatory impact statement of the use of prepayment meters in Western Australia.

*Chapter 2*

# Prepayment meters

## 2.1 Introduction

Prepayment meters require customers to pay for electricity before it can be consumed. A customer must purchase credit and load this credit onto the prepayment meter. The prepayment meter then allows the customer to consume electricity up to the value of the amount of the credit. If the amount of the credit is exhausted, the prepayment meter discontinues the supply of electricity — in industry parlance, the customer opts to "self-disconnect".[4] Supply can be maintained, or "reconnected", by loading further credit on the prepayment meter.

The physical prepayment meter is only one element of a prepayment meter system. A prepayment meter system comprises the meter, the manner in which credit is loaded onto the prepayment meter and, in some cases, the back-office administration systems required to support prepayment meters, known as "prepayment meter infrastructure".

In this chapter, an overview of prepayment meters is provided, including the different types of prepayment meters, the attributes of prepayment meters and the customer issues that may arise with the use of prepayment meters.

## 2.2 Prepayment meter systems

The earliest prepayment meters that were installed in the United Kingdom operated using coins. Modern prepayment meters tend to use magnetic cards, smart cards or keypads for transferring purchased credit onto the prepayment meter.

Three different types of prepayment meter systems corresponding to these different payment mechanisms are described in more detail below.

### *Magnetic card prepayment meters*

The most basic prepayment meters require customers to purchase a card or token at a vending point, such as a shop, with the card or token then being inserted into the prepayment meter to load the credit to the meter. The most common type of card or token prepayment meter is the *magnetic card prepayment meter*, which loads credit to the meter via a single-use cardboard card with a magnetic strip. These magnetic strip cards are generally available in certain set denominations, for example $10, $20 and $50. An example of this type of prepayment meter is the Email+AMPY magnetic card operated meter, shown in Figure 2.1.[5]

[4] Retailers may also provide, or be obliged to provide, an amount of 'emergency' credit. This would allow the customer to continue to consume electricity after their purchased credit has been exhausted until the emergency credit is also exhausted.

[5] Email+AMPY are soon to be known as Landis and Gyr.

Figure 2.1

**EMAIL+AMPY MAGNETIC CARD OPERATED METER**

Source: ampymetering.com.au/products/prepay1.html#addinfo

For an electricity retailer, there are two benefits of this type of prepayment meter system. The first is that the magnetic strip cards themselves are inexpensive, costing around 10 cents each (Horizon Power, 2008). The second is that magnetic card prepayment meters minimise the cost to the electricity retailer of establishing and maintaining a retail channel through which customers can purchase credit for their prepayment meter. Existing retail outlets including, for example, newsagents, petrol stations and delicatessens, can be contracted to sell the magnetic strip cards on commission for the electricity retailer, without the need to invest in any special equipment.

A major limitation of the magnetic card prepayment meter system is that the magnetic strip cards only transfer purchased credit to the prepayment meter. The meter has to be manually recalibrated following a change in electricity tariffs (or eligibility for government concessions or rebates).

In addition, unless the retailer continues to periodically read the prepayment meter as with a standard credit meter, the retailer does not capture any information about the customer's use of electricity. Even if the meter is physically read, the meter would not record the number and duration of any disconnections.

### *Keypad prepayment meters*

A slightly more sophisticated, prepayment meter system allows customers to load credit on their prepayment meter through entering a coded number using a keypad attached to the prepayment meter (Figure 2.2).

Figure 2.2

**KEYPAD PREPAYMENT METER**

Source: www.prepaidmeters.co.za/component/page,shop.product_details/category_id,3/flypage,shop.flypage/product_id,2/option,com_virtuemart/Itemid,26/

Customers are given a card with a unique 'security key' that must be produced or quoted when purchasing credit for the keypad prepayment meter. After payment is made, the customer is provided with a coded number, which is generated using an encryption algorithm. This coded number, which is usually around 20-digits long, must then be entered using the keypad attached to the prepayment meter. As the customer is not required to obtain a card or token to load credit to the meter, a keypad prepayment meter allows greater flexibility in the manner in which the customer can obtain credit for the meter. For example, the customer may be able to purchase credit over the telephone, through the Internet or at a retail outlet.

As with magnetic card prepayment meters, a keypad prepayment meter only supports one-way communication from the electricity retailer to the prepayment meter. However, if a customer is required to provide his or her unique security key when purchasing additional credit, the electricity retailer would be able to record credit purchases, providing a proxy measure of the customer's electricity consumption.

Depending on how a keypad prepayment meter is programmed to operate, a keypad prepayment meter may not require the meter to be physically recalibrated following a change in tariffs. For example, if tariff information were held in the system that generated the coded number, any change in tariffs would be able to be centrally managed (by simply changing the number of consumption 'units' that the meter would allow the customer to consume).

### *Smart card prepayment meters*

The most sophisticated type of prepayment meter operates in much the same way as magnetic card prepayment meters, but uses re-usable smart-card technology instead of single-use magnetic cards (refer Figure 2.3). Smart cards are pocket-sized plastic cards that are embedded with a micro-module containing a single silicon integrated circuit chip with memory and a microprocessor (Cardwerk, 2008). The smart card is generally linked to a specific meter and customer account, and operates only with that meter.

Figure 2.3

**EMAIL+AMPY SMART CARD OPERATED METER**


Source: ampymetering.com.au/products/prepay4.html

Smart card prepayment meter customers are able to choose the amount of credit they wish to purchase, subject to any administratively imposed minimum or maximum transaction size. There are no standard credit denominations as there are for single-use magnetic cards. As for a magnetic card prepayment meter, the smart card is inserted into the prepayment meter to transfer the credit to the meter.

Due to their ability to process and store information, smart card prepayment meter systems can be established to record data from the meter to the smart card. Such data could include information on the customer's electricity consumption, the use of emergency credit, whether the electricity supply has disconnected and the duration of any disconnections. Smart cards can be used to transmit information other than additional credit to the meter. For example, when the customer purchases additional credit, information on new tariffs could be loaded to the smart card. This information would then be loaded to the prepayment meter when the smart card is next inserted into the meter.

Smart card prepayment meter systems are more expensive than magnetic card prepayment meter systems. The re-usable smart card itself costs between around US$2 and US$10 (around AUD$3 to AUD$15), depending on the capability and capacity of the microprocessor, and the volume of cards ordered (Cardwerk, 2008). In addition, every retail outlet where smart cards may be recharged will require a suitable "card acceptance device". This device allows information to be downloaded from, and uploaded to, the smart card. For low volume orders, the cost of a simple card acceptance device is about US$150 (Cardwerk, 2008).

In addition to the costs of the prepayment meter, smart cards and the card acceptance devices that would need to be installed in each retail outlet, a smart card prepayment meter system is also likely to require that the retailer invest in augmented back office information systems to capture and record customer information.[6]

## 2.3 Prepayment meter installations

In the past, the installation of a prepayment meter has involved the removal of the standard credit meter and replacing it with a dedicated prepayment meter.

More recently, it has become possible to install a 'prepayment attachment' module in combination with the existing standard credit meter (Figure 2.4). By using the existing metering installation, this approach can reduce the cost of implementing a prepayment meter system. In addition, these prepayment modules can be remotely commissioned and decommissioned, facilitating ease of change between the functions of prepayment and standard credit meters.

Figure 2.4

**PREPAYMENT ATTACHMENT MODULE**

Source: www.actaris.com/html/products-385.html

## 2.4 Implications of prepayment meters for retailers and customers

The two main attributes of prepayment meters that distinguish these meters from standard credit meters are:

- the requirement for the customer to pay for electricity before consumption can take place; and
- the more active involvement of customers in their electricity supply.

These attributes of prepayment meters have important implications for electricity retailers and residential customers.

[6] In contrast, standard credit are manually read on a periodic basis by metering data agents (usually the operator of the distribution systems, or its subcontractors). This information would initially be held by the metering data agent, for example in a meter data store, before being transmitted to the retailer to facilitate the preparation of retail bills.

### Retailers

Although more expensive than standard credit meters, prepayment meters can improve retailers' cash flow and can reduce retail operating costs through avoiding meter reading costs and reducing the incidence of bad debts.

On a standard two month billing cycle, an electricity retailer ordinarily extends credit to customers on average for a period of around 43 days.[7] Prepayment meters would allow payments to be received in advance of supply reducing the working capital requirements of retailers.

Prepayment is also likely to reduce a retailer's operating costs. As no accounts or bills need to be issued, the costs associated with sending out bills, reminder notices and final notices are all avoided. Customer account queries would also be significantly reduced.

Prepayment for electricity may negate any requirement to read customers' meters to record consumption. Avoiding meter reading costs may further reduce a retailer's retail operating costs. That said, retailers may be obliged to continue to have prepayment meters read in order to meet statutory obligations, or may choose to do so in order to detect meter tampering. In any event, unless there is a large concentration of customers with prepayment meters in a specific geographical location, the avoided meter reading cost may not be significant, as neighbouring meters will need to still be read.

Where prepayment meters are not read (or not manually read), the meter reader is not required to access a customer's property, reducing workplace risk (for example, by avoiding aggressive dogs and/or customers).

Finally, the prepayment of electricity by prepayment meter customers also means that these accounts cannot fall into arrears, effectively eliminating bad debts. At worst, bad debts would be limited to the amount of emergency credit that is provided. As bad debts are effectively eliminated, costs that may otherwise be incurred in recovering overdue amounts are also avoided.

### Customers

Customer benefits from prepayment meters comprise greater flexibility in payment of electricity costs and, potentially, more informed control of electricity consumption. Customer risks associated with prepayment meters include the potential for coercion; the lack of clear and detailed information; potentially higher costs; and the absence of customer safety nets (KPMG, 2004).

Each of these implications for customers is described below.

[7] Electricity bills issued by electricity retailers generally cover two months (say, 61 days) of consumption. The average length of credit is therefore almost 31 days. In addition, retailers might set a due date for payment that is twelve days after the date the bill is issued. Based on these assumptions, the average period of credit is around 43 days (31 + 12).

### *Management of electricity use and payments*

Prepayment meters provide greater flexibility to customers than standard credit meters, by allowing customers to determine both the frequency and amount of each payment. The more frequent payment of electricity bills is also likely to assist customers in adjusting electricity-consumption behaviour. The increased ability for customers to monitor and adjust their consumption, and avoid large bills by paying more frequent smaller amounts are two of the key customer benefits of prepayment meters (see for example KPMG, 2004:1).

In order to continue to remain connected to the electricity supply, customers need to keep prepayment meters in credit or, at least not exhaust the amount of emergency credit. Other than this, prepayment meter customers are at liberty to pay for electricity at times and in amounts of their choosing. This provides customers with flexibility to pay in a manner that suits them rather than being 'locked into' a payment cycle set by the retailer.

The requirement to pay for electricity ahead of consumption may also establish a stronger and immediate link between decisions about electricity consumption and the resulting frequency and amount of prepayment. This may aid the customer in managing their household budget, and could also act as a driver for consumers to reduce their electricity bills by limiting electricity consumption.

Research conducted for the Office of Gas and Electricity Markets (Ofgem) in the United Kingdom indicated that these meters supported better budgeting, as:

> ….a PPM limits how much energy a customer can use in relation to what can be afforded. This is instead of using energy constantly and not being able to afford the bill.
>
> The lack of bills and that PPMs prevent you falling into debt or having problems with your bank (Ipsos MORI, 2007:6).

Similarly, in Australia it was found that:

> The main reasons why people arranged for pre-payment meters to be installed [in Tasmania] were to avoid receiving large bills and to keep control of household spending on electricity (TasCOSS, 2006:15).

In the United Kingdom, prepayment meter customers generally top up their meters weekly, although younger customers with families top up their gas and electricity prepayment meters two to three times a week (Ipsos MORI, 2007). Greater control over finances was nominated as a key benefit of prepayment meters, as:

> …there is flexibility in the amount you can choose to top up your meter with and when you pay (Ipsos MORI, 2007:6).

There are payment options available to customers with a standard credit meter other than simply paying bills in arrears. For example, in Western Australia, electricity customers may make periodic prepayments towards future bills using a Budget Card or through CentrePay. Although the amount of the prepayments under these options 'smooths' the customer's payments, it is not directly linked to the electricity consumption. These payment options do not provide the same immediate link between electricity consumption decisions and the resulting frequency and amount of prepayment.

Prepayment meters also change the relationship that exists between customers and electricity retailers, with customers assuming greater responsibility for managing their own electricity use. For example, a customer with a standard credit meter that falls into payment arrears may negotiate with their retailer for additional time to pay. While any extension would be at the discretion of the retailer (subject to the retailer's statutory obligations), such an option is not available to prepayment meter customers, who would be automatically disconnected on the expiry of any emergency credit amount.

Thus an important implication of prepayment meters is that it is the customer who 'decides' to disconnect their electricity supply rather than the retailer, as would be the case under a standard credit meter. Further, in cases where the prepayment meter permits only one-way communication (from the retailer to the meter), disconnection of the customer and the duration of disconnection would occur without the knowledge of the retailer. Nevertheless, a benefit for prepayment meter customers is that the customer is generally not liable for fees that might be ordinarily be charged by retailers for reconnecting the electricity supply, as the retailer is not required to arrange for the physical disconnection of the electricity supply.

### *Potential for coercion*

There are clear benefits to retailers of requiring customers with poor credit histories to be supplied electricity via a prepayment meter as a means of reducing the retailer's credit management and bad debt costs. Given electricity supply is an essential service, there is a concern that some customers could effectively be coerced into agreeing to install a prepayment meter if the supply, or reconnection of the supply, of electricity is made contingent on the installation of such a meter.

Another, less obvious, form of coercion may occur if a customer moves into a property that already has a prepayment meter installed and is required to pay to revert to a standard credit meter. In jurisdictions where the retail market is fully contestable, a prepayment meter may also impede the ability of the customer to choose from alternative electricity suppliers (if there are few retailers, or only one, offering a prepayment meter product in the market).

Finally, prepayment meter customers may not be able to retrieve remaining credit from the prepayment meter when they revert to a standard meter or move house.

### *Need for information*

Given that prepayment meters alter the relationship between electricity retailer and customer, and the role of the customer in the supply of electricity, customers would ideally have access to sufficient information to compare the features (and costs) of prepayment and standard credit billing arrangements in order to determine which best suits their needs.

For example, customers will need to be aware that once a prepayment meter is installed, they will no longer receive bills. Consequently, they may not (automatically) have access to regular comparative information about their current and previous levels of electricity consumption.

More importantly, customers would need to be aware of the implications of a prepayment meter if they found themselves in situations where they faced financial difficulties. Unlike customers supplied under a standard credit meter, there may be very limited or no options available to prepayment meter customers to maintain their electricity supply if they fall into financial difficulties (beyond the limited amount of emergency credit that may be provided).

The lower level of interaction between customers and their electricity retailer may also reduce awareness of concessions and/or rebates for which customers might be eligible. For example, research conducted in Tasmania (TasCOSS, 2006:6) revealed:

> …an incomplete knowledge among pre-payment meter users of government concessions available (one in three consumers were not aware of any type of concession). In addition, not all those who reported having a government pension as their main source of income were aware of concessions available (11% were unaware). We also note the very low level of receipt of the Heating Allowance (9%). A[lthough a] similar low level of knowledge of concessions and take-up of Heating Allowance may also exist among people using standard meters

### *Higher costs*

The cost of supplying electricity to a prepayment meter customer has historically been higher than a standard credit meter customer. Ofgem (2007:29) found that the annual cost of serving a prepayment meter customer in the United Kingdom was, on average, £65 higher than standard credit meter customers. This reflected the cost of prepayment meter infrastructure provision (£42), higher meter and maintenance costs (£32), but savings in other costs, including working capital, call centre and billing (£11 pounds).

Consequently, the overall commercial attractiveness of prepayment meters for retailers appears to depend largely on whether it can charge a premium for the prepayment meter service and/or whether it can promote the use of these meters by higher credit-risk customers (leading to costs savings in credit management costs and avoidance of bad debts). Prepayment meter customers may face higher tariffs that customers with standard credit meter customers.

It is the possibility that retailers could target customers with poor credit histories, which may include the more financially vulnerable in the community that has raised concern wherever prepayment meters are used. This is because the attributes of prepayment meters and their implications for customers are mixed, and give rise to a number of risks, particularly for financially vulnerable customers.

### *Availability of customer safety nets*

Unlike other customers, prepayment meter customers would be automatically disconnected on the expiry of any emergency credit whereas a customer with a standard credit meter that falls into payment arrears could negotiate with their retailer for additional time to pay. A concern with the use of prepayment meters is that there use will lead to an increased rate of disconnection amongst financially vulnerable customers. Disconnections can have significant financial, health and safety, and emotional and psychological implications for customers.

*Chapter 3*

# Prepayment meters in Western Australia

## 3.5 Introduction

Horizon Power is currently installing prepayment meters in the North West of Western Australia as part of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program.

This chapter provides information on the use of prepayment meters in Western Australia. This provides the basis for an assessment of the costs and benefits associated with the current use of prepayment meters in Western Australia, which is provided in Chapter 5. The chapter commences with an overview of the characteristics of remote Aboriginal and town reserve communities where Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program are being implemented. The objectives and detail of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program is described, after which the type of prepayment meter that is being installed as part of these projects is discussed.

## 3.6 Remote Aboriginal and town reserve communities

### *Community characteristics*

The circumstances of remote Aboriginal and town reserve communities are in stark contrast with those for the general Western Australian population. Incomes are lower and there is a high dependency on welfare, costs of living are higher, and health outcomes are poorer. The gross median weekly income of indigenous people living in remote Australia is $246 and $215 in very remote areas (ABS 2006). In comparison, the gross median weekly incomes of non-indigenous people living in remote and very remote regions of Australia are $522 and $602 respectively.

The cost of living is also substantially higher in remote indigenous communities than in the Perth metropolitan area because of the costs of transporting goods over large distances.

People living in indigenous communities also experience poorer health outcomes and have relatively high rates of emotional and psychological distress (ABS and AIHW 2008). Health issues may be compounded by the low standards of dwellings, as overcrowding and poor dwelling conditions 'can directly impact on both physical and mental health' (ABS and AIHW 2008, p.39).

### *Supply of electricity*

Horizon Power supplies electricity to residential customers in towns outside the South West Interconnected System, including in the Pilbara, Kimberley, Gascoyne, Mid West and southern Goldfields (Esperance and Hopetoun) and about 28 isolated towns and communities.[8]

[8] The SWIS covers an area roughly from Kalbarri in the north, down to Albany in the south and then east to Kalgoorlie.

Where Horizon Power supplies electricity to remote and town reserve Aboriginal communities in Western Australia, supply has tended to be metered at a single 'master meter'. Horizon Power issues a single bill for the entire amount of electricity consumed by the community. Responsibility for the distribution of electricity within the community, and for determining the extent of any subsequent metering of individual premises, has resided with the community. In many cases, these arrangements have resulted in the aggregate cost of electricity consumed by the community being shared amongst residents through a 'chuck in' system. Under such arrangements, there is no direct link between decisions about the consumption of electricity and the cost of electricity to an individual resident.

In other remote Aboriginal communities, responsibility for the entire electricity supply system, including generation, resides with the communities — Horizon Power has no role in the supply of electricity to those communities.

These arrangements have led to great disparity in the quality and reliability of electricity supply in remote and town reserve Aboriginal communities in Western Australia, and also a disparity with electricity services to the broader community.

Where Horizon Power is not directly involved in supplying electricity to individual residential customers (or because it has no involvement in supplying electricity), customers may face electricity costs that are substantially in excess of the uniform residential tariff that all other residential customers in the State pay.

The Western Australian Government requires Horizon Power to provide a range of concessions and rebates to electricity consumers, for which government reimburses Horizon Power (Box 3.1). However, as in many instances Horizon Power does not supply electricity directly to individual consumers in remote and town reserve Aboriginal communities, consumers that might otherwise have been eligible for government concessions and rebates do not obtain these benefits.

Box 3.1

**ELECTRICITY CONCESSIONS AND REBATES**

The Government provides a number of concessions and rebates to electricity customers that hold a Pensioner Concession Card (PCC), a Health Care Card (HCC) or a State Seniors Card (SSC).

- Domestic customers of Synergy and Horizon Power who are in possession of a PCC, a HCC or a SSC receive a full rebate of the fixed (daily) supply charge. The average value of the rebate per recipient is approximately $88 per year.
- Domestic customers of Synergy and Horizon Power with dependent children listed on their PCC or HCC receive a partial rebate of electricity usage charges. Their account is reduced in proportion to the number of children. The average value of the rebate per family is approximately $177 per year.
- Domestic customers of Horizon Power that hold a SSC and a PCC (or a Commonwealth Seniors health Care card) receive an air conditioning subsidy equivalent to the cost of 200kWh of electricity per month for a defined number of months depending on the customers location.
- Domestic customers of Synergy and Horizon Power holders that hold a PCC, HCC or SSC receive a rebate on account establishment fees.

*Pensioner Concession Card*

The Commonwealth Government issues a PCC to long-term welfare recipients and low income earners. These include age pensioners, disability support pensioners, 'service' pensioners, people in receipt of carer payments or parenting payments, and certain other welfare recipients who are over 60 years of age and have been in receipt of a benefit for more than nine months.

Eligibility for these long-term benefits is generally subject to a means test, based on the recipient's income and the value of their assets.

*Health Care Card*

The Commonwealth Government issues the HCC to relatively short-term welfare recipients, including the unemployed (recipients of the Newstart allowance), people who receive the full family allowance and low income full time students.

Eligibility for these short term benefits is also generally subject to a means test, based on the recipient's income, and sometimes also their assets.

*State Senior Card*

The State Government issues the SSC to permanent residents who are over 60 years of age and work less than 20 hours per week. Other than this criterion, no further conditions of eligibility apply.

Source: DTF (2008:p.272) and Horizon Power, www.horizonpower.com.au/downloads/residential/Application_for_Seni.pdf

An example of the challenges that can arise in remote Aboriginal and town reserve communities due to these circumstances is provided in Box 3.2. While it should not be assumed that the same situation would arise in each remote Aboriginal and town reserve community, this example serves to highlight both the inequities of the existing arrangements and the commercial challenges facing Horizon Power.

Box 3.2

**TOWN RESERVE ELECTRICITY SUPPLY — CASE STUDY**[9]

Around 100 people, living in 15 dwellings, occupy a Town Reserve community near Halls Creek. The only non-residential activities in the town reserve are a workshop and a water pumping station.

Horizon Power connected the community to the Halls Creek electricity distribution network in 2005. Electricity was supplied to the community through a single master meter, with the account held in the name of an incorporated body. As a result, individual customers were not eligible for government concessions or rebates. Community residents were required to contribute to electricity bills through regular Centrepay payments.

The community was not eligible for funding under Town Reserve Regularisation Program or Aboriginal and Remote Communities Power Supply Program because it does not meet the eligibility criteria under either program.

Since the community was connected to the distribution system, it has twice been disconnected for falling into arrears. The community was first disconnected in 2006, with the disconnection lasting a couple of weeks. The community was given notice of disconnection for second time on 12 August 2008, and remained disconnected at the time this report was written (23 November 2008).

Without electricity, the community's water pump is inoperable, and residents' drinking water needs need to be met by bottled water.

The first time the community was disconnected, its account was approximately $25,000 in arrears, an average of around $1,700 per household. A government agency agreed to pay the arrears on the condition that each household re-enter into a Centrepay arrangement to pay for electricity in future. This condition was initially met, but after a period 14 of the 15 households ceased their Centrepay payments. (Individuals are free to unilaterally discontinue Centrepay payments).

With the majority of households not making payments through Centrepay, the community again fell into arrears and was disconnected. This time the debt was in the order of $50,000, or around $3,300 per household.

Source: Horizon Power (Personal communication)

## 3.7 Aboriginal and Remote Communities Power Supply Project and Town Reserve Regularisation Program

The problems of electricity supply in remote and town reserve Aboriginal communities in Western Australia has led the State Government to move to reform electricity supply arrangements in certain communities.

The purpose of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program is to 'regularise' the supply of electricity to remote and town reserve Aboriginal communities. Specifically, under the programs Horizon Power will assume responsibility for:

- the distribution of electricity to individual premises within each community; and
- the installation of electricity meters at each premise.

As Horizon Power will now be directly supplying electricity to the residents of these communities, customers will also be eligible to receive government concessions and rebates where they meet eligibility criteria.

[9] The name of the town reserve was suppressed for privacy reasons.

### *Aboriginal and Remote Communities Power Supply Project*

The Aboriginal and Remote Communities Power Supply Program is a joint project between Horizon Power and the Office of Energy, and is funded by the Western Australian Government and the Commonwealth Department of Families, Community Services and Indigenous Affairs. The objective of the Aboriginal and Remote Communities Power Supply Program is to improve the quality and reliability of the supply of electricity to Aboriginal and remote communities. A key component of the project is that responsibility for the distribution and retail of electricity within each community is transferred to Horizon Power.

For each community, Aboriginal and Remote Communities Power Supply Program involves:

- a power procurement project (to ensure adequate and reliable generation capacity);
- an audit and, where required, an upgrade of the electricity distribution network within the community;
- an inspection of internal wiring in each building in the community; and
- the supply of electricity to customers at the State-wide uniform tariff, and the benefit of State Government concessions and rebates where eligibility criteria are met.

Electricity supply to the communities of Ardyaloon (Bardi), Beagle Bay, Bidyadanga, Bobieding, Djarindjin/Lombadina and Warmun were 'regularised' under Phase 1 of Aboriginal and Remote Communities Power Supply Program (Table 3.1).

To meet electricity supply requirements in each of these communities, Energy Generation Pty Ltd (enGen), a private sector company, had been contracted as part of the Aboriginal and Remote Communities Power Supply Program to build, own and operate new power stations in each of the five communities. In turn, Horizon Power signed a 10-year Power Purchase Agreement with enGen for electricity supplied to each community.

It is anticipated that Phase 2 of the Aboriginal and Remote Communities Power Supply Program will see electricity supply arrangements in another ten communities 'regularised' by the end of calendar year 2010 (Table 3.1).

Table 3.1

**ABORIGINAL AND REMOTE COMMUNITIES POWER SUPPLY PROGRAM COMMUNITIES**

**Phase 1**

Phase 1 was completed at the end of the 2007 calendar year and involved the following communities:

| Community | Number of dwellings |
|---|---|
| Ardyaloon (Bardi) | 59 |
| Beagle Bay | 52 |
| Bidyadanga | 89 |
| Bobieding | 3 |
| Djarindjin/Lombadina | 59 |
| Warmun | 63 |
| **Total** | **325** |

**Phase 2**

Phase 2 communities are still in the planning stage, with commissioning expected for the end of calendar year 2010. The following communities may participate:

| Community | Number of dwellings |
|---|---|
| Balgo | 73 |
| Burringurrah | 68 |
| Kalumburu | 61 |
| Jigalong | 56 |
| Minbibungu (Billiluna) | 39 |
| Noonkanbah | 44 |
| Oombulgurri | 33 |
| Warakurna | 36 |
| Warburton | 98 |
| Yandeyarra | 49 |
| **Total** | **557** |

Source: Electricity Code Consultative Committee (2007b: p. 303) and Department of Housing and Works

### *Town Reserve Regularisation Program*

Town reserves provide a place for Aboriginal people to reside close to mainstream towns. However, despite their proximity, town reserve communities have historically not had access to same standards of municipal and utility services.

The electricity supply for town reserves is often connected to the town power grid operated by Horizon Power. However, electricity is supplied to a single connection point, or 'master meter', and the community receives a single bill for all electricity consumed by the community. Communities have generally adopted a 'chuck-in' method to collect money from residents to pay electricity bills.

The Town Reserve Regularisation Program is a joint project between Horizon Power and the Western Australian Department of Housing and Works.

The aim of Town Reserve Regularisation Program is to upgrade and transfer responsibility for services, including electricity supply and distribution to individual premises, to mainstream providers. Similar to the Aboriginal and Remote Communities Power Supply Program, the Town Reserve Regularisation Program will result in the electricity distribution network within communities being upgraded and buildings fitted with meters. Horizon Power will individually meter consumers and will assume responsibility for operation, repair and maintenance of the distribution network.

To date, five town reserve communities have been assisted under phase one of the Town Reserve Regularisation Program. In the next phase of the Town Reserve Regularisation Program, it is expected that a further 36 town reserve communities will be subject to the regularisation program (Table 3.2)

Table 3.2

**TOWN RESERVE REGULARISATION PROGRAM COMMUNITIES**

**Phase 1**

Phase 1 was completed at the end of the 2007 calendar year and involved the following communities:

| Community | Number of dwellings |
|---|---|
| Derby | 19 |
| Fitzroy Crossing | 18 |
| Halls Creek | 32 |
| Kununurra | 54 |
| Wyndham | 21 |
| **Total** | **144** |

**Phase 2**

Phase 2 communities are still in the planning stage, with commissioning expected for the end of calendar year 2010. The following communities may participate:

| Community | Number of dwellings |
|---|---|
| Billgungurr (Airport Reserve) | 0 |
| Bindi Bindi | 27 |
| Bondini | 23 |
| Budulah | 4 |
| Bungardi | 3 |
| Burawa | 1 |
| Burrinunga | 68 |
| Cheeditha | 9 |
| Cullacabardee | 30 |
| Darlngunaya | 7 |
| Djimung Nugda | 3 |
| Gnangara | 14 |
| Irrungadji | 15 |
| Junjuwa | 62 |
| Karmulinunga | 12 |
| Katampul (Nambi Rd) | 9 |
| Kurnangki | 23 |
| Lundja (Red Hill) | 10 |
| Mallingbarr (Kennedy Hill) | 10 |
| Mardiwah Loop | 25 |
| Marmion Village | 5 |
| Medunka Ewery | 6 |
| Mindi Rardi | 16 |
| Mirima | 30 |
| Mirtunkarra (Goodabinya) | 10 |
| Morrell Park (4 Mile) | 0 |
| Mungullah | 41 |
| Nicholson Camp | 8 |
| Nillir Irbanjin | 13 |
| Ninga Mia | 28 |
| Nulleywah | 26 |
| Parnpajinya | 14 |
| Pipunya | 15 |
| Tjalka Boorda | 26 |
| Warrayu | 8 |
| Wongatha Wongnarra | 33 |
| **Total** | **634** |

Source: Horizon Power and Department of Housing and Works

## 3.8 'Regularisation' of electricity supplies

In principle, regularising arrangements for supply of electricity would result in electricity supply arrangements for these communities being the same as those that apply for any other electricity customer supplied by Horizon Power (that is, under 'regular' supply arrangements). This would imply that Horizon Power would be responsible for:

- the supply of electricity to each individual customer;
- the distribution of electricity within each community;
- the individual metering of electricity consumed by each customer; and
- the provision of a range of retail services, including provision of information, customer billing and revenue collection.

The Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program will bring electricity supply arrangements for remote Aboriginal and town reserve communities largely into line with arrangements applying more broadly throughout the State. However, there is an important difference. It is a requirement of the Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program for residential premises within each remote or town reserve Aboriginal community in which these programs are implemented to be supplied through a prepayment meter. Unlike Horizon Power's other customers, residents in the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities are required to prepay for electricity.

## 3.9 Current use of prepayment meters

### *History*

Horizon Power and the Department of Housing and Works indicates that 469 prepayment meters were installed as part of the first phases of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program and a further 1,200 will be installed in the second phase of these programs (Horizon Power, 2008).

While the installation of prepayment meters as part of the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program is the first time that Horizon Power has installed prepayment meters for its customers, it is understood that a number of remote Aboriginal communities had installed prepayment meters 'behind' Horizon Power's master meter, or as part of their own electricity supply system.[10] For example, for the town reserve community outside Halls Creek, Horizon Power is seeking to install prepayment meters to each residence in the community as community managed sub-meters behind the Horizon Power master meter. If approved by the community, the prepayment meters would also be programmed at a higher tariff to assist in recovering the community's debt.[11]

In many cases where prepayment meters have been installed behind a 'master meter' there have been problems of installation and use, including the following (Horizon Power, 2008).

- The prepayment meters were not adequately tamper-proofed, and in some cases, were easily by-passed.
- There was a lack of consistency in how prepayment meters were programmed, such as no consistent approach to the provision of emergency credit.
- There was perceived to be a lack of transparency and accountability in the sale of prepayment meter credit. For example, social and family obligations within communities might have led to some community residents receiving free credit for their prepayment meter.

The prepayment meter system that has been implemented in Western Australia as part of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program is discussed in the following sections.

### *Prepayment meter system*

The prepayment meters installed as part of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program are Email+AMPY prepayment meters magnetic card operated meters, described in Chapter 2 of this report.

These prepayment meters are fully programmable and configurable, and have the following capabilities.

- Standing charge collection
- Debt collection facility
- Rate switching (up to 4 rates)
- Reverse energy detection
- Audible low credit warning
- Emergency credit facility

[10] Section 8 of the *Electricity Industry Act 2005* provides for exemptions from the requirement to hold a retail electricity licence in certain cases. Where prepayment meters were previously installed 'behind' a Horizon Power master meter by parties other then licensed retailers, such an installation would not be able to be regulated by the Code.

[11] Horizon Power has indicated that the actual tariff rate is yet to be determined, and will depend on whether any further contributions are made by government agencies towards the community's debt.

- Anti tamper disconnection

Horizon Power has advised that the Email+AMPY prepayment meters cost around $260 each, and are protected by a custom-made mild steel cover, which costs around a further $30 per meter. Horizon Power estimates that installation costs are around $120 per meter.

Credit is loaded onto the prepayment meter using single-use disposable magnetic strip cards, which minimise requirements for distribution infrastructure but support only one-way transactions from the electricity retailer to the prepayment meter. Horizon Power has advised that the magnetic cards are sold in outlets within each community and that care has been taken to select outlets that community members are comfortable with. Outlets are paid a commission for the sale of the prepayment meter cards, of generally around three per cent (but ranging from nil to five per cent), and as part of a distribution agreement must report to Horizon Power on card sales on a monthly basis.

The card tokens that are used to load credit onto the prepayment meter are manufactured in the United Kingdom, and cost around 10 cents each. The cards are produced in denominations of $10, $20 and $50. Data from Horizon Power indicates that the $10 and $20 cards account for around 90 per cent of sales.

### *Prepayment meter service — ReadyPower*

The service supplied by Horizon Power to prepayment meter customers in the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is called ‘ReadyPower’. An overview of Horizon Power’s ReadyPower service, taken from its customer information kit, is provided in Box 3.3.

Box 3.3

**HORIZON POWER — READYPOWER**

**How does Ready Power work?**

Horizon Power will fit a meter to the front of your house.

You buy a Ready Power card from the card seller. They cost $10, $20 or $50 and work a bit like a phone card.

You put the Ready Power card into the meter and you will get power until your credit is used up. You can put as many Ready Power cards as you like into the meter, one after another, to build up your credit.

The window on your meter tells you how much credit you have left.

**What happens if the credit runs out?**

When your credit in the meter reaches $3, the meter will start to make a noise every 30 seconds. This will remind you to buy a new Ready Power card before your credit runs out.

If your credit runs out the power to your house will stop. Push the Grey Button and you will have $10 emergency credit. This will put the power on again for about 2 days.

Emergency credit can only be used once. It is reinstated when a power card is inserted in the meter.

**How much does electricity cost with Ready Power?**

With Ready Power you pay the same as all other residential customers in Western Australia.

There is a set service charge of 25.57 cents a day plus 13.94 cents for every 'unit' of electricity you use. (These costs include GST)

**How long will my Ready Power card last?**

This depends on how much power you use. Some things use a lot of power, other things use very little power.

A $10 power card will last for about 2 days if you are using fans, air conditioner, TV, fridge, stove and lights.

You can save power if you turn things off when you are not using them like air conditioners and TVs. But remember to leave the fridge and freezer on when you want things to stay cold.

**How much power am I using?**

Horizon Power will read your meter to see how much power you have used. You will not receive a bill. You can contact us on 1800 267 926 to find out how much power you are using and the average daily cost.

**The Meter**

There is never any money in the meter. Please do not damage the meter. If you damage it on purpose, you may need to pay for a new one.

**Discounts**

You may apply for a service charge discount if you are a Pensioner or a Senior's Card holder. Ask your Housing Officer or Horizon Power for a form. When you have registered, the discount will be programmed into the meter. You use the same Ready Power card, but it will last longer.

**Rebates**

You may apply for a rebate if you have dependent children. Seniors who live in the North of the State can also get a rebate for air conditioning for part of the year.

When you have registered, the rebate or discount will be paid directly to you. Ask your Housing Officer or call Horizon Power on 1800 267 926 for details.

**What if the Ready Power card doesn't work?**

A Ready Power card can only be used once. Make sure the card you are using is a new one. A used card has three little holes in it.

If the Ready Power card doesn't work, take it back to the card seller. If the card is faulty, you will be given a new one.

If you damage the card you cannot exchange it.

Source: Horizon Power, www.horizonpower.com.au/downloads/residential/ready_power.pdf

Horizon Power has advised that where customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities are eligible for electricity concessions and rebates, such as the supply charge rebate and the air conditioning subsidy, the prepayment meter is programmed to reflect the benefit of these concessions. Customers that are eligible for the dependent child rebate have the rebate paid directly into their bank account twice a year.[12] Horizon Power has also advised that it staggers the payment of this rebate within communities so as to avoid the social problems often associated with a sudden influx of cash into the communities.

### *Regulation of prepayment meters*

The use of prepayment meters in Western Australia is currently regulated by:

- the *Code of Conduct for the Supply of Electricity to Small Use Customers* (the Code of Conduct); and
- the *Electricity Industry Metering Code 2005* (the Metering Code).

#### *Code of Conduct*

The purpose of the Code of Conduct is to regulate and control the conduct of:

- the holders of retail licences, distribution licences and integrated regional licences (section 79(2)(a)) and
- electricity marketing agents (section 79(2)(b)).

The specific objectives of the Code are to:

- define standards of conduct in the supply and marketing of electricity to customers (section 79(2)(c));
- provide for compensation payments to be made to customers when defined standards of conduct are not met (section 79(2)(d)); and
- protect customers from undesirable marketing conduct (section 79(2)(d)).

The Code of Conduct is largely premised on customers paying for electricity after consumption). Part 9 of the Code exempts a retailer from having to comply with certain parts of the Code where prepayment meters are used. However, Part 9 currently *applies only* to prepayment meter customers in a remote or town reserve community in which the Aboriginal and Remote Communities Power Supply Program or Town Reserve Regularisation Program is being implemented (clause 9.2(2)).

Part 9 of the Code requires that the retailer obtain the verifiable consent of the customers or the customer's representative to the operation of a prepayment meter at the customer's supply address. The Code allows verifiable consent to be given 'expressly' and either in 'writing or orally'.

In addition, Part 9 makes it mandatory for retailers to provide prepayment meter customers with the following information at the time of entering into a contract with a customer or if requested by the customer.

- Information on the tariffs, fees and charges payable by the customer.

[12] This is because the rebate is related to the number of children, rather than electricity consumption.

- A comparison of those charges with charges if a prepayment meter was not installed at the customer's supply address.
- Information on how to operate the prepayment meter and how the customer can recharge the prepayment meter.

Part 9 of the Code also establishes a number of consumer protection measures for prepayment meter customers, including the following.

- prepayment meters cannot be operated at a supply address if a person residing at the address requires life support equipment (this is a defined term in the Code).
- 'Recharge facilities' (for the purchase of prepayment meter credit) must be available at certain locations and accessible for a specified number of hours per day and days per week.
- The minimum amount to be credited by a 'recharge facility' cannot exceed ten dollars per increment.
- Customers that are entitled to concessions must receive the benefit of the concessions.
- Retailers must ensure that a prepayment meter provides an emergency credit amount of least ten dollars.
- Customers must be able to retrieve all available credit at the time that they vacate the supply address where a prepayment meter is installed.
- Electricity supply must recommence after self-disconnection as soon as information is communicated to the prepayment meter that a payment causing a positive financial balance of the prepayment meter account has been made.

### *Metering Code*

The Metering Code specifically excludes prepayment meters from the definition of *meter* and *metering installation*. Section 3.24 also states that the Metering Code does not apply to prepayment meters, except to the extent provided for in Section 3.25 and Section 3.26.

- Section 3.25 requires network operators to operate and maintain prepayment meters in accordance with 'good electricity industry practice' and as far as reasonably practicable, to minimise any departure from the requirements of the Metering Code.
- Section 3.26 of the Metering Code states that a dispute or difference arising in connection with a prepayment meter is a 'dispute' for the purposes of Part 8 of the Metering Code, and that the affected parties are 'disputing parties' for the purposes of clause 8.1(1).

*Chapter 4*

# Social and community impacts of prepayment meters

## 4.10 Introduction

The Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program are intended to improve the reliability and quality of electricity supply to remote and town reserve Aboriginal communities, and give residents access to the State-wide uniform tariff (irrespective of the cost of providing electricity) and government concessions and rebates. These aspects of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program are clearly of benefit to residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

The use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities creates a number of risks, particularly for financially vulnerable customers, including the following.

- There is a high risk that the prepayment meters currently in use in Western Australia effectively hide the underlying challenges faced by residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, be it financial capacity to meet living costs, or the ability to budget and manage personal finances.
- Communities may only participate and access the benefits of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program (improved reliability and quality of supply, uniform tariffs and government concessions and rebates) if all residents agree to be supplied through a prepayment meter and this could be seen as form of coercion against individual consumers within the communities who do not wish to have prepayment meters installed in their premises.
- The lack of periodic information about consumption may weaken incentives for prepayment meter customers to be more efficient in their use of electricity.
- The limited access to recharge facilities and the absence of restrictions on when the supply of electricity to prepayment meter customers can be disconnected increases the risk of interruptions to the supply of electricity.
- The requirement to pay for electricity before consumption, combined with the low amount of emergency credit provided by Horizon Power, increases the risk of disconnection for prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.
- An increase in the rates of disconnection amongst customers with prepayment meters may contribute to a deterioration in the health and emotional well-being of these customers.

- The current use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities creates a risk that prepayment meter customers will not be able to access financial assistance available under hardships programs.

The customer issues and risks that are likely to be associated with prepayment meters in remote Aboriginal and town reserve communities are described in more detail below.

## 4.11 Capacity to pay

The introduction of individual metering is likely to create incentives to use electricity more efficiently. However, the current use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities creates the risk that difficulties residents have in managing personal finances and budgets, and/or a low financial capacity become hidden.

The primary motivation for Horizon Power installing prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities may be to prevent individual customers' accounts falling into arrears. However, it is not clear that the reasons for the apparent high propensity for these communities to fall into arrears have been identified.

One possible reason is that the prevailing 'chuck in' system of payment fails to hold individual households responsible for their electricity consumption decisions. Households may not previously have known the cost of electricity each had individually consumed, nor had an incentive to be efficient in their use of electricity. With individual households acting independently in their own self interests, the end outcome may be excessive consumption of electricity, and a bill that is beyond the aggregate financial means of the community — a 'tragedy of the commons'.

Based on publicly available information, it is estimated that household electricity bills in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities are on average around 2.6 times higher than in the South-West Interconnected System.[13]

- Information provided by Horizon Power on the value of prepayment meter cards sold in 2007-08 and the number of installed prepayment meter, indicates that the average cost of electricity consumed per prepayment meter is around $2,298 per annum. Based on the uniform tariff, this implies average electricity consumption of around 15, 815 kilowatt hours per annum.
- In comparison, households in the South-West Interconnected System consume an average of 6,007 kilowatt hours of electricity (Personal communication with Rob Panasiewicz, Senior Policy Officer, Office of Energy), which equates to an average annual electricity bill of around $930.

[13] However, that the average household electricity bill in the north west of the State is higher than in the SWIS is not unexpected given the greater reliance on air conditioning to cope with climatic extremes.

The introduction of individual metering is likely to remove disincentives to using electricity more efficiently. Individual metering may also shift (perceived) responsibility for electricity bills to individual account holders, rather than being a shared obligation of all community residents.

Secondly, it may be the case that residents of remote and town reserve Aboriginal communities have greater difficulty in managing personal finances and budgets. One of the key benefits of prepayment meters is the ability to make more frequent smaller periodic payments, although this feature is not unique to prepayment meters. Other bill 'smoothing' options available to Horizon Power customers include its Budget Card and Centrelink's Centrepay facility. Nevertheless, the amount of the prepayments under these two options are not directly linked to electricity consumption, and so may still leave customers with a large unfunded bill. By requiring payment for electricity before consumption can take place, prepayment meters are clearly most effective in aligning capacity (or willingness) to pay and electricity consumption decisions.

Finally, it may simply be the case that residents of remote and town reserve Aboriginal communities lack the financial capacity to pay for all of what would normally be considered to be the necessities of life, including electricity. Household incomes in remote and town reserve Aboriginal communities are substantially below that of the general Western Australian community, and that the cost of living is substantially higher in the north west of Western Australia, and more so in remote communities. The combination of these factors suggests that the financial capacity of residents of remote and town reserve Aboriginal communities to pay for the necessities of life, including electricity, is much lower than for an average household in Western Australia.

There is a high risk that the prepayment meters currently in use in Western Australia will effectively hide the broader social challenges that may exist in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. In turn, this may mean that the underlying challenges faced by residents of these communities are less likely to be addressed, be it financial capacity to meet living costs, or the ability to budget and manage personal finances. This risk echoes the comments of the Tasmanian Council of Social Services (TasCOSS, 2006:1).

## 4.12 Opportunity for coercion

The current use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is likely to create a risk that residents will be coerced into agreeing to the installation and operation of such meters.

Part 9 of the Code of Conduct states that a prepayment meter may not be operated at a premise without the verifiable consent of the customer or the customer's nominated representative. The Act defines verifiable consent as consent that may be given in writing or orally, provided it is given expressly by the customer or a nominated person competent to give consent on the customer's behalf. In addition, the retailer must have disclosed to the customer, in appropriate plain language, all matters materially relevant to the giving of the consent.

The Electricity Code Consultative Committee's draft report (Electricity Code Consultative Committee, 2007a) indicated that the reference to "the customer's nominated representative" was originally included to ensure that residents of remote Aboriginal communities and town reserves could nominate one or more persons (from their community) to negotiate the instalment of prepayment meters as part of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program on their behalf. However, the Electricity Code Consultative Committee went on to state that:

> in practice, there is a lack of clarity surrounding the definition of the "customer's representative". There is also a lack of clarity regarding the circumstances where disagreement may exist between the "customer" and the "customer's representative" (Electricity Code Consultative Committee, 2007a:123).

The Office of Energy had sought to amend the Code to prescribe that:

> in the case of Aboriginal and Remote Communities Power Supply Program, the relevant Aboriginal Corporation, Council or Association be deemed to be these customers' nominated representative for the purposes of this project and that the approval of the Aboriginal Corporation, Council or Association be the only consent requirement (Electricity Code Consultative Committee, 2007a:123).

## 4.13 Consumer issues

The use of prepayment meters has the potential to significantly alter the relationship between electricity retailers and customers as described in the following sections.

### *Information on consumption*

The Code does not require Horizon Power, as a matter of course, to provide prepayment meter customers with information on the amount and cost of electricity consumed, as would automatically occur for its other customers through the periodic billing process (refer Clause 4.5 of the Code).

Consequently, customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities will not have a record of the amount of electricity consumed, or of the cost of electricity unless they retain receipts that may be issued when purchasing prepayment meter credit. Further, the ability of the account holder to track electricity consumption may be further complicated if credit is purchased by other persons (for example, visiting relatives). This lack of information creates a risk that residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program may be limited in their abilities to manage electricity use.

Horizon Power has advised that, to date, no prepayment meter customer has requested it provide information on the customer's consumption, as permitted under Clause 9.4(4) of the Code. The obligation imposed by Clause 9.4(4) of the Code may necessitate that prepayment meters be read periodically, and Western Power currently reads prepayment meters in the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities (under contract to Horizon Power).[14] Consequently, it would appear to be possible for Horizon Power to provide its prepayment meter customers with information on their electricity consumption through issuing a periodic account statement.

### *Access to recharge facilities and restrictions on disconnections*

Prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities have limited access to recharge facilities. At the same time, there are no restrictions on when the supply of electricity can be disconnected. This creates a risk of more frequent interruptions to the supply of electricity.

Horizon Power is not obliged to provide more than one recharge facility within the remote community or within or adjacent to the town reserve community of a prepayment meter customer (clause 9.6 of the Code of Conduct). Further, the recharge facility within an Aboriginal and Remote Communities Power Supply Program community is only required to be accessible for a minimum of three hours per day, five days per week. Other (Town Reserve Regularisation Program) prepayment meter customers are required to be able to access recharge facilities five days a week between the hours of 9am and 5pm. In addition, there is no limitation on when the supply of electricity can be disconnected.

This means that if the electricity supply of a prepayment meter customer in a town reserve was disconnected at 5pm on a Friday, the customer could be without electricity for as much as 64 hours, until 9am on Monday morning (assuming the recharge facility was only open for the minimum required hours, 9am to 5pm Monday to Friday).

In contrast, Clause 5.2 of the Code requires that Horizon Power allow its other customers to also pay their electricity accounts by mail, though Centrepay, electronically through BPay or by credit card, and by credit card over the telephone.

For standard credit metered customers, the Code also imposes specific requirements that retailers must follow prior to being able to disconnect a customer. For example, a retailer may not disconnect a customer after 3pm on weekdays other than Friday, or after 12pm on Fridays, and not at all on weekends. The retailer may not disconnect a customer at all where the customer has lodged a complaint with certain parties. The Code also requires that standard credit meter customers receive at least five days warning of disconnection.

Evidence from a survey of prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities conducted by Strategic Edge indicates that some issues have arisen from the limited number of hours that outlets selling prepayment meter credit are open.

[14] Western Power has indicated that it establishes an ordinary customer for prepayment meter customers in its Customer Information System (CIS), which records the customer's name, service address, and meter identifier. The CIS then links to consumptions data stored in the Metering Business System (MBS).

Eighteen per cent of households surveyed indicated that there had been a time since the prepayment meter had been installed that they had been unable to purchase a prepayment meter card because the store was not open. This was the most common reason cited by respondents for not being able to purchase a card (Strategic Edge, 2008). Respondents reported that it is particularly difficult to purchase cards on weekends and evenings as the outlets that sell the cards are generally closed.

Only 21 (or 16 per cent of) respondents to the survey indicated a period of time that they had been disconnected from electricity. Of these, 16 respondents reported being disconnected for a day or less, two respondents indicated that the household was usually without power for two days and three households indicated that the power was generally out for between four and seven days. The main reason given for the length of delay was because the shop was closed. However, a number of customers indicated that delays were caused while waiting for the next pay day, and this reason is the most likely to account for the longer delays before reconnection.

Short periods of disconnection (say, less than 12 hours) may simply indicate the accessibility of recharge facilities should be increased, and/or that there should be restrictions on the times when prepayment meters can disconnect the supply of electricity. Longer periods of disconnection may reflect either a voluntary decision to not consume electricity, or alternatively limited financial capacity to continue to consume electricity.

### *Flexibility in payment terms*

The requirement to pay for electricity before consumption, combined with the low amount of emergency credit provided by Horizon Power, increases the risk of disconnection for prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

Clause 9.8 of the Code of Conduct requires that a retailer provide an emergency credit amount of at least $10, which Horizon Power has indicated equates to around two days of electricity consumption.

In contrast, clauses 5.6, 5.8 and Part 6 of the Code of Conduct act to extend substantial periods of credit to customers with a standard credit meter. For example, payment of electricity bills (which relate to consumption that possibly occurred as much as 60 days previously):

- are due no earlier than 12 days after being issued;
- a reminder notice can be sent no earlier than 13 days after a bill is issued;
- a disconnection warning notice can be sent no earlier than 18 days after a bill is issued;
- the customer's electricity supply cannot be disconnected earlier than five days after receipt of the disconnection warning notice;
- customers may enter into a payment arrangement (for periodic partial payments) at any time; and
- where a customer advices the retailer that they are having payment problems, the retailer is required to assess whether the customer is experiencing payment difficulties or financial hardship (both of which are defined terms in the Code).

The amount of credit provided to customers supplied through standard credit meters is likely to be at least 72 days, significantly in excess of the two days available to prepayment meter customers that is implied by the emergency credit amount of $10. Combined with the payment options available to customers, the risk of disconnection appears to be significantly lower for standard credit meter customers. That said, these arrangements may also lead to standard credit meter customers accumulating a significant debt.

### *Access to hardship policies*

The current use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities creates a risk that prepayment meter customers will not be able to access financial assistance available under hardship programs.

Part 6 of the Code of Conduct deals with payment difficulties and financial hardship. Other than clause 6.10, this part of the Code of Conduct does not apply to prepayment meter customers. Clause 6.10 requires retailers to develop a hardship policy, implying that a retailer's hardship policy should apply to prepayment meter customers.

Horizon Power's hardship policy indicates that:

> 10.2 Pre-payment meter customers can apply for financial support through the Horizon Power Assist Scheme, which is administered by Anglicare
>
> 10.3 As per the Code of Conduct (for the supply of Electricity to Small Use Customers), pre-payment customers will be able to request that a credit meter be installed. However, due to the potential of creating larger debt problems, customers will be required to enter into an agreed payment plan prior to the change of meter being enacted (Horizon Power, 2005:6).

It is not clear that there is any basis in the Code of Conduct for the statement in Horizon Power's Hardship Policy about meter reversion and requirement for customer to agree to payment plan.

Anglicare administers the Horizon Power Assist Scheme, with the State Emergency Relief Committee (SERC) acting as a reference committee and the Western Australian Council of Social Services (WACOSS) taking on a co-ordination, support and communication role (WACOSS, 2008:2). Horizon Power provides funding of $15,000 per annum, which is available to assist customers with outstanding bills in excess of $200. As prepayment meter customers pay in advance for electricity, they would appear to effectively be precluded from accessing the Horizon Power Assist Scheme.

The Hardship Utility Grants Scheme has been in operation since 1 August 2008, and is administered by the Department for Child Protection. The Scheme pays grants to people who are assessed as being in genuine financial hardship and are unable to pay their electricity (or other utility) bill. The objective of the scheme is to avoid disconnections.

The minimum grant is $100, while the maximum is 85 per cent of the customer's outstanding bill, up to a maximum of $300 for customers within the South-West Interconnected System and $500 for customers outside the South-West Interconnected System. A customer can claim the grant as many times as necessary in a year, up to the maximum allowable value (that is, either $300 or $500).

To access the Scheme, a customer experiencing financial hardship is required to contact their electricity retailer, who is responsible for assessing the degree of hardship. Applicants must then be referred to a Registered Financial Counselling Service for a grant application to be progressed. The application is sent to the Department of Child Protection and – if approved – the grant is paid to the utility against the debt of the customer.

The Department of Child Protection has advised that prepayment meters customers are not precluded from accessing the Scheme. However, it is noted that Horizon Power will have little, or no, information on its prepayment meter customers on which to assess financial hardship. In addition the following suggests that prepayment meter customers will not benefit from the Scheme.

- The maximum amount of emergency credit provided by a prepayment meter, and hence the prepayment meter customer's debt, is $10. As noted above, the minimum grant under the Scheme is $100.
- The grant is paid to the retailer. For a prepayment meter customer, the grant would need to be paid to the customer, not the retailer, to allow additional credit to be purchased.

### *Transaction costs*

Customers are unlikely to incur any material costs in obtaining prepayment meter credit.

It is assumed that if prepayment meters are eventually used through out Western Australia, customers will be able to purchase credit for a prepayment meter by calling a phone line or accessing a website established by the retailer for the purpose of obtaining credit. If the customer had a standard credit meter, they would generally pay their electricity bill through a phone line, or a website, or by post. The only difference is that the customer pays in advance with a prepayment meter and in arrears with a standard credit meter.

People living in remote indigenous communities purchase prepayment meter credit from the local community store or the office of the local Aboriginal Corporation. There may be some costs associated with travel to purchase credit from these outlets. However, these costs are likely to be minimal, particularly as travel to purchase cards can be combined with other errands.

Around 95 per cent of households in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities that were surveyed indicated that the current outlets where prepayment meter cards are sold are convenient (Strategic Edge, 2008).

### *Potential additional consumer protection measures*

Regulatory frameworks in the Australian Capital Territory, South Australia and Tasmania include a number of consumer protection measures that are not included in the Western Australian Code of Conduct. Additional measures that could be considered on the basis of codes operating in other jurisdictions include the following.

- A condition in the Code of Conduct that retailers are not permitted to harass or coerce customers into accepting a prepayment meter. The three other jurisdictions have slightly differing requirements about customer acceptance of prepayment meters. All three require customers to provide informed consent before a retailer is permitted to install a prepayment meter, but only South Australia explicitly states that customers cannot be harassed or coerced into accepting one.
- A requirement that electricity retailers be able to give customers information on total energy consumption, average daily consumption and average daily cost of consumption for the previous two years or since the commencement of the prepayment meter contract. This requirement is common to all three jurisdictions.
- A requirement that retailers offer prepayment meter customers a mandatory trial period (for example, three months), at or before the expiry of which customers can request to have the prepayment meter removed at no cost. This requirement is common to all three jurisdictions.
- A requirement that retailers immediately respond to a request by a prepayment meter customer to revert back to a standard credit meter. A charge may be levied if the customer requests that the meter be changed outside of the mandatory trial period. This requirement is common to all three jurisdictions.
- Restrictions on the extent to which retailers can recover outstanding debts from individual customers through adjustments to prepayment meter charges. For example, the South Australian and the Australian Capital Territory prepayment meter codes do not permit a retailer to recover any debts from a customer by adjusting the charges in the prepayment meter to recover the amount of the debt. The Tasmanian code permits the electricity retailer to apply a 50 cent per day surcharge on the standard fixed charge to recover outstanding debts.
- A requirement that prepayment meters be programmed not to disconnect a prepayment meter customer from their electricity supply at certain times of the day. For example, the Australian Capital Territory and the South Australian codes do 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, while Tasmania does not permit disconnections other than between the hours of 8:00am and 2:00pm on any day.
- A requirement 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. This requirement is common to all three jurisdictions.
- A requirement that, in certain circumstances, the retailer must contact prepayment meter customers as soon as is reasonably practicable to replace the prepayment meter with a standard credit meter at no cost to the customers. These circumstances may include if a prepayment meter customer informs their retailer that they are having difficulty paying or the retailer identifies that a customer has self-disconnected three or more times in any three-month period for longer than 240 minutes on each occasion. The retailer would be required maintain verifiable records of such contacts. These requirements are common to all three jurisdictions.

- A requirement that retailers must immediately check that a prepayment meter is operating correctly if requested by a customer. This requirement applies in South Australia and the Australian Capital Territory, whereas Tasmania permits the electricity retailer 15 business days to perform the checks.

It is likely that the effect of some of these requirements would be to reduce the extent of hardship amongst prepayment meter customers compared to if there were no consumer protection requirements.

However, there is insufficient data to quantify the effect of these requirements, for example through a reduction in the rate of disconnections that are associated with an unacceptable level of hardship. Tasmania introduced a prepayment meter code most recently (May 2007). However, Tasmania has not updated data on disconnection rates since the introduction of prepayment meters the introduction of the code and so the effects of the introduction are unknown.

South Australia (which introduced its prepayment meter code in May 2005) has recently experienced a significant decline in the rate of disconnections (from 18 per cent in 2006-07 to 3 per cent in 2007-08) (ESCOSA 2007 and ESCOSA 2008). However, this decline has been attributed to a change in the nature of the retailers' customer base (towards more affluent customers) rather than any regulatory changes (personal communication with Manager Consumer Protection, Economic Regulation Authority).

## 4.14 Social costs of disconnections

It is considered likely that the use of prepayment meters will result in an increase in the number of households being disconnected from their electricity supply each year. Episodes of disconnection from electricity supply can impose a number of socials costs on households, particularly on already vulnerable people such as those in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

Some of the possible social costs of disconnection – which relate to health and safety costs and emotional and psychological costs – are described below, with particular focus on potential effects on indigenous people.

The description of social costs is largely speculative and the extent of any such costs is uncertain. There is no clear evidence for the incidence and severity of the adverse social effects that are described. The likelihood and severity of the social effects will depend upon the individual circumstances of the affected household and the duration of the disconnection. Prepayment meters may potentially reduce these social effects by reducing the duration of disconnections and by engendering a perception of disconnection being under the personal control of the electricity customer rather than something that is imposed upon the customer by the electricity retailer. Moreover, there may also be positive social effects arising through increasing personal accountability and responsibility for the consumption of, and payment for, electricity services on behalf of the electricity customer.

### *Health and safety costs*

#### *Greater risk of illness*

A potential risk associated with an increased rate of disconnection from electricity is that it will result in a higher rate of illness. The Public Interest Advocacy Centre survey on the impacts of utility disconnections found that 8 per cent of those surveyed had a member of the household become ill during the episode of disconnection (Ross et al, 2005).

An increased rate of illness may be caused by a reduced ability to maintain hygiene standards without electricity. The most likely consequence of a reduction in the hygiene standards of a household is an increase in the number of infectious and parasitic illnesses (such as diarrhoea).

Most infectious and parasitic illnesses can be readily treated with appropriate medical attention. However, there is evidence to suggest that the consequences of an infectious or parasitic illness for an indigenous person (children in particular), have the potential to be more severe.[15] People living in indigenous communities are more vulnerable to poor health as a consequence of the poor conditions of housing and utilities.[16]

Because of the higher pre-existing vulnerability of indigenous infants and children to hospitalisation and death from these illnesses, a reduced ability to maintain hygiene as a result of disconnection from electricity may further compound such problems.

#### *Non life support medical devices that rely on mains electricity*

A potential effect of electricity disconnections is that it may adversely affect people reliant on medical devices that are powered by mains electricity but are not considered to be life support devices. The Public Interest Advocacy Centre survey on the impacts of utility disconnections reported that 11 per cent of people surveyed who had had a utility disconnected had indicated that someone in their household had been unable to use a medical device or machine as a consequence (Ross et al, 2005).

Under the Code of Conduct, a prepayment meter can not be installed in households that have an occupant that is reliant on life support equipment. Medical devices that are considered to be life support equipment are restricted to a limited number of devices without which the person relying on the equipment is likely to die.[17]

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15 Compared to infants and children from a non-indigenous background, infants and children from an indigenous background are 3 and 1.7 times (respectively) more likely to be hospitalised for an infectious and parasitic disease and 5.4 and 3.4 times (respectively) more likely to die from an infectious and parasitic disease (ABS and AIHW 2008**)**.

16 Health problems related to inadequate housing and infrastructure in remote areas of Australia include infectious diseases such as skin infections and infestations, respiratory infections, eye and ear infections, diarrhoeal diseases and rheumatic fever (Menzies School of Health Research 2000). These diseases have the greatest impact on Indigenous children and are directly related to factors such as inadequate water supplies, sanitation and overcrowding (Baillie 2007) (ABS and AIHW 2008, pp. 39)

17 Devices that are considered to be life support devices include ventilators (VPAP or BPAP only); standard capacity oxygen concentrators (children and adults) and high capacity oxygen concentrators (adult only); feeding pumps; suction pumps; apnoea monitors (child only); heart pumps; nebulisers (child only – used every day for one to two hours per day); and machine assisted peritoneal dialysis equipment.

However, there are other medical devices that are reliant on mains power, that are not considered to be life support devices, but could result in potential harm or distress to the user if the device could not be activated as a consequence of an electricity disconnection. Examples of such devices could include:

- machinery and special beds for lifting people with disabilities so that they can go to the shower or toilet; and
- 'air flow' beds to prevent people with disabilities from getting bed sores; and
- CPAP ventilators to assist adults with sleep apnoea.[18]

Indigenous people are more likely to require a medical device than non-indigenous people. After adjusting for differences in age structures of populations, Aboriginal and Torres Strait Islander people are almost twice as likely as non-indigenous people to require assistance with core activities (ABS and AIHW 2008, pp. 60). A core activity includes self care (eating, washing, dressing or toileting), physical mobility or communication. In remote areas of Western Australia, around 4 per cent of indigenous people require assistance with core activities (ABS and AIHW 2008, pp. 61).

Indigenous people requiring assistance with core activities are more likely to be affected by disconnection from electricity than a non-indigenous person. Indigenous people requiring assistance are more likely to be living in private dwellings as opposed to non-private dwellings (such as hospitals, nursing homes and hostels for people with disabilities). Across Australia, around 90 per cent of indigenous people that need assistance with core activities live in private dwellings, compared to 81 per cent of non-indigenous people who need assistance with core activities.

### *Emotional and psychological costs*

The Public Interest Advocacy Centre survey on the impacts of utility disconnections found that emotional and psychological distress was one of the most commonly reported impacts of the disconnection (Ross et al, 2005). Reported impacts included the following.

- Other people in the house became anxious or distressed (47 per cent).
- The household felt isolated as they were unable to use radio or television (41 per cent).
- Children in the house became anxious or distressed (36 per cent) (Ross et al 2005, pp.19).

Indigenous people may be more adversely affected by emotional and psychological impacts than non-indigenous people. This supposition is based upon the higher rates of conditions that would predispose indigenous people to emotional and psychological distress (refer to Box 4.4 for further details).

[18] Sleep apnoea occurs when the walls of the throat come together or collapse during sleep, blocking off the upper part of the airway.

Box 4.4

**EMOTIONAL AND PSYCHOLOGICAL DISTRESS IN INDIGENOUS COMMUNITIES**

Indigenous people have been found to have relatively high rates of emotional and psychological distress. A survey using the Kessler Psychological Distress Scale found that 27 per cent of indigenous adults had high or very high levels of psychological distress (ABS and AIHW 2008, pp. 110).

Potential reasons for these high stress levels could include the following.

- *Life stressor in the previous twelve months* – surveys conducted in 2002 found that indigenous people were 1.4 times as likely as non-indigenous people to report experiencing at least one stressor in the previous twelve months (ABS and AIHW 2008, pp. 110). A life stressor can include death of a family member or close friend, serious illness or disability.
- *Existing poor living conditions and overcrowding* – overcrowding and poor dwelling conditions 'can directly impact on both physical and mental health' (ABS and AIHW 2008, pp. 39). In 2006, 16 per cent of indigenous households in Western Australia were found to be living in overcrowded dwellings (ABS and AIHW 2008, pp. 40). The proportion of overcrowding amongst indigenous households that rent in indigenous or mainstream community housing is 42 per cent.
- *Higher number of children in residence* – emotional and psychological impacts arising from disconnections were particularly frequent among households with children, with 51 per cent reporting distress in children, and 51-52 per cent (depending on the children's ages) reporting that others became distressed or anxious (Ross et al 2005, pp.19). Indigenous households with dependent children are more likely to have 4 or more children (17 per cent of indigenous households with children) than non-indigenous households with dependent children (5 per cent) (ABS 2006).

Source: ABS and AIHW 2008.

*Chapter 5*

# Costs and benefits of prepayment meters in remote communities

## 5.1 Introduction

In this chapter, estimates are provided of the costs and benefits from use of prepayment meters in communities subject to the Aboriginal and Remote Communities Power Supply Program and the Town Reserve Regularisation Program (hereafter referred to as "the remote communities"). These costs and benefits have been estimated relative to a status quo or base case of use of standard credit meters in these communities.

## 5.2 Basis for estimates

The costs and benefits of prepayment meters in the remote communities were estimated on the basis of the following assumptions and methods.

- Costs and benefits are calculated on a net present value basis over 20 years, using a real discount rate of 5.5 per cent (based upon a nominal discount rate of about 8 per cent and an inflation rate of about 2.5 per cent).
- Costs that are of a one-off or lumpy nature and have a pay-off period that extends for greater than one year, including for example meter costs and costs of establishing a standard form prepayment meter contract for retail outlets, have been converted to an annuity.
- The number of installed prepayment meters has been determined from information provided by Horizon Power and the Department of Housing and Works, to which an assumed annual growth rate of 2.6 per cent has been applied.[19]

## 5.3 Summary

The benefit of use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities instead of standard credit meters is estimated to be a present value over 20 years of around $966,000, corresponding to average annual net benefit of about $44.53 per customer (Table 5.3). Within this overall benefit, there is a net benefit to the electricity retailer with a present value over 20 years of $23,000, a net cost on average to electricity customers of $75 per annum, and a net benefit to the wider community with a present value over 20 years of $2.6 million.

[19] The Australian Bureau of Statistics projects that the average annual growth rate of the Indigenous population between 2002 and 2009 will be between 1.8 per cent (low series) and 3.4 per cent (high series) (Australian Bureau of Statistics 2008). The average of these two growth rates has been used to forecast growth in the number of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

Table 5.3

**ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| **Electricity retailers** | | |
| Costs | | |
| Infrastructure costs | -$37.79 | -$819,675 |
| Up-front metering system support costs | -$3.18 | -$68,882 |
| Commissions to card retailers | -$68.94 | -$1,495,391 |
| Audit costs | -$28.27 | -$613,134 |
| Loss of revenue from late-payment and reconnection fees | -$3.16 | -$68,542 |
| Benefits | | |
| Prepayment for electricity | $20.60 | $446,731 |
| Reduction in bad debts | $1.48 | $32,060 |
| Reduction in disconnection and reconnection costs | $114.00 | $2,472,709 |
| Savings in billing | $6.30 | $136,650 |
| ***Sub-total*** | ***$1.04*** | ***$22,525*** |
| **Costs and benefits to electricity consumers** | | |
| Costs | | |
| Costs of prepaying for electricity | -$20.60 | -$446,731 |
| Costs of reduced opportunity for late payments | -$1.48 | -$32,060 |
| Reduced access to subsidy payments | -$50.00 | -$1,084,522 |
| Consequential costs of disconnection | -$5.94 | -$128,743 |
| Benefits | | |
| Avoidance of late-payment and reconnection fees | $3.16 | $68,542 |
| ***Sub-total*** | ***-$74.85*** | ***-$1,623,514*** |
| **Costs and benefits to the broader community** | | |
| Costs | | |
| Regulatory framework | -$0.60 | -$13,000 |
| Benefits | | |
| Commissions to card retailers | $68.94 | $1,495,391 |
| Reduced cost to government of subsidy payments | $50.00 | $1,084,522 |
| ***Sub-total*** | ***$118.34*** | ***$2,566,913*** |
| **TOTAL** | **$44.53** | **$965,924** |

Source: Allen Consulting Group

Some of the costs and benefits in the above table are 'transfers' between the three key affected parties and therefore directly off-set each other. The transfers are the time value of money in the prepayment for electricity (which is a transfer from the electricity customer to the retailer), the time value of money in the reduction in bad debts (which are transfers from customers to electricity retailers as benefits), the commissions paid to card retailers (which are transferred from electricity retailers to card retailers as benefits) and the reduced cost to government of subsidy payments (which is a transfer from customers to the Western Australian community).

The costs and benefits for the three key affected parties, Horizon Power, prepayment meter customers and the broader community, are described in more detail below.

## 5.4 Retailer/distributor (Horizon Power)

### *Summary of costs and benefits*

The use of prepayment meters in the remote communities is estimated to result in a net benefit to Horizon Power of around $23,000 in present value terms (Table 5.4).

Table 5.4

**HORIZON POWER — ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| **Infrastructure costs** | | |
| Cost of meters | -$23.65 | -$512,873 |
| Meter reading | $0.00 | $0 |
| Cost of recharge cards | -$14.14 | -$306,802 |
| ***Subtotal*** | ***-$37.79*** | ***-$819,675*** |
| **Up-front metering system support costs** | | |
| Development of prepayment meter contract | -$1.15 | -$25,000 |
| Contract establishment costs | -$0.40 | -$8,776 |
| Education costs | -$1.62 | -$35,106 |
| ***Subtotal*** | ***-$3.18*** | ***-$68,882*** |
| **On-going metering system support costs** | | |
| Audit costs | -$28.27 | -$613,134 |
| Commissions to card retailers | -$68.94 | -$1,495,391 |
| ***Subtotal*** | ***-$97.21*** | ***-$2,108,526*** |
| **Retail operations** | | |
| Savings in billing | $6.30 | $136,650 |
| Reduction in disconnection and reconnection costs | $114.00 | $2,472,709 |
| Prepayment for electricity | $20.60 | $446,731 |
| Reduction in bad debts | $1.48 | $32,060 |
| Loss of revenue from late-payment and reconnection fees | -$3.16 | -$68,542 |
| ***Subtotal*** | ***$139.21*** | ***$3,019,608*** |
| **TOTAL** | **$1.04** | **$22,525** |

Source: Allen Consulting Group

The benefits of prepayment meters to Horizon Power occur in the reduction of costs. Over a 20 year period, these benefits are estimated to have a present value of about $3.1 million. The main items of cost reduction are:

- costs savings from the avoided need to physically disconnect and reconnect customers that are in arrears with payments ($2.5 million);
- the prepayment by customers for electricity and the value of this in lower working capital requirements ($447,000);
- savings in billing costs through not having to issue electricity bills ($137,000); and
- cost savings in the avoidance of bad debts (just over $32,000).

The largest potential cost saving to Horizon Power from the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program arises from avoiding costs that would be incurred in physically disconnecting and reconnecting standard credit meter customers ($2.5 million). This cost is based on an estimated cost of $1,140 to disconnect and then to reconnect a customer in a remote community, and an assumption that without prepayment meters, disconnection rates in these communities would average around 10 per cent of customers per annum.

Over a 20 year period, Horizon Power is expected to incur additional costs with a present value of about $3.1 million as a result of the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. The main cost items are:

- the payment of commissions to retail outlets selling prepayment meter credit (almost $1.5 million);
- administration costs incurred in auditing reports submitted by retail outlets ($613,000);
- higher costs of meter infrastructure, reflecting both the higher initial cost of prepayment meters and their shorter lives relative to standard credit meters ($513,000);
- the cost of purchasing magnetic strip cards for use with the prepayment meters ($307,000); and
- loss revenue from late payment and reconnection fees ($69,000).

### *Sensitivity of results*

Sensitivity analyses were conducted on two parameters of the cost benefit analysis for Horizon Power: the assumed life of a prepayment meter and the average cost to disconnect and then reconnect a customer in a remote community.

The estimates of costs and benefits presented in Table 5.3 and Table 5.4 are based on a life of a pre-payment meter of 15 years, half as long as a standard credit meter. If the life span of a prepayment meter was instead a third as long as that of a standard credit meter (that is, 10 years), the additional meter costs would be $806,000, an increase of $294,000. The net present value benefit to Horizon Power of prepayment meters in remote communities would become a cost of $271,000.

The estimates of costs and benefits presented in Table 5.3 and Table 5.4 are based on a disconnection rate of 10 per cent in remote communities, assuming that customers are supplied through standard credit meters. Once the disconnection rate falls below 10 per cent there is not estimated to be any net benefit from the introduction of prepayment meters in remote indigenous communities for Horizon Power.

### *Infrastructure costs*

On-going meter infrastructure costs include the following: meters; meter reading; meter maintenance costs; and meter testing.

The analysis is based on the following assumptions.

- Prepayment meters have a higher cost than standard credit meters, with the difference between the cost of a prepayment meter and a standard credit meter (on an annualised basis) of between $23.65 per meter (15 year life-span) and $37.19 per meter (10 year life-span).
- Prepayment meters continue to be read (to meet Code obligations), so the installation of prepayment meters does not result in a decrease in meter reading costs.
- There is no difference in meter maintenance requirements, so the installation of prepayment meters does not result in a change in meter maintenance costs.
- Prepayment meters do not result in additional meter testing, so the installation of prepayment meters does not result in a change in meter testing costs.
- Prepayment meters are 'credited' by inserting magnetic strips cards, which cost 10 cents per card.

The following sections provide more detail on the basis for these assumptions.

### *Costs of meters*

The cost of a prepayment meter is higher than a standard credit meter and prepayment meters also need to be replaced more frequently than standard credit meters.

It was estimated that on average a prepayment meter would cost $160 more than a standard credit meter. This estimate is based on information supplied by Horizon Power that prepayment meters would cost $410 each (fully installed, with a protective meter cover), compared with $250 for a standard credit meter (also fully installed, with a protective meter cover).

Two possible life-spans for prepayment meters were considered: 10 years and 15 years. This compares to the life of a standard credit meter of 30 years. (Refer to Appendix D for more information on the expected life-span of meters).

Based on these assumptions, the additional annualised cost of a prepayment meter compared to a standard credit meter is between $37.19 (10 year life-span) and $23.65 (15 year life-span) higher than for standard credit meters (real discount rate of 5.5 per cent).

### *Meter reading*

There will be no change in meter reading costs to Horizon Power as a consequence of installing prepayment meters in place of standard credit meters.

Prepayment meters have the potential to allow retailers to avoid meter reading costs completely, given no bills are required to be sent to customers. However, it has been assumed that reading prepayment meters will continue to be necessary to meet the requirements of the Code (specifically, the obligation to provide consumption data to customers on request), and may also be desirable to monitor meters for evidence of illegal tampering.

Western Power (under contract to Horizon Power) reads both prepayment meters and standard credit meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. The cost of the meter reading service provided by Western Power under contract to Horizon Power is the same for prepayment meters and standard credit meters.

#### *Meter testing*

The cost of the meter testing is the same for prepayment meters and standard credit meters.

Horizon Power advised that it has not observed a higher number of requests for testing of prepayment meters compared with standard credit meters. Horizon Power has also indicated it does not conduct meter tests on a routine basis.

#### *Meter maintenance*

The cost of meter maintenance is the same for prepayment meter and standard credit meters.

Horizon Power advised that it has no evidence that the prepayment meters it uses require greater maintenance compared with standard credit meters. It indicated that the AMPY prepayment meters that it currently uses are quite resilient if protective mild steel covers are fitted. Consequently, it has been that there is no difference in meter maintenance costs arising from the use of prepayment meters.

#### *Costs of recharge cards*

The AMPY prepayment meters used by Horizon Power in remote communities are 'credited' by inserting a magnetic strip cards (with a nominal value of $10, $20 or $50) into the meters.

Horizon Power has advised that the magnetic strip cards cost 10 cents each.

The total cost per annum of the magnetic strip cards has been calculated by escalating the number of magnetic strip cards sold to prepayment meter customers in 2007-08 (just over 66,000) by growth in the number of prepayment meters and multiplying this value by the per unit cost of the magnetic strip cards.

### *Up-front metering system support costs*

Up-front costs incurred by retailers, include the costs of establishing retail outlets for the sale of prepayment meter credit and providing consumer education, are higher for prepayment meters than for standard credit meters.

It is estimated that these additional costs include:

- establishing a legal contract for retail outlets – the cost incurred in establishing a standard contract for prepayment meter credit retail outlets (estimated as a one-off cost of $25,000);
- entering into legal contracts with retail outlets – estimated to be a once-off cost of $170 per retail outlet; and

- consumer education – the additional once-off costs incurred in consumer education as a consequence of installing prepayment meters instead of standard credit meters in the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities ($680 per community).

### *Development of prepayment meter contract*

The costs of establishing commercial and functional relationships with retail outlets for the sale of prepayment meter credit are higher for prepayment meters than for standard credit meters.

Costs are incurred in establishing commercial relationships with retail outlets to sell recharge cards for use in prepayment meters, including establishing commercial contracts with the outlets, and systems for monitoring and auditing the sale of recharge cards.

Horizon Power has developed a standard contract for retail outlets in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, and consequently no on-going costs are incurred with the use of this standard contract.

Horizon Power has not provided an estimate of the initial cost it incurred to develop the contract. It has been assumed that the initial cost of drafting the contract was in the order of $25,000.

### *Contract establishment costs*

Horizon Power estimates that it takes approximately two hours of staff time to set up a new contract for each distribution outlet at a cost of $85 per hour. The additional once-off cost of entering into contracts with a distribution outlet in each of the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is therefore estimated to be in the order of $170 per community. There are expected to be around 58 affected communities (based upon advice from the Department of Housing and Works), resulting in a total cost of around $9,000. The expected annual average cost per customer is estimated to be $0.40 per prepayment meter customer per annum.

### *Education costs*

The costs of consumer education required as part of the installation of prepayment meters are higher than for standard credit meters.

Horizon Power conducts a consultation and education process as part of the regularisation of electricity supplies in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. Horizon Power employs a three-stage process during regularisation projects, involving three separate visits to residents of the community, each taking two days. (More detail on Horizon Power's consultation process is provided in Appendix D.

Information provided by Horizon Power suggests that the second day of the third visit could be avoided if standard credit meters were installed instead of prepayment meters. This is because about half of the time spent with customers providing education on the changes arising from regularisation relates only to prepayment meters.

The cost of additional staff time that would be needed if prepayment meters rather than standard credit meters are installed is estimated at $680 per community, based on a cost of $85 per hour for eight hours per community that has prepayment meters installed. There are expected to be around 58 affected communities (based upon advice from the Department of Housing and Works), resulting in a total cost of around $35,000. The expected annual average cost per customer is estimated to be $1.62 per prepayment meter customer per annum.

### *On-going metering system support costs*

The costs of establishing commercial and functional relationships with retail outlets for the sale of prepayment meter credit are higher for prepayment meters than for standard credit meters (for which retail businesses may also be involved in energy retailing through acceptance of bill payments).

On-going support costs include costs of audit obligations (estimated to cost $11,700 for the first year and growing in line with the number of affected communities) and commissions paid to the retail outlet (estimated to cost $69 per prepayment meter per annum).

#### *Audit costs*

The use of prepayment meters imposes additional costs on Horizon Power, specifically for auditing reports provided by retail outlets each month on the sales of prepayment meter credit and lost, stolen or damaged cards.

Horizon Power estimates that currently around ten per cent of a full-time equivalent staff position is required to review these reports, at an hourly staff cost of $65 per hour (which is noted to be lower than the hourly staff cost assumed for education and establishing legal contracts). Assuming a 48 week year and a 37.5 hour week, the cost of audit obligations is estimated to be $11,700 per annum in the first year.

In subsequent years, the cost estimate has been escalated using forecast increases in the number of remote indigenous communities supplied with electricity through prepayment meters.

#### *Commissions to card retailers*

Horizon Power generally pays a commission to the retail outlets that sell prepayment meter credit. The standard commission on the value of the recharge cards sold is three per cent, with a maximum of around 5 per cent, although in some cases, no commission is paid.

In 2007-08, $1,077,800 of prepayment meter credit was sold. Based on 469 installed prepayment meters, this equates to an average annual electricity cost of $2,298 per prepayment meter customer. The cost of commission paid to retail outlets by Horizon Power per customer, based on a commission of three per cent, is $68.94.

The cost of commissions will increase as the number of prepayment meters, and sale of prepayment meter credit, in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities increases. The initial estimated cost has therefore been escalated in line with the forecast increase in the sale of prepayment meter credit, which is based on average per prepayment meter credit sales in 2007-08, projected increases in the number of prepayment meters as a result of Stage 2 of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program, and growth of indigenous populations of 2.6 per cent per annum.

### *Retail operations*

The cost-to-serve prepayment meter customers may be lower than for standard credit meters. Specifically:

- retailers do not need to send out bills (and payment reminder notices) to customers;
- the prepayment of electricity by customers creates a cash flow benefit; and
- prepayment of electricity avoids the potential for customers' accounts to fall into arrears, avoiding credit management and debt recovery costs.

#### *Billing*

It is estimated the financial benefit to Horizon Power of not having to issue customer bills is $6.30 per prepayment meter customer per annum.

Electricity retailers generally use 'mailing houses' to send bills to customers. Data could not be obtained from Horizon Power about the cost of sending bills to customers. However, a mailing house advised that the cost of sending an electricity bill (including postage) was $1.05 per bill. The cost per customer per annum is therefore estimated to be $6.30 as retailers issue six bills per year.

#### *Prepayment of electricity*

The financial benefit to Horizon Power arising from the prepayment of electricity is estimated to be $20.60 per prepayment meter customer.

Ordinarily, Horizon Power issues bills every second month (or 61 days), and the Code provides for customers to be given at least 12 days to pay. With pre-payment meters, revenue can therefore be considered to be brought forward by 73 days for each prepayment meter customer. This has a benefit to Horizon Power in a lower working capital requirement.

Data provided by Horizon Power indicates that the average consumption per installed prepayment meter in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is around $383 for each consumption period (per 61 days) (that is, $2,298.8 divided by six).

If it is conservatively assumed that prepayment cards are purchased immediately prior to electricity consumption, then there is a financial benefit of $20.60 per prepayment meter customer reflecting Horizon Power's avoided working capital cost (assumed to be a nominal interest rate of eight per cent per annum) calculated on $2,298.8 over 42.5 days.

This benefit to the retailer is exactly offset by a cost of the same size incurred by customers with prepayment meters, who incur costs by having to pay for electricity (on average) 42.5 days earlier than they would have to do with standard credit meters.

### *Reduction in disconnection and reconnection costs*

It is estimated that the financial benefit to Horizon Power of not having to physically disconnect prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is around $114 per prepayment meter customer.

Horizon Power provided data indicating that the costs incurred in disconnecting and reconnecting customers in remote communities range from $60 to $2,519 each, with an average of around $570 for each disconnection or reconnection.[20] The variation in costs reflects that some of these communities may be several hundred kilometres from Horizon Power's depots.

The estimated saving was based on multiplying the average cost of $1,140 (that is, two times $570) by the disconnection rate amongst customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities (assuming that these customers are supplied with electricity through standard credit meters). The disconnection rate was assumed to be 10 per cent per annum.

Little reliable information was available on disconnection rates in these communities. Horizon Power's general rate of disconnection amongst all of its customers in 2007-08 was 5.8 per cent. However, unpublished data on disconnection rates by town from Horizon Power suggests that rates of disconnections amongst indigenous communities are higher than those in mainstream communities. It was assumed that a disconnection rate of 10 per cent would apply in remote indigenous communities (if customers were supplied through standard credit meters). This was calculated by applying a weighted average to the disconnection rates in towns in Horizon Power's service areas that have 'high proportions of indigenous people'.[21]

### *Reduction in bad debts*

The financial benefit to Horizon Power of increased interest earnings as a consequence of a reduction in bad debts resulting from the use of prepayment meters rather than standard credit meters is estimated to be $1.48 per annum for each customer with a prepayment meter.

The use of prepayment meters instead of standard credit meters is likely to reduce the value of bad debts that customers have with their electricity retailer, given the prepayment meters are programmed to provide only $10 of emergency credit before customers are disconnected.[22]

[20] That is, $570 for a disconnection and $570 for a reconnection.

[21] Towns were deemed to have a high proportion of indigenous people if 20 per cent or more of their population is indigenous (compared to about 3 per cent across Western Australia).

[22] Once disconnected, the prepayment meters installed by Horizon Power do not accrue additional charges. That is, the daily supply charge is not incurred while the supply of electricity is disconnected.

Horizon Power attempts to recover the entire value of bad debts from all customers with bad debts (other than deceased customers or customers that declare bankruptcy). It has therefore been assumed that Horizon Power eventually recovers the value of all of its bad debt from all of its customers. For this reason the financial benefit to Horizon Power arising from the use of prepayment meters is not the value of the bad debt itself, but rather the saving in costs of working capital requirements if bad debts are not incurred.

The proportion of customers with late payments and bad debts is not known with any certainty. For this analysis it was assumed that:

- 10 per cent of customers in the remote communities make late payment of bills, with an average period of late payment of four months (122 days);
- the average value of an electricity bill for a two month period would be $383;
- Horizon Power's cost of working capital is 8 per cent per annum.

Assumptions were then made about the time taken by Horizon Power to recover the bad debts. The assumptions made were not based upon Horizon Power's actual debt collection policy (for example, the level or duration of indebtedness incurred by a customer before debt collection proceedings are instigated). Horizon Power did not want to provide information on its debt collection policy because Horizon Power's customers might use this information to take advantage of the debt collection terms.

It was assumed that the 10 per cent of customers in remote indigenous communities that are eventually disconnected for having bad debts would pay their electricity bills four months late.

The value of the interest benefit to Horizon Power from a reduction in bad debts does not commence until the end of a billing cycle (which is the 61 day period over which electricity is consumed, followed by the 12 days after the end of this period before which payment is due from the customer).

It is assumed that Horizon Power does not disconnect customers for failure to pay debts until after the completion of two consecutive billing cycles (that is, 61 days, plus 61 days, plus 12 days). It is assumed that the customers do not pay their electricity bills for a further two months (or 61 days). At this point, these customers will be 122 days over due on their first bill (that is, 61 days, plus 61 days) and 61 days overdue on their second electricity bill. The benefit to Horizon Power of not foregoing interest on the value of this bad debt is equal to $1.48 per customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities per annum.

### *Loss of revenue from late-payment and reconnection fees*

The financial cost to Horizon Power from the loss of late-payment and reconnection costs is estimated to be $3.16 per prepayment meter customer.

Horizon Power applies a late notice fee of $4.10 and a fee of $27.50 for the reconnection of electricity supply to its standard credit meter customers.

It was assumed that the proportion of customers paying these fees would be equal to the rate of disconnections amongst Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program customers if these customers were instead supplied with standard credit meters (assumed to be 10 per cent per annum as outlined earlier in this Chapter).

The financial benefit to prepayment meter customers was calculating by multiplying the value of the late notice fees and the reconnection fees by the proportion of customers disconnected per annum.

## 5.5 Electricity customers

### *Summary of costs and benefits*

The use of prepayment meters in the remote communities is estimated to result in an average net cost to electricity customers of $75 per annum. In aggregate for all customers, the present value of the cost over a 20 year period is about $1.6 million (Table 5.5).

Table 5.5

**CUSTOMERS IN REMOTE COMMUNITIES — ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Costs of prepaying for electricity | -$20.60 | -$446,731 |
| Costs of reduced opportunity for late payments | -$1.48 | -$32,060 |
| Loss of access to consumer safety nets | -$50.00 | -$1,084,522 |
| Consequential costs of disconnection | -$5.94 | -$128,743 |
| Benefits | | |
| Avoidance of late-payment and reconnection fees | $3.16 | $68,542 |
| **TOTAL** | **-$74.85** | **-$1,623,514** |

Source: Allen Consulting Group

The finding that prepayment meters result in a net cost to residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities arises primarily from an assumed inability of prepayment meter customers to obtain financial assistance grants under the Hardship Utility Grants Scheme that would otherwise be available with standard credit meters. The value of this foregone benefit is estimated at $50 per customer, or just over $1 million in present value terms.

Other major costs include:

- the prepayment of electricity ($20.60 per prepayment meter customer or a net cost of $447,000 over a 20 year period);
- higher costs stemming from the disconnection of electricity ($5.94 per prepayment meter customer or a net cost of $129,000 over a 20 year period), as the customers with prepayment meters are likely to be disconnected more frequently than those with standard credit meters; and
- costs of the reduced ability to incur bad debts ($1.48 per prepayment meter customer or a net cost of $32,000 over a 20 year period).

The only material benefit to customers with prepayment meters is a reduction in the payment of late fees and reconnection costs ($3.16 per prepayment meter customer or a net benefit of $69,000 over a 20 year period).

Most of these costs and benefits would only arise for customers that have difficulties paying their electricity bills. The exception is the cost of prepaying electricity, which will be incurred by all prepayment meter customers. Therefore, the cost per annum to customers that do not ordinarily have difficulties paying their electricity bills would be $20.60 per annum. The cost to a customer that ordinarily incurs bad debts, is disconnected (once per annum) and would be eligible for the full amount of Hardship Utility Grants Scheme could be as much as $532 per annum.

Other potential customer benefits and costs have been considered for customers, but have been found to be negligible for reasons as follows.

- Learning costs – there is unlikely to be any material difference in the costs incurred by residents of remote communities in learning to use a prepayment meter, compared with a standard credit meter. For example, had standard credit meters been installed, customers would have to 'learn' how to read and interpret bills, understand when payment is due, payment options, and what to do in case of payment difficulties.
- Change in electricity consumption and costs – evidence provided by Horizon Power on the consumption of electricity before and after the installation of prepayment meters did not support a conclusion that prepayment meters lead to an unambiguous reduction in electricity use.
- Costs of obtaining prepayment cards – prepayment meter customers in the remote communities would not incur any additional cost in obtaining prepayment cards.
  - Around 95 per cent of households in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities that were surveyed indicated that the current outlets where prepayment meter cards are sold are convenient (Strategic Edge, 2008).
  - Horizon Power has advised that the furthest a person would need to travel to their local retail outlet was approximately three kilometres (that is, a six kilometre round trip).
  - In addition, it suggested that residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation

Program communities generally shop on a daily basis, which would allow prepayment meter credit to be purchased as required without incurring additional transaction costs.

### *Sensitivity of results*

The extent to which prepayment meter customers are assumed to lose the benefit of financial assistance that may be provided under government and non-government programs has a significant bearing on the results. The loss of an average access to financial assistance of just $3.16 per prepayment meter customer would be sufficient to cancel the other benefits that accrue to prepayment meter customers in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

Finding an alternative mechanism to offset the loss of financial-assistance payments would negate a substantial part of the potential cost of the prepayment meters.

### *Learning costs*

It is assumed that customers' learning costs are the same for prepayment meter and standard credit meters.

There are unlikely to be any material difference in the costs incurred by Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program residents in learning to use a prepayment meter, compared with a standard credit meter. Most Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities would not previously have been individually metered, and may have paid for electricity based on a 'chuck-in' system. Consequently, there would be learning costs associated with installation of a meter of either type. For example, had standard credit meters been installed, customers would have to 'learn' how to read and interpret bills, understand when payment is due, payment options, and what to do in case of payment difficulties.

### *Costs incurred in obtaining prepayment meter credit*

Customers are unlikely to incur any material costs in obtaining prepayment meter credit.

Prepayment meter credit is generally sold in the local community store or the office of the local Aboriginal Corporation. The Code sets out requirements about the accessibility of prepayment meter credit.

- The retailer must ensure that at least one recharge facility is located within the remote community or within or adjacent to the town reserve of a prepayment meter customer.
- For customers living within an Aboriginal and Remote Communities Power Supply Program community, the outlet selling recharge cards must be open at least three hours per day, five days a week. For customers that do not live in an Aboriginal and Remote Communities Power Supply Program community, the outlet must be open between the hours of 9am and 5pm, Monday to Friday.

Around 95 per cent of households in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities that were surveyed indicated that the current outlets where prepayment meter cards are sold are convenient (Strategic Edge, 2008).

Horizon Power has indicated that the furthest a person would need to travel to obtain prepayment meter credit at their local retail outlet is approximately three kilometres (that is, a six kilometre round trip). It suggested that this is within easy walking distance for a healthy person. In addition, Horizon Power claims that many retail outlets are typically open for longer than the minimum number of hours required by the Code. Horizon Power also claims that residents of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities shop on a daily basis, and consequently prepayment meter credit can be purchased daily if required. This suggests that prepayment meter customers do not incur any additional direct financial costs in obtaining prepayment meter credit.

If a customer is disconnected when credit cannot be purchased from the local retail outlet, it may not be possible to obtain prepayment meter credit, as alternative outlets may be several hundreds of kilometres away.[23]

### *Prepayment for electricity*

The financial cost to customers of Horizon Power of the prepayment of electricity is estimated to be $20.60 per prepayment meter customer per annum.

This cost to customers of Horizon Power with prepayment meters is transferred as a benefit to Horizon Power of an equal but positive value of the same amount. The calculation for this has been described above.

### *Costs of reduced opportunity for late payments*

The financial cost to customers with prepayment meters of not being able to accumulate bad debts is estimated to be $1.48 per annum for each customer with a prepayment meter.

This cost to customers of Horizon Power with prepayment meters is transferred as a benefit to Horizon Power of an equal but positive value of the same amount. The calculation for this has been described above.

### *Loss of access to consumer safety net benefits*

It is estimated that the average financial cost to electricity customers from the loss of access to consumer safety net programs is $50 per prepayment meter customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

It is assumed that customers with prepayment meters will not be able to access the Hardship Utility Grants Scheme, which pays a grant of up to a maximum of $300 for customers within the South-West Interconnected System and $500 for customers outside the South-West Interconnected System.

[23] Horizon Power has suggested that in many communities there will be an individual that 'stock piles' prepayment meter cards that may be made available to others that run out of credit.

This is because the Scheme requires retailers to be able to assess the degree of financial hardship that customers are in. Retailers will have little, or no, information on its prepayment meter customers on which to assess financial hardship. (Further details about the Scheme and eligibility requirements are provided in Chapter 4.)

It is assumed that only the 10 per cent of customers living in remote indigenous communities that would be disconnected per annum if they had standard credit meters would apply and be eligible for the grant.

It is further assumed that these customers would be entitled to the full value of the grant (that is, $500). Therefore the average value of the grant foregone per prepayment meter customer is $50 per annum.

### *Reductions in electricity consumption*

There was insufficient data to confirm that use of prepayment meters results in a reduction in electricity consumption. Consequently, it was assumed that customers would consume the same amount of electricity (and incur the same cost) irrespective of whether they were supplied via a prepayment meter or a standard credit meter.

One of the claimed benefits of prepayment meters is that, unlike standard credit meters, they provide customers with much more immediate and direct link between electricity costs and electricity consumption, and hence prepayment meters promote more efficient electricity use.

This potential benefit arises as prepayment meter customers are likely to purchase smaller amounts of credit on a more frequent basis, and will know how frequently cards need to be replaced. In contrast, electricity bills for standard credits meters are only received six times per year, muting the link between consumption and bills.

Another potential reason why electricity consumption may decrease with the introduction of prepayment meters is because of an increased number of disconnections. This effect is unlikely to be material because while there may be more frequent disconnections they are likely to be of shorter duration because customers cannot become as far in debt on their electricity bill and because customers do not have to wait for the electricity retailer to reconnect their electricity supply.

Data provided by Horizon Power in Table 5.6 demonstrates that the effect on electricity consumption of prepayment meters is inconclusive. While electricity consumption fell in Community A, it rose in Community B. In contrast, there was a substantial increase in electricity consumption in Community C and Community D, although Horizon Power attributed this to the installation of air conditioners in residences by the Department of Housing and Works.

Table 5.6

**ELECTRICITY CONSUMPTION BEFORE AND AFTER INSTALLATION OF PREPAYMENT METERS**

| Community | 12 months before | 12 months after | Percentage change |
|---|---|---|---|
| Community A | $137,988 | $130,247 | -6% |
| Community B | $81,070 | $89,707 | 11% |
| Community C | $166,514 | $194,810 | 17% |
| Community D | $212,632 | $288,632 | 36% |

Source: Horizon Power

Further supporting information for why the effects of prepayment meters on electricity consumption are inconclusive are set out in Appendix D.

### *Greater sharing of electricity costs*

The value of the ability to contribute to electricity costs could not be reliably quantified.

A number of stakeholders claimed that the more frequent purchase of prepayment meter credit created a potential benefit for Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities in that it becomes easier for all occupants of a dwelling to contribute to the cost of electricity by purchasing prepayment meter credit.

In contrast, as bills for standard credit meters customer are issued after consumption takes place, account holders could be left with substantial debts if relatives had resided with the account holder (or in the account holder's house in their absence), had used significant amounts of electricity, and had left without contributing to the bill.

Where electricity is supplied via a prepayment meters, it would not possible for the account holder to be left with such a significant debt as the maximum possible debt is ten dollars worth of emergency credit.

There were suggestions during the stakeholder consultation that the ability for any person to pay for electricity consumption, not just the account holder, was of particular benefit in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. This was attributed to the 'cultural responsibility' that indigenous people have to 'take in' relatives in periods of need.

### *Avoidance of late-payment and reconnection fees*

The financial benefit to prepayment meter customers from avoiding late fees and reconnection costs is estimated to be $3.16 per prepayment meter customer.

Horizon Power applies a late notice fee of $4.10 and a fee of $27.50 for the reconnection of electricity supply to its standard credit meter customers.

It was assumed that the proportion of customers paying these fees would be equal to the rate of disconnections amongst Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program customers if these customers were instead supplied with standard credit meters (assumed to be 10 per cent per annum as outlined earlier in this Chapter).

The financial benefit to prepayment meter customers was calculating by multiplying the value of the late notice fees and the reconnection fees by the proportion of customers disconnected per annum.

### *Consequential costs of disconnection*

Electricity customers tend to incur costs when they are disconnected from their electricity supply. Costs arise because food stored in the fridge may perish and because occupants have needed to purchase take away food because there is no electricity supply to cooking facilities.

The effects of prepayment meters on these costs relative to standard credit meters depend upon the relative rates and duration of disconnections under the two types of meters. It is assumed that:

- the disconnection rate amongst customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities will be 31 per cent per annum if they are supplied electricity through prepayment meters and 10 per cent per annum if they are supplied through standard credit meters[24]; and
- the duration of the disconnection will be approximately the same irrespective of whether a customer is supplied under a prepayment meter or a standard credit meter.

The rationale for the disconnection rate being 10 per cent per annum for customers with standard credit meters was set out in the section relating to 'avoidance of disconnection costs'. The bases for the remaining assumptions are explained below.

It is assumed that 31 per cent of customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities would be disconnected per annum if they had prepayment meters. The 31 per cent disconnection rate is based upon the proportion of respondents in these communities that indicated that they had used all their emergency credit at least once in the previous three months in response to the survey conducted by Strategic Edge on behalf of the Office of Energy (Strategic Edge, 2008).

This disconnection rate is likely to be at the high end of a potential range of disconnection rates and would include a number of disconnections of an immaterial duration.

[24] There are several reasons why the disconnection rate would be higher amongst customers with prepayment meters than those with standard credit meters. Customers with standard credit meters have more credit available to them before disconnection and retailers are obliged to provide customers with several warnings before disconnecting customers. Prepayment meter customers may be disconnected if emergency credit expires when outlets selling credit are closed (for example, during evenings or on weekends).

It is assumed that the duration of disconnections will be approximately the same under both types of meters. This is based on information from the Strategic Edge survey of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program customers and the Public Interest Advocacy Centre's survey on utility disconnections in New South Wales.

The data indicates that customers with standard credit meters are typically disconnected for a longer period than customers with prepayment meters. As a consequence, the assumption that the duration of disconnection under both types of meters is approximately the same will tend to overestimate the costs of disconnections to prepayment meter customers.

Table 5.7

**DURATIONS OF DISCONNECTIONS UNDER PREPAYMENT METERS AND STANDARD CREDIT METERS**

| | Prepayment meters | Standard credit meters |
|---|---|---|
| Up to 24 hours | 76 per cent | 60 per cent |
| 2 – 3 days | 10 per cent | 21 per cent |
| 4 – 7 days | 14 per cent | 11 per cent |
| More than a week later | 0 per cent | 6 per cent |

Source: Strategic Edge (2008) and Ross et al (2005)

### *Loss of food*

It is estimated that the value of perished food for customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program is $2.57 per customer per annum.

Little reliable information is available on the amount and value of food stored by people living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

Horizon Power advised that people in indigenous communities tend to shop on a daily basis. This suggested that it could be assumed that households in remote indigenous communities only have one day's worth of perishable food. Consequently, if electricity were disconnected for one day and the household has only stored one day's worth of food, it would not be expected that there would be any loss of food as it could be consumed before it perished. If two day's worth of food were stored and the disconnection lasts longer than one day, the second day's worth of food will most likely perish.

It has been conservatively assumed that all customers who are disconnected per annum will lose one day's worth of food. However, the only costs that are considered are those incurred by the additional proportion of customers that are disconnected because they are supplied through prepayment meters rather than standard credit meters (that is, the 31 per cent of prepayment meter customers that are disconnected per annum less the 10 per cent of standard credit meter customers that are disconnected per annum).

The estimate of the value of perished food per customer per annum is based on the following data and calculations.

- Average weekly expenditure by households in the lowest and second lowest quintiles of income on perishable food (being Meat, Fish and seafood, Eggs and egg products and Dairy products) was estimated to be between $22.65 and $29.97 in 2003-04 (Australian Bureau of Statistics, 2006a).[25]
- The estimates of weekly expenditure on perishable food were escalated into 2008-09 terms ($27.54 and $36.44) by using the Consumer Price Index for the Food Category (Australian Bureau of Statistics, 2008a).
- The estimates were adjusted to reflect that households in remote indigenous contain a larger number of people than the households that responded to the Household Expenditure Survey.[26] Adjusting for the larger household size, it was estimated that weekly expenditure on perishable food would be between $81.16 (second lowest quintile) and $89.96 (lowest quintile).
- These weekly amounts were then divided by seven (to obtain daily amounts) and then averaged, resulting in a daily cost of perishable food of $12.22.
- The resulting figure was then multiplied by 21 per cent, reflecting the increase in the percentage of customers being disconnected per annum if they are supplied electricity through prepayment meters as opposed to standard credit meters.

### *Purchase of take away or pre-prepared food*

It was estimated that the additional cost of purchasing take-away or prepared food for an indigenous household per episode of disconnection would be around $3.37 per customer per annum. This estimate is based on the data, assumptions and calculations described below.

The amount of expenditure on pre-prepared food depends upon the amount of food stored by the household (that had not perished) and the number of days of disconnection.

- As discussed above, it is assumed that households in remote indigenous communities will have at least one day's worth of food stored and so will not have to purchase pre-prepared food if the episode of disconnection lasts a one day or less.
- If the duration of the disconnection exceeds a day, it is assumed that households purchase pre-prepared food for each of the days that the household is disconnected after the first day.

[25] ABS (2006) indicates that indigenous people living in remote communities are generally on quite low incomes. Consequently, we used survey data for households in the two lowest quintiles of income.

[26] In the Household Expenditure Survey, the average size household was 1.5 people in the lowest quintile of income and 2.2 people in households with the second lowest quintile of income. In comparison, the average sized indigenous household in a remote area was estimated to be around 4.9 people (ABS 2006).

It has been conservatively assumed that all customers who are disconnected per annum will have to purchase one day's worth of pre-prepared or takeaway food. However, the only costs that are considered are those incurred by the additional proportion of customers that are disconnected because they are supplied through prepayment meters rather than standard credit meters (that is, the 31 per cent of prepayment meter customers that are disconnected per annum less the 10 per cent of standard credit meter customers that are disconnected per annum).

Information on household expenditure on take-away and pre-prepared meals was obtained from the Household Expenditure Survey 2003-04 (ABS, 2006a), which indicated that weekly expenditure on 'meals out and take away' was $13.11 per household in the lowest quintile of income (with a household size of 1.5 people) and $22.52 for a household in the second lowest quintile of income (with 2.2 members). Adjusting for inflation, the expenditure on 'meals and take away' per week was estimated to be $15.94 and $27.38 respectively in 2008-09.

A further adjustment was made to account for the larger size of indigenous households, which have an average 4.9 members. This resulted in an estimate of expenditure of $52.07 and $60.99 per pre-prepared meals and take away.

However, it is unclear how a household could spend between $50 and $60 on pre-prepared food if the alternative option were to spend $20 on electricity ($10 to reinstall emergency credit plus the minimum $10 amount of credit) and the remainder on groceries. Therefore, the amount of expenditure on pre-prepared food for an indigenous household for one day was halved to between $26.04 and $30.49.

The estimated household expenditure on groceries was then deducted (between $11.59 and $12.85, as derived in the section on loss of food) as the household would have needed to spend this amount irrespective of whether or not they were disconnected. The additional expenditure is therefore between $13.18 and $18.90 for a day's worth of pre-prepared food, or an average of $16.04 per house.

This latter amount was multiplied once by 21 per cent reflecting the additional proportion of customers that are disconnected from their electricity per annum as a consequence of prepayment meters being installed in place of standard credit meters. This results in an estimated additional cost of purchasing take-away or prepared food for an indigenous household of $3.37 per customer per annum.

## 5.6 Community

### *Summary of costs and benefits*

The use of prepayment meters in the remote communities is estimated to result in a net benefit to the Western Australian community of $2.6 million over a 20 year period. This equates to an average net benefit of $118 per prepayment meter customer per annum (Table 5.8).

Table 5.8

**COMMUNITY — ESTIMATED COSTS AND BENEFITS OF PREPAYMENT METERS IN REMOTE COMMUNITIES COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Regulatory framework | -$0.60 | -$13,000 |
| Benefits | | |
| Commissions to card retailers | $68.94 | $1,495,391 |
| Reduced cost to government of subsidy payments | $50.00 | $1,084,522 |
| **TOTAL** | **$118.34** | **$2,566,913** |

Source: Allen Consulting Group

The finding that the use of prepayment meters results in a net benefit to the Western Australian community primarily arises from the benefit to retailers in remote communities that sell prepayment meter cards on behalf of Horizon Power because they receive commissions on the value of cards sold (estimated to have a present value benefit of around $1.5 million over a 20 year period).

The Western Australian Government also benefits from not being required to pay subsidies to customers with prepayment meters that can not pay their electricity bills (which is estimated to have a present value benefit of around $1.1 million over a 20 year period).

Partially offsetting these benefits is the cost to the Western Australian Government of developing regulations to support prepayment meters (which is estimated to result in a net cost to the Western Australian community of around $13,000).

### *Costs of developing regulations to support prepayment meters*

The installation of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is estimated to result in a net cost to the Western Australian community of around $13,000. This is the estimated cost to the Economic Regulation Authority of developing Part 9 of the Code of Conduct, which relates to prepayment meters.

The Economic Regulation Authority could not provide any specific records of the costs associated with the development of Part 9. The Economic Regulation Authority estimated that expenditure on developing Part 9 may have been in the order of $13,000 (personal communication with Manager Customer Protection, Economic Regulation Authority). This is an approximate estimate of legal costs for advice and drafting (around $8,000) and for staff time (around $5,000).

It is noted that the cost estimate does not include the costs incurred by other organisations (such as the electricity retailers) in supporting the development of Part 9 by the Economic Regulation Authority. It is assumed that any costs incurred by other organisations would be associated with staff time. The staff would have been employed irrespective of whether Part 9 was developed or not and so are not a net additional cost arising from the use of prepayment meters.

### *Commissions to retail outlets*

Horizon Power generally pays a commission to the retail outlets that sell prepayment meter credit in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

The value of commissions received by retail outlets from Horizon Power are estimated to be $68.94 per customer per annum, based on a commission of three per cent and an average bill of $2,298 per customer per annum.

### *Reduced cost to government of subsidy payments*

The Western Australian community will benefit from not being required pay subsidies to customers with prepayment meters who can not pay their electricity bills.

It is estimated that the average financial benefit to the Western Australian community from not being required to pay subsidies under the Hardship Utility Grants Scheme to prepayment meter customers is around $50 per prepayment meter customer living in remote communities.

*Chapter 6*

# Future scenario for wider use of prepayment meters

## 6.7 Introduction

In this chapter a possible scenario is described for the roll out of prepayment meters in Western Australia. The costs and benefits of the use of prepayment meters in Western Australia under this scenario are described in the following chapter.

The scenario developed in this chapter is referred to as the 'voluntary use scenario'. Under the voluntary use scenario, retailers in Western Australia would be permitted to offer prepayment meters as a payment option, as part of supply provided to customers under a standard form contract and with customers paying the same regulated retail electricity tariffs as for standard credit meter customers.

The main characteristics of this scenario are summarised in the following table.

Table 6.9

**COMPARISON OF ALTERNATIVE FUTURE SCENARIOS**

| Parameter | Voluntary use scenario |
|---|---|
| **Basis of adoption of prepayment meters** | Electricity customers may voluntarily elect to have a prepayment meter installed. |
| **Residential electricity tariffs** | No difference from standard credit meter customers - tariffs are set at the regulated retail tariff (which is currently substantially below cost) and is assumed to remain below cost until 2018. |
| **Adoption profile of prepayment meters in Western Australia** | Between 2009 and 2028, use of prepayment meters increases from 1 per cent to 20 per cent of customers, approximately linearly. |

## 6.8 Regulatory requirements for prepayment meters

There are few government policy announcements to inform the development of scenarios for the future use of prepayment meters in Western Australia. For this reason, the scenario set out in this chapter has been based upon the use of prepayment meters in other jurisdictions, particularly other Australian States and Territories.

With some exceptions, the scenario described in this chapter is generally premised on the assumption that a regulatory code for the use of prepayment meters in Western Australia will be consistent with the one operating in the Australian Capital Territory.[27]

The code will have implications for the types of prepayment meters used by electricity retailers and some retail operating costs (such as meter reading) and hence for the cost-benefit analysis.

The code used in the Australian Capital Territory requires prepayment meters to be able to identify to the electricity retailer the number of instances on which a customers has self-disconnected and the duration of these disconnections.

It is assumed in the scenario described in this chapter that retailers will initially use key-pad prepayment meters (as a minimum) in order to be compliant with a code consistent with the one operating in the Australian Capital Territory. But will use smart meters (which have the potential for prepayment meter functionality) once the roll-out of smart meters commences (which is assumed to be from the end of 2009).

Where prepayment meters have already been installed by Horizon Power there will be a need for the retailer to incur transitional costs to replace its existing magnetic card prepayment meters with keypad meters because the magnetic card prepayment meters that are currently in use by Horizon Power do not have the technical capabilities required to comply with the requirement of the code.

Retailers will need to continue to read meters on a regular basis in order to record the number and duration of disconnections and to record information relating to customers' supply addresses about total energy consumption, average daily consumption and the average daily cost of consumption for the previous two years. Therefore, there will be no saving in meter reading costs as a consequence of installing prepayment meters instead of standard credit meters.[28]

## 6.9 Parameters

The parameters of the scenario are described below.

### *Retail electricity prices*

The electricity tariffs that apply under the scenario are the existing regulated retail tariffs (being the A1 tariff for Synergy customers and the A2 tariff for Horizon Power customers).

These tariffs are currently in the order of 60 per cent below cost-reflective amounts in the South-West Interconnected System and likely even further below cost-reflective amounts outside the South-West Interconnected System (Office of Energy 2008).

[27] The code applying in the Australian Capital Territory was selected because it is representative of the codes operating in Tasmania and South Australia, to the extent that it influences the cost-benefit analysis.

[28] The need for meter reading may cease altogether in 2016 when the roll-out of smart meters is estimated to be completed. However, this may occur irrespective of whether smart meters are used as prepayment meters or standard credit meters and so does not affect the results of the cost benefit analysis.

It has been assumed that the existing regulated tariffs would apply under the scenario because no customers would voluntarily use prepayment meters if it meant an increase in tariffs of 60 per cent and so therefore a retailer would not offer prepayment meters at a higher price.

### *Rate of adoption*

In this section, the profile of the rate of adoption of prepayment meters under the scenario is developed. Within the South-West Interconnected System, it is assumed that use of prepayment meters will start at 1 per cent of customers and increase to 6 per cent by 2018. After 2018, the use of prepayment meters will increase more rapidly with the introduction of full retail contestability to a maximum 20 per cent in 2028. Outside the South-West Interconnected System, it is assumed that the starting level of penetration will be about 1 per cent and will increase linearly to 20 per cent of customers in 2028.

This profile is represented in Figure 6.5 and Table 6.10.

Figure 6.5

**ADOPTION PROFILE OF PREPAYMENT METERS IN WESTERN AUSTRALIA UNDER THE VOLUNTARY USE SCENARIO**

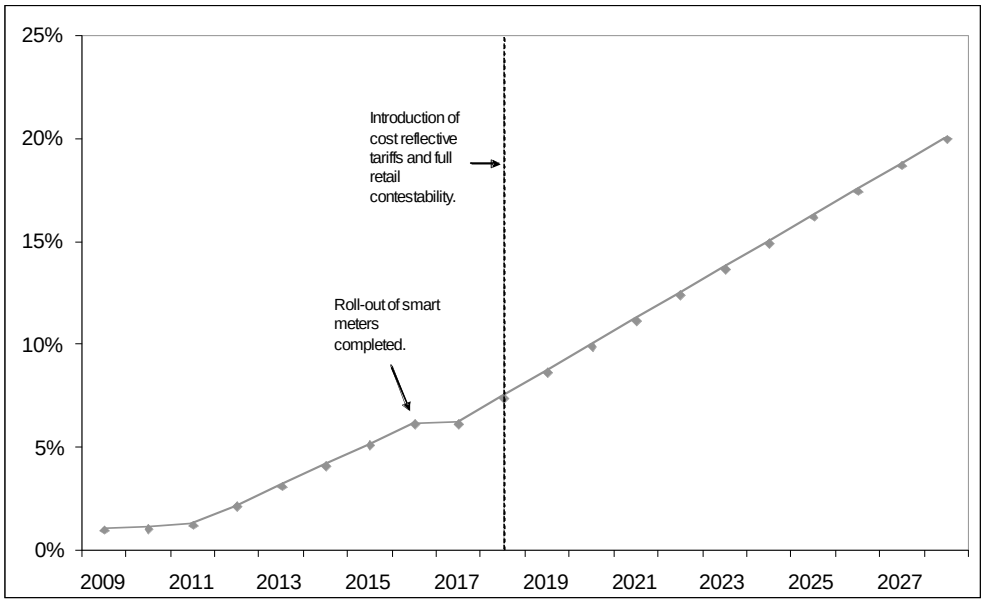

Table 6.10

**USE OF PREPAYMENT METERS IN WESTERN AUSTRALIA UNDER THE VOLUNTARY USE SCENARIO**

| | Synergy prepayment meter customers | Mainstream Horizon Power customers | Remote community customers | Total |
|---|---|---|---|---|
| 2009 | 9,140 | - | 469 | **9,609** |
| 2010 | 9,341 | - | 1,065 | **10,406** |
| 2011 | 10,740 | - | 1,660 | **12,400** |
| 2012 | 19,514 | 362 | 1,703 | **21,579** |
| 2013 | 29,915 | 740 | 1,747 | **32,403** |
| 2014 | 40,764 | 1,135 | 1,793 | **43,692** |
| 2015 | 52,076 | 1,547 | 1,839 | **55,462** |
| 2016 | 63,866 | 1,976 | 1,887 | **67,729** |
| 2017 | 65,271 | 2,423 | 1,936 | **69,630** |
| 2018 | 80,826 | 2,889 | 1,987 | **85,702** |
| 2019 | 97,035 | 3,374 | 2,038 | **102,447** |
| 2020 | 113,917 | 3,879 | 2,091 | **119,888** |
| 2021 | 131,495 | 4,405 | 2,146 | **138,046** |
| 2022 | 149,792 | 4,952 | 2,202 | **156,945** |
| 2023 | 168,830 | 5,521 | 2,259 | **176,609** |
| 2024 | 188,633 | 6,112 | 2,318 | **197,063** |
| 2025 | 209,226 | 6,727 | 2,378 | **218,331** |
| 2026 | 230,633 | 7,366 | 2,440 | **240,439** |
| 2027 | 252,882 | 8,029 | 2,503 | **263,414** |
| 2028 | 275,997 | 8,719 | 2,568 | **287,284** |

Source: Allen Consulting Group

The adoption rate of prepayment meters arise from considerations of:

- the business strategies of the incumbent retailers (Synergy and Horizon Power) as they relate to the use of prepayment meters;
- the introduction of full retail contestability (which is assumed to occur in 2018 when regulated tariffs become cost reflective);
- the timing of the roll-out of smart meters (with associated prepayment meter functionality) in Western Australia; and
- the level of use of prepayment meters in other jurisdictions.

The effect of each of these factors on the adoption profiles of the voluntary use scenario are described in more detail below.

The adoption profile of prepayment meters in Western Australia under the voluntary use scenario is based upon the business strategies of the two incumbent electricity retailers (Synergy and Horizon Power), the roll-out of smart meters and the introduction of full retail contestability.

Within the South-West Interconnected System, Synergy will be the only retailer permitted to sell electricity to residential customers until the introduction of full retail contestability. It is assumed that full retail contestability will be introduced in Western Australia in 2018, when cost-reflective tariffs are assumed to be achieved.[29] Until such time, the penetration of prepayment meters in the South-West Interconnected System will in part be determined by Synergy's business model.

Synergy's intended business model appears premised on offering prepayment meters as an alternative non-regulated service to the standard regulated supply arrangement. There is no empirical evidence to determine a likely uptake under such a business model. However, it has been assumed that the use of prepayment meters in this context would be similar to Synergy's SmartPower product (which allows customers to access time-of-use tariffs). This assumption is premised upon a proportion of electricity customers who would use an innovation because it appeals to them.

Currently, around 2 per cent (or 17,000) of Synergy's customers are on SmartPower (personal communication with Manager Regulatory Retail, Synergy). It is assumed that the order of magnitude of Synergy's customers adopting prepayment meters would be similar to, but less than, that adopting the SmartPower option. It was assumed that 1 per cent of Synergy's customers would adopt prepayment meters. This is half the amount adopting SmartPower reflecting that some customers are able to save money on SmartPower (and therefore have a financial incentive to seek it out), but customers will not save money from using a prepayment meter, which is simply an alternative means of payment.

The use of prepayment meters (or prepayment meter functionality) will be increased by the roll-out of smart meters. This is because smart meters are likely to include prepayment meter functionality[30] and a proportion of electricity customers with smart meters will elect to activate the prepayment meter functionality.[31]

To date, a timetable for a mandatory roll-out of smart meters is unknown.[32] It has been assumed that the roll-out will commence on 1 January 2011 and the roll-out of smart meters will be complete (that is, 100 per cent penetration) by the start of 2016.[33]

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29 This is because there would not be any incentive for competitors to enter a market in which they can not recover their costs.

30 The minimum functionality of smart meters (as agreed by the Ministerial Council on Energy) require smart meters to able to be remotely disconnected and reconnected, be able to be linked to an in home display, and apply supply capacity limits to manage emergency situations. As a consequence, these meters will be capable, with investment in appropriate back office systems, to offer prepayment functionality.

31 For this reason, in considering the future use of prepayment meters, the analysis will consider the costs and benefits associated with wider adoption of prepayment meter functionality, rather than necessarily of prepayment meters themselves.

32 It was intended that the Ministerial Council on Energy would finalise its position on the mandatory roll out of smart meters during 2008, and that the Office of Energy intends to review the analysis of the Ministerial Council on Energy, including the timetable for installation of smart meters in Western Australia by the end of 2008.

33 The assumptions about the roll-out of smart meters in this cost benefit analysis are a modified version of the assumptions made by NERA Consulting in preparing the cost benefit analysis of smart metering (NERA Consulting 2008).

It was assumed that around 5 per cent of residential electricity customers in the South-West Interconnected System who have smart meters installed will use the prepayment meter functionality of the smart meter. There is no empirical basis for this assumption. Assuming a higher adoption rate amongst customers with smart meters (compared to the rest of Synergy's customer base) is considered reasonable because customers with smart meters would not have to arrange to have a new meter installed in order to access prepayment functionality.

The assumed introduction of full retail contestability in 2018 will lead to an increase in the rate of adoption of prepayment meters in the South-West Interconnected System as a consequence of retailers such as Aurora (that specialise in prepayment meters) being attracted into the market. The maximum use of prepayment meters in the South-West Interconnected System is assumed to be 20 per cent in 2028. This is consistent with the level of penetration of prepayment meters achieved by Aurora in Tasmania (which is the jurisdiction in Australia that has the highest use of prepayment meters).

Outside the South-West Interconnected System, Horizon Power is the only retailer permitted to sell electricity to residential customers until the introduction of full retail contestability.

Horizon Power's business model appears to be based on using prepayment meters to minimise its credit risk. It is assumed that Horizon Power will strongly promote the use of prepayment meters to its customers through marketing campaigns to reduce the relatively high numbers of customers that fall into arrears on their electricity bills.[34]

It is assumed the starting level of penetration will be about 1 per cent in 2009 (being the proportion of customers in the communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program) and will increase linearly to 20 per cent of customers in 2028, consistent with levels of use achieved in Tasmania by Aurora.

[34] Although it is noted that under the assumptions about the code that would apply, Horizon Power may not require customers to install or maintain the installation of a prepayment meter system.

*Chapter 7*

# Costs and benefits of future use of prepayment meters

## 7.10 Introduction

In this chapter, the results of a cost-benefit analysis of a 'voluntary use scenario' for the roll-out of prepayment meters in Western Australia are set out. These costs and benefits have been estimated relative to a base case of use of standard credit meters through out Western Australia (including in communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program).

## 7.11 Summary

Allowing the use of prepayment meters in Western Australia is estimated to have a net economic benefit. The net present value of allowing use of prepayment meters in Western Australia is estimated to be $2.6 million under a voluntary use scenario (Table 7.11).

Table 7.11

**ESTIMATED PRESENT VALUE OF COSTS AND BENEFITS OVER A 20 YEAR PERIOD OF PREPAYMENT METERS IN WESTERN AUSTRALIA COMPARED TO USE OF STANDARD CREDIT METERS (EXCLUDING TRANSFER PAYMENTS)**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Infrastructure costs | -$0.11 | -$117,254 |
| Up-front metering system support costs | -$0.55 | -$596,988 |
| On-going metering system support costs | -$0.54 | -$577,979 |
| Consequential costs of disconnection | -$4.21 | -$4,533,067 |
| Learning costs | -$1.36 | -$1,464,079 |
| Regulatory framework | -$0.07 | -$75,000 |
| Transitional costs | | |
| Meter replacement costs - Horizon Power | -$0.29 | -$311,200 |
| Benefits | | |
| Reduction in disconnection and reconnection costs | $3.28 | $3,532,927 |
| Savings in billing costs | $6.30 | $6,787,131 |
| **TOTAL** | ***$2.45*** | ***$2,644,491*** |

Source: Allen Consulting Group

The costs and benefits for the three key affected parties, Horizon Power, prepayment meter customers and the broader community, are discussed in more detail below.

Some costs and benefits arising from prepayment meters are 'transfers' between the three key affected parties and therefore directly off-set each other. The transfers include the value of the prepayment for electricity, the reduction in bad debts (which are transferred from customers to electricity retailers as benefits), and the reduced cost to government of subsidy payments (which is a transfer from customers to the Western Australian community). These are included in the summary table for each of the three affected parties.

## 7.12 Electricity retailers and distributors

Allowing the use of prepayment meters in Western Australia in place of some standard credit meters is estimated to result in benefits to the electricity retailers in Western Australia with a net present value of $17.9 million (Table 7.12).

Table 7.12

**ELECTRICITY RETAILERS - ESTIMATED PRESENT VALUE OF COSTS AND BENEFITS OVER A 20 YEAR PERIOD OF PREPAYMENT METERS IN WESTERN AUSTRALIA COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per customer (per annum) | Net present value (over a 20 year period) |
|---|---|---|
| **Infrastructure costs** | | |
| Cost of meters | -$0.11 | -$117,254 |
| Meter reading | $0.00 | $0 |
| ***Subtotal*** | ***-$0.11*** | ***-$117,254*** |
| **Up-front metering system support costs** | | |
| Costs of credit purchase systems | -$0.49 | -$523,526 |
| Education costs | -$0.07 | -$73,462 |
| ***Subtotal*** | ***-$0.55*** | ***-$596,988*** |
| **On-going metering system support costs** | | |
| Software licence costs | -$0.54 | -$577,979 |
| ***Subtotal*** | ***-$0.54*** | ***-$577,979*** |
| **Retail operations** | | |
| Savings in billing | $6.30 | $6,787,131 |
| Reduction in disconnection and reconnection costs | $3.28 | $3,532,927 |
| Prepayment for electricity | $8.78 | $9,457,331 |
| Reduction in bad debts | $0.08 | $87,237 |
| Loss of revenue from late-payment and reconnection fees | -$0.29 | -$314,841 |
| ***Subtotal*** | ***$18.15*** | ***$19,549,785*** |
| **TOTAL (excluding transitional costs)** | **$16.95** | **$18,257,564** |
| Transitional costs | | |
| Meter replacement costs - Horizon Power | -$0.29 | -$311,200 |
| **TOTAL (including transitional costs)** | **$16.66** | **$17,946,364** |

Source: Allen Consulting Group

The benefits of prepayment meters to electricity retailers arise from a reduction of costs. Over a 20 year period, these benefits are estimated to have a present value of about $19.9 million. The main items of cost reduction are:

- the prepayment of electricity charges by customers and consequent savings in costs of working capital (estimated present value cost of $9.5 million);
- savings in billing costs (estimated present value cost of $6.8 million);
- costs savings from the avoided need to physically disconnect and reconnect customers that are in arrears with payments (estimated present value cost of $3.5 million); and

- the avoidance of bad debts and consequent savings in costs of working capital (estimated present value cost of $87,000).

Over a 20 year period, electricity retailers are expected to incur additional costs with a present value of $1.9 million as a result of the use of prepayment meters in place of some standard credit meters in Western Australia. The main cost items are:

- higher costs of meter infrastructure, reflecting shorter life-spans of prepayment meters compared to standard credit meters (estimated present value of costs of $117,000);
- additional up-front costs of implementing back office and credit purchase systems to support the use of prepayment meters (estimated present value cost of $524,000);
- additional on-going costs to purchase software to support facilities for the purchase of credit for prepayment meters (estimated present value cost of $578,000);
- additional costs to provide customers with information on how to use prepayment meters (estimated present value cost of $73,000); and
- transitional costs associated with meter replacement ($311,000).

### *Sensitivity of results*

The costs for metering infrastructure are uncertain as they could not be based upon detailed costs prepared by a prepayment meter manufacturer. However, these costs are relatively small compared to the estimated benefits to electricity retailers arising from the use of prepayment meters. Doubling the estimated costs of credit purchase systems (from $200,000 to $400,000 per retailer) and the on-going costs of purchasing software licences (from $20,000 to $40,000 per retailer) will reduce the benefit to retailers (in present value terms) of installing prepayment meters by $1.1 million to $16.8 million.

### *Infrastructure costs*

#### *Costs of meters*

Differences in costs of meters occur while prepayment meters are installed in place of standard credit meters. Once a roll-out of smart meters is commenced (at the beginning of 2011), there is no incremental cost of meters because the availability of a prepayment meter function is assumed to comprise part of the smart meter (which would of be installed regardless of whether or not it is used as a prepayment meter).

Where prepayment meters are installed in place of standard credit meters, higher metering costs will be incurred as a result of the shorter life of the prepayment meters.

The code used in the Australian Capital Territory (which is used as the basis for estimating costs and benefits of using prepayment meters in Western Australia) requires prepayment meters to be able to identify to the electricity retailer the number of instances on which a customers has self-disconnected and the duration of these disconnections. It is assumed in the scenario described in this chapter that retailers will have to use key-pad prepayment meters (as a minimum) in order to be compliant with a code consistent with the one operating in the Australian Capital Territory.

The costs associated with installing key-pad prepayment meters and standard credit meters are set out in Table 7.13.

Table 7.13

**COMPARISON OF COSTS OF KEY-PAD PREPAYMENT METERS AND STANDARD CREDIT METERS**

| | Key-pad prepayment meter (per meter) | Standard credit meter (per meter) |
|---|---|---|
| Installation cost | $120 | $120 |
| Meter cost | $95 | $100 |
| **Total cost – Synergy** | **$215** | **$220** |
| Expected meter life | 15 years | 30 years |
| **Annualised cost - Synergy** | **$21** | **$15** |
| Metal cover | $30 | $30 |
| **Total cost – Horizon Power** | **$245** | **$250** |
| **Annualised cost – Horizon Power** | **$24** | **$17** |

Source: Horizon Power and Personal communication, Troy Tarrant, IT/Prepayment Manager, Actaris.

It is assumed that Horizon Power will fit both prepayment meters and standard credit meters with metal covers (at a cost of $30 per meter) for protection from harsh environmental conditions, while Synergy will not incur this cost.

The costs per key-pad prepayment meter to the retailers were converted into annualised amounts assuming a discount rate of 5.5 per cent and a life of 15 years. From this amount, the annualised cost of a standard credit meter (assuming a life of 30 years) was deducted.

The difference between the annualised cost of a key-pad prepayment and the annualised cost of a standard credit meter was multiplied by the number of key-pad prepayment meters installed by both of the retailers before a roll out of smart meters is completed.

Retailers are assumed not to incur any additional meter costs where the prepayment meter functionality is embodied in smart meters. This is because it is assumed that the smart meters would have needed to have been installed irrespective of whether or not they are used as prepayment meters. It is assumed that Synergy and Horizon Power cease to install key-pad prepayment meters at the end of 2010, just before the roll out of smart meters commences.

It is further assumed that Horizon Power will need to replace the 1,065 meters that it is assumed to have installed in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities by the end of 2009 because the magnetic card prepayment meters that are currently in use do not have the technical capabilities required to record disconnections.

This cost has been calculated by annualising the value of the prepayment meters installed by Horizon Power, assuming a cost of $410 per meter (being the cost of the meter, the installation costs and the cost of the metal cover), a two-year life before the meters are required to be replaced by key-pad prepayment meters and a discount rate of 5.5 per cent. This results in an annualised cost of $311,000.

#### *Meter reading*

The costs to retailers of reading meters will not change as a consequence of installing prepayment meters in place of standard credit meters.

Under regulatory requirements assumed to apply to the use of prepayment meters retailers are required to be to be able to provide customers with information on their energy consumption and be able to monitor the number and duration of disconnections. This information will have to be collected through meter reading and so there will not be savings from reduced meter reading costs as a consequence of installing prepayment meters.

#### *Costs of recharge cards*

This cost category was specific to the analysis performed for the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, which assumed the use of magnetic card prepayment meters.

A wider roll-out of prepayment meters for Western Australia assumes that key-pad meters will be used.

Retailers are not expected to incur any additional costs per transaction in supporting the purchase of credit for key-pad prepayment meters (which is assumed to occur via mobile phones or the internet) than in supporting billing for standard credit meters (Personal communication, IT/Prepayment Manager, Actaris).

### *Up-front metering system support costs*

#### *Development of prepayment meter contract*

This cost category was specific to the analysis performed for the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. In this analysis it was assumed that third-party outlets would sell magnetic cards on behalf of the retailer.

The wider roll-out of prepayment meters in Western Australia as a whole will not cause costs to be incurred for the sale of prepayment cards. Instead, it is assumed that credit will be sold through phone-lines and websites operated by the retailers.

### *Contract establishment costs*

This cost category was specific to the analysis performed for the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. In this analysis it was assumed that third-party outlets would sell magnetic cards on behalf of the retailer.

### *Costs of credit purchase systems*

A cost of $200,000 for each for Synergy and Horizon Power is assumed for updating existing systems to support the use of prepayment meters from 2009. From 2018 (when full retail contestability is assumed to be introduced) a new entrant is assumed to enter the market and also incur a cost of $200,000.

It is assumed that customers with key-pad prepayment meters will obtain credit for prepayment meters via mobile phones and the internet. Retailers will incur some additional costs to support these systems.

It is not possible to accurately estimate the cost of developing these systems, as this would require a detailed specification by prepayment meter suppliers. However, advice provided by the IT/Prepayment Manager of Actaris indicates that Prepayment Vending Software would cost around $60,000 per retailer and an Extended Vending Gateway (which would allow for credit to be purchased via the internet and mobile phones) may cost another $120,000. A further $20,000 has been added for 'incidentals'.

### *Education costs*

The additional education costs for new prepayment meter customers (excluding those living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities) is estimated to be a once-off cost of 26 cents per prepayment meter.

The costs of providing education to customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities (assumed to be $680 per community) remains unchanged from the analysis set out in Chapter 4.

The code of the Australian Capital Territory requires retailers to provide certain information to prepayment meter customers. Most of this information is common to requirements for both prepayment meters and standard credit meters. The only additional information that is not common to both types of meter is the requirement for retailers to provide information on how to operate the prepayment meter system.

This additional information requirement could be met by providing new prepayment meter customers with a brochure. Glossy, A4 brochures can be purchased in bulk for around 26 cents per unit (The Internet Printer, 2008). A total cost for education in each year was calculated by multiplying this unit cost by the estimated number of new prepayment meters installed by Synergy and Horizon Power each year outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

### On-going metering system support costs

#### Audit obligations

This cost category was specific to the analysis performed for the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. In this analysis it was assumed that third-party outlets would sell magnetic cards on behalf of the retailer.

The wider roll-out of prepayment meters in Western Australia will not give rise to costs of auditing sales by contracted retail outlets as credit for prepayment meters will be sold directly by the electricity retailer.

#### Commissions to card retailers

This cost category was specific to the analysis performed for the use of prepayment meters in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. In this analysis it was assumed that third-party outlets would sell magnetic cards on behalf of the retailer.

The wider roll-out of prepayment meters in Western Australia will not give rise to costs of commissions on sales by contracted retail outlets as credit for prepayment meters will be sold directly by the electricity retailer.

#### Software licence costs

Retailers are expected to incur regular on-going costs to purchase licences to operate systems for selling credit for key-pad prepayment meters via the internet and mobile phones.

Reliable data could not be obtained for the cost of these licences. In the absence of data, it has been assumed that the licences will cost about $20,000 per retailer per year. Synergy and Horizon Power are assumed to incur these costs from 2009 and it is assumed a new entrant will also incur this cost from 2018 (when full retail contestability is assumed to be introduced).

### Retail operating costs

#### Billing

It is estimated that the financial benefit to Synergy and Horizon of not having to issue bills to customers with prepayment meters is $6.30 per customer per year.

Electricity retailers generally use ‘mailing houses’ to send bills to customers. Data could not be obtained from retailers about the cost of sending bills to customers. However, a mailing house advised that the cost of sending an electricity bill (including postage) was $1.05 per bill. The cost per customer per annum is therefore estimated to be $6.30 as retailers issue six bills per year.

#### Reduction in disconnection and reconnection costs

The financial benefit to Synergy and Horizon Power of not needing to disconnect and reconnect customers on prepayment meters is estimated to be $0.49 per prepayment meter customer per annum for Synergy, $17.34 per prepayment meter customer per annum for a mainstream Horizon Power customer and $114 per prepayment meter customer per annum for a Horizon Power customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

These amounts were calculated by multiplying the average cost per episode of disconnection and reconnection by the proportion of customers that are disconnected per annum. Assumptions about the costs and rates of disconnection and reconnections for each customer group are as follows.

Western Power's basic charge to Synergy to disconnect or reconnect a customer is $42.35 (including an allowance for half an hour of travel time) as set out in Western Power's Metering Code Model Service Level Agreement. The rate of disconnections/reconnections amongst Synergy's customers is 0.58 per cent per annum (ERA, 2009).

An allowance of $150 per disconnection and reconnection has been made for Horizon Power customers (other than those living in communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program). This makes an allowance for a service charge (of around $50 including half an hour of travel time) and an additional allowance around one hour's travel at $100 per hour (recognising the large geographical regions supported by Horizon Power). (This is commensurate with charges by Western Power to Synergy where travel is required.) The rate of disconnections/reconnections amongst Horizon Power's total customer base is 5.8 per cent per annum (ERA, 2009).

Horizon Power provided data indicating that the costs incurred in disconnecting and reconnecting customers in remote communities average of around $570 each. The disconnection rate was assumed to be 10 per cent per annum. (Further detail is provided in Chapter 5).

### *Prepayment for electricity*

The financial benefit to Synergy and Horizon Power of the prepayment of electricity is estimated to be $8.34 per prepayment meter customer per annum for Synergy, $14.73 per prepayment meter customer per annum for a mainstream Horizon Power customer and $20.60 per prepayment meter customer per annum for a Horizon Power customer living in communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program.

Ordinarily, electricity retailers issue bills every second month (or 61 days), and the Code provides for customers to be given at least 12 days to pay. The financial benefit to retailer reflects the up-front payment of prepayment meter credit and therefore avoided costs of working capital. The avoided costs of working capital were calculated by applying a nominal interest rate of eight per cent per annum on the average value of a bill for each customer group over 42.5 days (being 61 days divided by two, plus 12 days)[35], multiplied by six to reflect the six billing cycles per year.

[35] The interest revenue is not calculated as the interest earned on $383 over 73 days because the value of electricity consumed increases on a linear basis over the 61 day period and then plateaus for the 12 day period before payment is required. If interest was calculated on the final value of the bill over the 73-day billing cycle the interest revenue would be over-estimated because this calculation would effectively assume that the debt was incurred at the start of the billing cycle rather than linearly over the course of the billing cycle.

The calculations assume average electricity bills (for a 2 month period) of $155 for a Synergy customer and $274 for a Horizon Power (excluding those living in communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities). This is based upon advice from the Office of Energy that the average consumption for customers on the A1 tariff (the residential tariff inside the South-West Interconnected System) is 6,007 kilowatt hours per annum and average consumption for customers on the A2 tariff (residential tariff outside the South-West Interconnected System) is 11,122 kilowatt hours (Personal communication with Senior Policy Officer, Office of Energy).

Data provided by Horizon Power indicates that the average consumption per installed prepayment meter in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities is around $383 for each consumption period (per 61 days) (that is, $2,298 divided by six).

The benefit to the retailer of up-front payments by prepayment meter customers is offset by a cost of the same size incurred by customers with prepayment meters.

### *Reduction in bad debts*

The financial benefit to electricity retailers of savings in interest costs arising from a reduction in bad debts resulting from the use of prepayment meters rather than standard credit meters is estimated to be $0.03 per Synergy prepayment meter customer per annum and $0.61 per mainstream Horizon Power prepayment meter customer per annum and $1.48 per Horizon Power prepayment meter customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

The use of prepayment meters instead of standard credit meters is likely to reduce the value of bad debts that customers have with their electricity retailer, given the prepayment meters are programmed to provide only $10 of emergency credit before customers are disconnected.[36]

It is assumed that retailers will attempt to recover the entire value of bad debts from all customers with bad debts (other than the small numbers of deceased customers or customers that declare bankruptcy). It has therefore been assumed that the retailers eventually recover the value of all of its bad debt from all of their customers. For this reason the financial benefit to retailers arising from the use of prepayment meters is not the value of the bad debt itself, but rather the savings in costs of working capital as a result of the avoidance of bad debts.

The following assumptions were made (consistent with assumptions previously set out in Chapter 5 of this report).

- The average value of an electricity bill for a two month period would be $155 for a Synergy customer, $274 for a ‘mainstream’ Horizon Power customer, $383 for Horizon Power customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

[36] It is assumed that once disconnected the prepayment meters do not accrue additional charges. That is, the daily supply charge is not incurred while the supply of electricity is disconnected.

- That disconnection rates amongst the three customer groups are 0.58 per cent per annum for Synergy customers, 5.8 per cent per annum for mainstream Horizon Power customers and 10 per cent for Horizon Power customers living in remote indigenous communities. It is assumed that these proportions of customers would incur bad debts with their retailers if they had standard credit meter.
- Retailers will earn a nominal discount rate of 8 per cent per annum on its working capital.

Assumptions were then made about the time taken by retailers to recover the bad debts. It was assumed that the proportion of customers that are eventually disconnected for having bad debts would pay their electricity bills four months late.

The value of the interest benefit to electricity retailers from a reduction in bad debts does not commence until the end of a billing cycle (which is the 61 day period over which electricity is consumed, followed by the 12 days after the end of this period before which payment is due from the customer).

It is assumed that electricity retailers do not disconnect customers for failure to pay debts until after the completion of two consecutive billing cycles (that is, 61 days, plus 61 days, plus 12 days). It is assumed that the customers do not pay their electricity bills for a further two months (or 61 days). At this point, these customers will be 122 days over due on their first bill (that is, 61 days, plus 61 days) and 61 days overdue on their second electricity bill.

The value of the interest benefit to retailers from a reduction in bad debts does not commence until the end of a billing cycle (which is the 61 day period over which electricity is consumed, followed by the 12 days after the end of this period before which payment is due from the customer). The total benefit to retailers of not foregoing interest on the value of bad debt is equal to $0.03 per Synergy prepayment meter customer per annum and $0.61 per mainstream Horizon Power prepayment meter customer per annum and $1.48 per Horizon Power prepayment meter customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

#### *Loss of revenue from late-payment and reconnection fees*

The financial cost to electricity retailers from lost late fees and reconnection costs are estimated to be $0.18 per Synergy prepayment meter customer and $1.83 per mainstream Horizon Power prepayment meter customer and $3.16 per Horizon Power prepayment meter customer living in remote indigenous areas.

These estimates were derived by applying the annual rate of disconnections amongst customers with standard credit meter in each customer group to the value of the late notice fee ($4.10) and reconnection fee ($27.50) charged by Synergy and Horizon Power. The assumed annual rates of disconnection are 0.58 per cent for Synergy, 5.8 per cent for mainstream Horizon Power customers and 10 per cent for Horizon Power customers living in remote indigenous communities.

### 7.13 Electricity customers

The use of prepayment meters in Western Australia in place of some standard credit meters is estimated to result in a net cost to prepayment meter customers of over a 20 year period with a present value of $16.3 million.

Table 7.14

**ELECTRICITY CUSTOMERS – ESTIMATED PRESENT VALUES OVER 20 YEARS OF THE COSTS AND BENEFITS OF PREPAYMENT METERS IN WESTERN AUSTRALIA**

| | Average cost or benefit per prepayment meter customer (over a 20 year period) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Learning costs | -$1.36 | -$1,464,079 |
| Costs of prepaying for electricity | -$8.78 | -$9,457,331 |
| Costs of reduced opportunity for late payments | -$0.08 | -$87,237 |
| Loss of access to consumer safety nets | -$1.01 | -$1,084,522 |
| Consequential costs of disconnection | -$4.21 | -$4,533,067 |
| Benefits | | |
| Avoidance of late-payment and reconnection fees | $0.29 | $314,841 |
| **TOTAL** | **-$15.14** | **-$16,311,395** |

Source: Allen Consulting Group

The finding that prepayment meters result in a net cost to prepayment meter customers in Western Australia arises primarily from the conclusion that customers must pay up-front for their electricity and lose the time value of money over the billing cycles applying to standard credit meter customers. The present value of this foregone benefit is estimated to be $8.78 per prepayment meter customer per annum under a voluntary use scenario.

Also contributing to the net cost are higher costs stemming from the disconnection of electricity (estimated to be $4.21 per prepayment meter customer per annum or $4.5 million over a 20 year period under a voluntary use scenario).

Other major costs include:

- costs of learning to use prepayment meters (estimated to be $1.36 per prepayment meter customer per annum or $1.5 million over a 20 year period under a voluntary use scenario);
- the loss of access to assistance under the Hardship Utility Grants Scheme (estimated to be $1.01 per prepayment meter customer per annum or $1.1 million over a 20 year period under a voluntary use scenario); and
- costs of the reduced opportunity for late payment (estimated to be $0.08 per prepayment meter customer per annum or $88,000 over a 20 year period under a voluntary use scenario).

The only material benefit to customers with prepayment meters is a reduction in the payment of late fees and reconnection costs ($0.29 per prepayment meter customer per annum or $315,000 over a 20 year period under the voluntary use scenario).

Most of these costs and benefits would only arise for customers that have difficulties paying their electricity bills. The exception is the cost of prepaying electricity, which will be incurred by all prepayment meter customers. Therefore, the cost per annum to prepayment meter customers that do not ordinarily have difficulties paying their electricity bills would be around $8.80 per annum. A customer that ordinarily incurs bad debts, is disconnected once per annum and would be eligible for the full amount of Hardship Utility Grants Scheme could be worse off with a prepayment meter installed by as much as $304 per annum for a Synergy customer, $515 per annum for a mainstream Horizon Power customer and $532 per annum for a Horizon Power customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

### *Sensitivity of results*

The costs and benefits to electricity customers are affected by the estimated rates of electricity disconnections amongst standard credit meter customers (which affects disconnection costs for retailers, the value of the reduction in bad debts and the value of avoidance of late fees and disconnection fees), prepayment meter customers (which affects the value of foregone subsidies under the Hardship Utility Grants Scheme) and the difference in disconnection rates between prepayment meter customers and standard credit meter customers (which affects the consequential costs of disconnections).

It was assumed that a disconnection rate of 10 per cent would apply in remote indigenous communities if customers were supplied through standard credit meters. Increasing the disconnection rate of customers with standard credit meters living in remote indigenous communities to 15 per cent per annum increases the present value of costs to these customers by $493,000 under a voluntary use scenario. This change increases losses of grants under the Hardship Utility Grants Scheme.

Evidence from South Australia (18 per cent per annum in 2006-07) and Tasmania (23 per cent per annum) indicated that the rate of disconnections amongst prepayment meter users could be higher than those assumed for standard credit meter customers (ESCOSA 2007 and TasCOSS 2006).[37] A disconnection rate of 20 per cent was assumed for Synergy and mainstream Horizon Power prepayment meter customers and 31 per cent for Horizon Power's prepayment meter customers living in remote indigenous communities.

[37] It is noted that the disconnection rates for the different jurisdictions are calculated on different bases and are therefore not directly comparable. The Western Australian and the Tasmanian disconnection rates refer to the number of households disconnected, while the South Australian disconnection rate counts the 'total' number of disconnections per household but only counts those disconnections that lasted for more than 240 minutes. As some households will have been disconnected two or more times each year, the Western Australian and Tasmanian disconnection rates may be higher if, as in South Australia, the 'total' number of disconnections per household were counted. The South Australian number would also likely be higher if all disconnections were taken into account (not just those disconnections that exceed 240 minutes).

However, the reported disconnection rate in South Australia decreased from 18 per cent in 2006-07 to 3 per cent in 2007-08 (ESCOSA 2008), apparently reflecting an increase in the number of more affluent customers choosing to use prepayment meters relative to customers that generally have difficulties paying their electricity bills (personal communication with Manager Customer Protection, Economic Regulation Authority).[38] If it is instead assumed that 3 per cent of all Synergy prepayment meter customers are disconnected for one day once per annum (and leaving the disconnection rate amongst standard credit meter customers and Horizon prepayment meter customers unchanged), this will decrease the present value costs of disconnection by $3.8 million to $12.5 million under a voluntary use scenario.

### *Learning costs*

It is estimated that the financial cost to customers (excluding those in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities) of learning how to use prepayment meters is a once-off cost of around $9.92 per prepayment meter.

It is assumed that customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities do not incur any additional learning costs relative to standard credit meters, as they would have needed to have learnt how to use standard credit meters in any case.

Customers who are used to using standard credit meters will need to learn to use prepayment meters. Things that new prepayment meter customers will need to learn include how to read the amount of credit stored on the meter, how to operate the emergency credit and how to purchase and load the credit.

It is assumed that it will take the average customer one hour to familiarise themselves with the prepayment meter (supported by information provided by the retailer).

Such home labour is typically valued at between 25 and 40 per cent of an individual's gross hourly wage rate (Marsden Jacobs, 2007). The average of these two figures (32.5 per cent) was applied to the average hourly rate earned by adults working full-time for the private and public sector of $30.54 (Australian Bureau of Statistics, 2008c), resulting in a value for an hour of home labour of $9.92.

### *Costs of obtaining prepayment meter credit*

It is assumed that customers do not incur any additional costs in obtaining credit for prepayment meters.

It is assumed that customers will be able to purchase credit for a prepayment meter by calling a phone line or accessing a website established by the retailer for the purpose of obtaining credit. If the customer had a standard credit meter, they would generally pay their electricity bill through a phone line, or a website, or by post. The only difference is that the customer pays in advance with a prepayment meter and in arrears with a standard credit meter.

[38] Disconnection rates for Tasmanian prepayment meter customers have not been updated because the majority of prepayment meters used by Aurora (the electricity retailer) do not have the capability of recording disconnections.

### *Prepayment for electricity*

The financial cost to customers of Synergy and Horizon Power that have prepayment meters arising from the prepayment of electricity is estimated to be $8.34 per prepayment meter customer per annum for Synergy, $14.73 per prepayment meter customer per annum for a mainstream Horizon Power customer and $20.60 per prepayment meter customer per annum for a Horizon Power customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

This cost to customers of Synergy and Horizon Power that have prepayment meters is transferred as a benefit to Synergy and Horizon Power of an equal but positive value of the same amount, assuming the same time value of funds. The calculation was described earlier in this chapter.

### *Cost of reduced opportunity for late payments*

The financial cost to customers with prepayment meters of not being able to accumulate bad debts is estimated to be $0.03 per annum for each Synergy customer with a prepayment meter, $0.61 per annum for each mainstream Horizon Power customer with a prepayment meter and $1.48 per annum for each Horizon Power customer with a prepayment meter living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

This cost to customers with prepayment meters is transferred as a benefit to electricity customers of an equal but positive value of the same amount. The calculation for this has been described above.

### *Loss of access to consumer safety nets*

The financial cost to customers from the loss of access to the Hardship Utility Grants Scheme under the voluntary use scenario is estimated to be $50 for a Horizon Power customer living in an Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program community.

It is assumed that the only customers that would lose grants under the voluntary use scenario are those living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, because they are required to have prepayment meters. It is assumed that no other customers lose grants under the voluntary use scenario because no customer would voluntarily sign up for a prepayment meter if they would sacrifice welfare payments.

The disconnection rate that was applied was the disconnection rate for standard credit meter customers (10 per cent amongst Horizon Power customers in remote indigenous communities). Although the disconnection rate is likely to increase for customers that are supplied under prepayment meters compared to those supplied under standard credit meters, this is unlikely to affect their eligibility for the grant as the increased disconnection rate is likely to be of short duration (for example, because the occupant has forgotten to recharge their prepayment meter and is temporarily disconnected).

The number of customers potentially forgoing grants was then multiplied by the value of the grant ($500 for customers outside the South West Interconnected System).

### *Reduction in electricity consumption costs*

There is no evidence that confirms that prepayment meters result in customers reducing their electricity consumption. Therefore, it has been assumed that customers will consume the same amount of electricity (and incur the same cost) irrespective of whether they are supplied via a prepayment meter or a standard credit meter.

This is consistent with assumptions made for the remote indigenous community scenario, which was set out in Chapter 5.

### *Avoidance of late-payment and reconnection fees*

The financial benefit to customers from avoiding late fees and reconnection costs are estimated to be $0.18 for a Synergy customer and $1.83 for a 'mainstream' Horizon Power customer and $3.16 for a Horizon Power customer living in an Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program community.

These estimates were derived by applying the annual rate of disconnections amongst customers with standard credit meters in each customer group to the value of the late notice fee ($4.10) and reconnection fee ($27.50) charged by Synergy and Horizon Power. The assumed annual rates of disconnection are 0.58 per cent for Synergy customers, 5.8 per cent for Horizon Power's mainstream customers and 10 per cent for Horizon Power's customers in remote indigenous communities.

### *Ability to share electricity consumption costs*

This benefit could not be accurately quantified for reasons explained in Chapter 5 of this report.

### *Consequential costs of disconnection*

Electricity customers tend to incur additional costs when they are disconnected from their electricity supply. Reasons why additional costs may be incurred include because food stored in the fridge may perish and because occupants have needed to purchase take away food because there is no electricity supply to cooking facilities.

The effects of prepayment meters on these costs relative to standard credit meters depend upon the relative rates and duration of disconnections under the two types of meters.

It is assumed that the rate of disconnections amongst customers with prepayment meters will be double that of customers with standard credit meters. There is no strong empirical basis for this assumption. However, there are two main reasons why the disconnection rate would be higher amongst customers with prepayment meters than those with standard credit meters. Customers with standard credit meters have more credit available to them before disconnection and retailers are obliged to provide customers with several warnings before disconnecting customers. Prepayment meter customers may be disconnected if emergency credit expires when outlets selling credit are closed (for example, during evenings or on weekends).[39]

[39] The scenarios presented in this chapter assume that prepayment credit can be purchased via the internet or mobile phones and therefore credit can be purchased 24 hours per day, 7 days a week. However, this may not

It is assumed that the duration of any episodes of disconnection will be approximately the same irrespective of whether a customer is supplied under a prepayment meter or a standard credit meter. The limited available data indicates that customers with standard credit meters are typically disconnected for a longer period than customers with prepayment meters. As a consequence, the assumption that the duration of disconnection under both types of meters is approximately the same will tend to overestimate the costs of disconnections to prepayment meter customers.

### *Loss of food*

It is estimated that the value of perished food as a consequence of an increase in the number of disconnections arising from the use of prepayment meters instead of standard credit meters will be $0.89 per Synergy prepayment meter customer per annum and $0.65 for a mainstream Horizon Power prepayment meter customer per annum, and $2.57 for a Horizon Power prepayment meter customer living in a remote indigenous community per annum.

It has been conservatively assumed that all customers who are disconnected per annum will lose one day's worth of food. However, the only costs that are considered are those incurred by the additional proportion of customers that are disconnected because they are supplied through prepayment meters rather than standard credit meters (that is, the percentage of prepayment meter customers that are disconnected per annum less the percentage of standard credit meter customers that are disconnected per annum).

Estimates of the value of perished food per customer per annum are based on the following data and calculations.

- Average weekly expenditure by households in the lowest and second lowest quintiles of income on perishable food (being Meat, Fish and seafood, Eggs and egg products and Dairy products) was estimated to be between $22.65 and $29.97 in 2003-04 (Australian Bureau of Statistics, 2006a).
- The estimates of weekly expenditure on perishable food were escalated into 2008-09 terms ($27.54 and $36.44) by using the Consumer Price Index for the Food Category (Australian Bureau of Statistics, 2008a).
- For the proportion of customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, the estimates were adjusted to reflect that households in remote indigenous contain a larger number of people than the households that responded to the Household Expenditure Survey.[40] Adjusting for the larger household size, it was estimated that weekly expenditure on perishable food would be between $81.16 (second lowest quintile) and $89.96 (lowest quintile).

be the scenario that eventuates in practice and so the estimates of the financial costs of disconnection take into account the possibility of there being restrictions on times that credit can be purchased.

[40] In the Household Expenditure Survey, the average size household was 1.5 people in the lowest quintile of income and 2.2 people in households with the second lowest quintile of income. In comparison, the average sized indigenous household in a remote area was estimated to be around 4.9 people (ABS 2006).

- These weekly amounts were then divided by seven (to obtain daily amounts) and then averaged, resulting in a daily cost of perishable food of $4.57 for Synergy and mainstream Horizon Power customers and $12.22 for Horizon Power customers living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.
- The daily costs were then multiplied by estimated increased rates of disconnection amongst the three customer groups, reflecting the increase in the percentage of customers being disconnected per annum if they are supplied electricity through prepayment meters as opposed to standard credit meters.

### *Purchase of take away or pre-prepared food*

It was estimated that the additional cost of purchasing take-away or prepared food arising from an increased rate of disconnections would be $3.32 per Synergy prepayment meter customer per annum and $2.43 for a mainstream Horizon Power prepayment meter customer per annum, and $3.37 for a Horizon Power prepayment meter customer living in a remote indigenous community per annum.

It has been conservatively assumed that all customers who are disconnected per annum will have to purchase one day's worth of pre-prepared or takeaway food.[41] However, the only costs that are considered are those incurred by the additional proportion of customers that are disconnected because they are supplied through prepayment meters rather than standard credit meters (that is, the percentage of prepayment meter customers that are disconnected per annum less the percentage of standard credit meter customers that are disconnected per annum).

Information on household expenditure on take-away and pre-prepared meals was obtained from the Household Expenditure Survey 2003-04 (ABS, 2006a), which indicated that weekly expenditure on 'meals out and take away' was $13.11 per household in the lowest quintile of income (with a household size of 1.5 people) and $22.52 for a household in the second lowest quintile of income (with 2.2 members). Adjusting for inflation, the expenditure on 'meals and take away' per week was estimated to be between $15.94 and $27.38 respectively in 2008-09.

For the proportion of customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, a further adjustment was made to account for the larger size of indigenous households, which have an average 4.9 members. This resulted in an estimate of expenditure of $52.07 and $60.99 per pre-prepared meals and take away.

However, it is unclear how a household could spend between $50 and $60 on pre-prepared food if the alternative option were to spend $20 on electricity ($10 to reinstall emergency credit plus the minimum $10 amount of credit) and the remainder on groceries. Therefore, the amount of expenditure on pre-prepared food for an indigenous household for one day was halved to between $26.04 and $30.49.

[41] In practice, not all customers will have to purchase food if they are disconnected as the majority of customers are disconnected for a day or less and will likely have enough food stored for a day.

Weekly expenditures were averaged and the average estimated household expenditure on groceries was then deducted (between $4.57 for a Synergy and mainstream Horizon Power customer and between $12.22 for a customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program community, as derived in the section on loss of food) as the household would have needed to spend this amount irrespective of whether or not they were disconnected. The additional expenditure is therefore between $17.09 for a Synergy and mainstream Horizon Power customer and $16.04 per customer living in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

These latter amounts were multiplied by the additional rates of disconnection amongst each customer group reflecting the additional proportion of customers that are disconnected from their electricity per annum as a consequence of prepayment meters being installed in place of standard credit meters. This results in an estimated additional cost of purchasing take-away or prepared food of $3.32 per Synergy prepayment meter customer per annum, $2.43 for a mainstream Horizon Power prepayment meter customer per annum, and $3.37 for a Horizon Power prepayment meter customer living in an Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program community per annum.

## 7.14 Community

The use of prepayment meters in Western Australia in place of some standard credit meters is estimated to result in a net benefit to the Western Australian community of $1 million over a 20 year period under the voluntary use scenario.

Table 7.15

**COMMUNITY — ESTIMATED PRESENT VALUES OVER 20 YEARS OF THE COSTS AND BENEFITS OF PREPAYMENT METERS IN WESTERN AUSTRALIA COMPARED TO USE OF STANDARD CREDIT METERS**

| | Average cost or benefit per prepayment meter customer (over a 20 year period) | Net present value (over a 20 year period) |
|---|---|---|
| Costs | | |
| Regulatory framework | -$0.07 | -$75,000 |
| Benefits | | |
| Reduced cost to government of subsidy payments | $1.01 | $1,084,522 |
| **TOTAL** | **$0.94** | **$1,009,522** |

Source: Allen Consulting Group

The primary benefit to the Western Australian community is the benefit of not being required pay subsidies to customers with prepayment meters that can not pay their electricity bills.

This benefit is partially offset by a cost to the Western Australian community of $75,000 to develop a code to regulate the use of prepayment meters in Western Australia.

### *Costs of developing regulations to support prepayment meters*

The installation of prepayment meters in Western Australia is estimated to result in a net cost to the Western Australian community of around $75,000. This is the estimated cost to the Economic Regulation Authority of developing a code to regulate the use of prepayment meters in Western Australia.

It is assumed that a prepayment meter code for Western Australia would be based upon that currently operating in the Australian Capital Territory, South Australia and Tasmania (which are all very similar to each other).

An allowance of $75,000 has been allocated for the Economic Regulation Authority to review the codes operating in the other jurisdictions, undertake stakeholder analysis and to cover any legal fees associated with implementing the new code. (This is an estimate and is not based upon any empirical data.)

It is noted that the cost estimate does not include the costs incurred by other organisations (such as the electricity retailers) in supporting the development of a prepayment meter code. It is assumed that any costs incurred by other organisations would be associated with staff time. The staff would have been employed irrespective of whether a new prepayment meter code was developed or not and so are not a net additional cost arising from the use of prepayment meters.

### *Reduced costs to government of subsidy payments*

The Western Australian Government will benefit from not being required pay subsidies to customers living in remote communities with prepayment meters who can not pay their electricity bills under the voluntary use scenario. It is estimated that the average financial benefit to the Western Australian community from not being required to pay subsidies under the Hardship Utility Grants Scheme to prepayment meter customers in remote communities is $50 per prepayment meter customer.

*Chapter 8*

# Regulatory impact statement

## 8.15 Introduction

In this chapter, a preliminary regulatory impact assessment of the use of prepayment meters in Western Australia, compliant with a prepayment meter code similar to that operating in the Australian Capital Territory is outlined. It is not possible to prepare a final regulatory impact assessment because there is no clear policy proposal or stated objectives for the introduction of prepayment meters.

This regulatory impact assessment has been undertaken in accordance with guidelines produced by the Department of Treasury and Finance for reviews of this type.[42] These guidelines establish eight steps for a regulatory impact assessment.

- Step 1: Clarify the objectives of the regulation.
- Step 2: Identify the nature of the restriction on competition (that is, the constraints placed on individuals or groups).
- Step 3: Analyse the effects of restrictions (that is, the expected costs and benefits of the constraints placed on individuals or groups).
- Step 4: Weigh-up benefits and costs to determine whether particular restrictions are in the public interest.
- Step 5: Consider alternatives means of achieving the objectives of the regulation.
- Step 6: Consider adjustment assistance measures.
- Step 7: Draw conclusions on the public interest of the regulation after consideration of alternatives.
- Step 8: Provide recommendations for review of the regulation.

The results of each of these steps are outlined below.

## 8.16 Objectives of prepayment meters

One of the steps involved in conducting a regulatory impact assessment is to identify the objective of the regulation. This step is necessary to determine whether the regulation achieves its objective and whether the objective could be better achieved through alternative mechanisms.

The regulatory impact assessment of prepayment meters set out in this report is limited because there are no stated policy objectives for the introduction of prepayment meters in Western Australia.

[42] Department of Treasury and Finance, Competition Policy Unit, November 2001, Public Interest Guidelines for Legislation Review.

In the absence of clearly defined policy objectives, assumptions were made about the potential objectives of the Western Australian Government in permitting the use of prepayment meters in Western Australia. Two potential objectives were identified.

- To assist retailers to manage bad debts by allowing an alternative payment mechanism for electricity consumption.
- To assist electricity customers that have difficulty in managing household expenses and debts to manage their electricity bills by permitting a payment mechanism that allows customers to pay their electricity bills up-front and in smaller, more frequent amounts.

## 8.17 Restrictions on competition

In the context of a regulatory impact assessment under the Competition Principles Agreement, a restriction on competition is an element of regulation that changes the commercial or economic position of an individual or business. This is a very broad concept and can extend beyond the realm of economic and commercial matters to include any regulatory initiative that seeks to constrain, direct or provide advantage to an individual or organisation in any field of endeavour.

Permitting the use of prepayment meters in Western Australia would in fact remove a restriction on competition. The restriction on competition is that there are limitations on electricity retailers in Western Australia on the use of prepayment meters.

Therefore, the purpose of this regulatory impact assessment is to assess the net public benefit or cost of removing a restriction on competition.

## 8.18 Analysis of the effects of prepayment meters

The use of prepayment meters will have a number of effects on electricity retailers, customers with prepayment meters and the broader Western Australian community. These effects are briefly summarised below.

- Effects on retailers
  - A potential improvement in financial position resulting from a decrease in costs associated with working capital and some retail functions.
  - A potential deterioration in financial position resulting from an increase in costs associated with meter infrastructure and on-going support costs.
- Effects on prepayment meter customers
  - Decreased consumer well-being from a net increase in financial costs associated with electricity consumption.
  - Decreased consumer well-being from an increase in social costs associated with an increased rate of electricity disconnections.
  - Increased consumer well-being by engendering a greater sense of personal responsibility for managing electricity supplies.

- Effects on the Western Australian community
  - Weakened financial position of the Western Australian Government through costs incurred in development of a regulatory framework to support prepayment meters.
  - Improved financial position of the Western Australian Government through a reduction in payment of assistance to electricity customers.

### *Retailers*

Table 8.16

**SUMMARY OF THE COSTS AND BENEFITS FOR ELECTRICITY RETAILERS**

| Potential advantages and benefits | |
|---|---|
| Effect 1 | Improved financial position for electricity retailers from net savings in retail costs and savings in the costs of working capital. |
| How? | Retailers will not need to perform some retail functions for prepayment meter customers that they do for customers with standard credit meters. These functions include issuing bills and disconnecting and reconnecting customers that have failed to pay their electricity bills.<br>The use of prepayment meters will also reduce the costs of working capital for electricity retailers because:<br>• prepayment meter customers will pay for their electricity up-front rather than in arrears; and<br>• prepayment meters will reduce the value of bad debts.<br>These benefits more than offset additional costs of prepayment meters and support infrastructure for the prepayment meters |
| Estimate of impact | With voluntary use of prepayment meters the benefit is estimated at a net present value of $17.9 million over 20 years. |
| Supporting evidence | Estimates of the financial benefits to retailers were derived in Chapter 7 of this report. |
| Effects when? | Near future and on-going. |
| Affects who? | Electricity retailers. |
| Public objectives affected | Financial. |

### *Prepayment meter customers*

Table 8.17

**SUMMARY OF THE COSTS AND BENEFITS ASSOCIATED WITH CUSTOMERS WITH PREPAYMENT METERS**

| Potential advantages and benefits | |
|---|---|
| Effect 1 | Increased consumer well-being by engendering a greater sense of personal responsibility for managing electricity supplies. |
| How? | Prepayment meters may potentially reduce social effects of prepayment meters by reducing the duration of disconnections and by engendering a perception of disconnection being under the personal control of the electricity customer rather than something that is imposed upon the customer by the electricity retailer.<br>There may also be positive social effects arising through increasing personal accountability and responsibility for the consumption of, and payment for, electricity services on behalf of the electricity customer. |

| | |
|---|---|
| Estimate of impact | It is not possible to quantify these social benefits. |
| Supporting evidence | There is no clear evidence for measuring this potential impact. |
| Effects when? | Near future and on-going. |
| Affects who? | Prepayment meter customers. |
| Public objectives affected | Consumer well-being. |
| **Potential disadvantages and costs** | |
| Effect 2 | Decreased consumer well-being from a net increase in financial costs associated with electricity consumption. |
| How? | Prepayment meter customers will incur interest costs because they will be required to pay for electricity before it is consumed (rather than in arrears as for customers with standard credit meters) and because they will not be able to accumulate bad debts on their electricity charges.<br>Prepayment meter customers are likely to incur additional costs associated with more frequent disconnections from their electricity supply.<br>Customers with prepayment meters will not be able to access grants under the Hardship Utility Grants Scheme if they are having difficulties paying their electricity bill.<br>Partially offsetting these increased costs is a benefit to prepayment meter customers from avoiding the need to pay late notice fees and fees for the reconnection of supply if they fail to pay their electricity bills on time. |
| Estimate of impact | With voluntary use of prepayment meters the cost is estimated at a net present value of $16.3 million over 20 years. |
| Supporting evidence | Estimates of the net costs to prepayment meter customers were derived Chapter 7 of this report. |
| Effects when? | Near future and on-going. |
| Affects who? | Prepayment meter customers. |
| Public objectives affected | Consumer well-being. |
| Effect 3 | Decreased consumer well-being from an increase in social costs associated with an increased rate of electricity disconnections. |
| How? | An increased rate of electricity disconnections could potentially result in some of the following social costs.<br>• A higher rate of illness caused by a reduced ability to maintain hygiene standards without electricity.<br>• Adverse effects on people reliant on medical devices that are powered by mains electricity but are not considered to be life support devices.<br>• A higher rate of emotional and psychological distress. |
| Estimate of impact | There is no clear evidence for the incidence and severity of the adverse social effects that are described. The likelihood and severity of the social effects will depend upon the individual circumstances of the affected household and the duration of the disconnection. |
| Supporting evidence | The potential social costs of increased rates of disconnections from electricity were described in Chapter 4 of this report. |
| Effects when? | Near future and on-going. |
| Affects who? | Prepayment meter customers. |
| Public objectives affected | Consumer well-being. |

### *Community*

Table 8.18

**SUMMARY OF THE COSTS AND BENEFITS ASSOCIATED WITH THE WESTERN AUSTRALIAN COMMUNITY**

| | |
|---|---|
| **Potential advantages and benefits** | |
| Effect 1 | Improved financial position of the Western Australian Government through a reduction in payment of assistance to electricity customers. |
| How? | Electricity customers with prepayment meters that are having difficulty paying their electricity charges will not be able to access the Hardship Utility Grants Scheme. |
| Estimate of impact | With voluntary use of prepayment meters for customers with poor bill-paying behaviours, the benefit is estimated at a net present value of $1.1 million over 20 years. |
| Supporting evidence | Estimates of the financial benefits of a reduction in payment of assistance to electricity customers were derived in Chapter 7 of this report. |
| Effects when? | Near future and ongoing. |
| Affects who? | Western Australian Government. |
| Public objectives affected | Fiscal. |
| **Potential disadvantages and costs** | |
| Effect 2 | Weakened financial position of the Western Australian Government through costs incurred in development of a regulatory framework to support prepayment meters. |
| How? | A prepayment meter code would need to be developed to support the use of these meters in Western Australia. Costs would be incurred by the Economic Regulation Authority to develop a draft code, undertake stakeholder consultation and to cover any legal fees associated with implementing the new code. |
| Estimate of impact | The cost to the Economic Regulation Authority of developing a code to regulate the use of prepayment meters in Western Australia is estimated to be $75,000 in present value terms. |
| Supporting evidence | Estimates of the costs of developing regulations to support the use of prepayment meters in Western Australia were derived in Chapter 7 of this report. |
| Effects when? | Near future and ongoing. |
| Affects who? | Western Australian Government. |
| Public objectives affected | Fiscal. |

## 8.19 Alternatives to prepayment meters

Prepayment meters are an alternative payment mechanism that would assist electricity retailers to manage levels of bad debt arising from its customers and thereby reduce the retailer's working capital costs. Prepayment meters would also help customers (particularly those from low socio-economic groups) to manage their electricity bills by permitting smaller and more frequent payments of electricity bills.

There are several different alternative payment mechanisms for achieving these objectives and benefits. These mechanisms include the following.

- CentrePay – this is a free bill payment mechanism available to residential customers that receive Centrelink payments. It allows customers to pay their bills (including electricity bills) by allowing Centrelink to deduct regular and manageable amounts from the customer's Centrelink payment (a minimum of $20 each fortnight) and for these amounts to be directly paid to a participating organisation (such as an electricity retailer). This payment mechanism may provide similar benefits to electricity customers as prepayment meters, but would not provide the same benefits to electricity retailers.
- Budget cards – these are cards issued by Synergy (at a request of an account holder). A card permits the account holder to prepay amounts against their electricity bill. The cards can be credited by making payments at Australia Post stores. The minimum payment that can be made is $20. This payment mechanism may provide similar benefits to electricity customers and electricity retailers as prepayment meters.
- Direct debit – customers can make arrangement for their electricity retailer to directly debit the exact amount of a customer's electricity bill from their nominated bank account. This payment mechanism may provide some of the benefits to electricity retailers, but not for electricity customers experiencing financial duress as the direct debit facility would not operate in the absence of sufficient funds for bill payment.
- Instalment plans – customers that are experiencing difficulties paying their electricity account can make a request to their electricity retailer to be able to pay any arrears on the account by instalments. This payment mechanism may provide similar benefits to electricity customers as prepayment meters, but would not provide the same benefits to electricity retailers.

Prepayment meters are more effective than the other alternative payment mechanisms in assisting electricity retailers to manage the level of customer bad debts. This is because prepayment meters prevent customers from becoming more than $10 in arrears (the value of emergency credit available to the customer) by disconnecting customers once they exceed the value of the emergency credit. In contrast, customers can unilaterally decide to cease payments under the alternative payment mechanism and some time may elapse before the customer is disconnected by the retailer.

From the customer's perspective the alternative payment mechanisms offer greater flexibility to cancel or delay payments that they cannot afford to make, with less risk of short-term disconnection.

Prepayment meters have two main advantages for customers over the alternative payment mechanisms.

- Avoidance of fees associated with insufficient funds, late payments and disconnections. Direct debit, in particular, may exacerbate problems if customers do not have sufficient funds in their accounts and incur fees from their bank when the electricity retailer tries to withdraw funds.
- Although the amount of the prepayments under the CentrePay and budget options cards 'smooths' the customer's payments, the payments are not directly linked to the electricity consumption and so these payment options do not provide the same immediate link between electricity consumption decisions and the resulting frequency and amount of prepayment.

## 8.20 Conclusions

Allowing use of prepayment meters in Western Australia is, in aggregate, in the public interest. This is primarily because the benefits to electricity retailers and the Western Australian community of using prepayment meters exceed the costs to prepayment meter customers associated with the use of prepayment meters.

There is, however, potential for the use of prepayment meters to make some electricity customers significantly worse off. Avoiding this would require developing mechanisms to ensure that customers on prepayment meters have appropriate access to hardship assistance payments.

*Appendix A*

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*Appendix B*

# Scope of work

An appropriately qualified independent research body will provide to the Authority a cost-benefit analysis and regulatory impact statement regarding the current and possible future operation of Pre-Payment Meters in WA.

The Cost Benefit Analysis and Regulatory Impact Statement should consider:

- costs, benefits and risks for retailers and distributors;
- costs, benefits and risks for small use customers (i.e. customers who consumer < 160MWh per annum), including, but not limited to, disadvantaged consumers;
- market costs, benefits and risks recognising existing and future market arrangements (e.g. FRC);
- the transitional costs of rolling out pre-paid meters; and
- regulatory costs and risks.

Factors that should be considered include, but are not limited to:

- Technical issues– an assessment of prepayment meters currently used in WA and of new pre-paid metering technology, including the cost of implementing this new technology;
- Consumer issues – an assessment of the customer experience to date and potential future impacts on different demographic groups including indigenous and vulnerable consumers;
- Geographical issues – issues related to using prepayment meters in metropolitan, regional, and remote locations;
- Market issues – issues relating to the Federal Government's cost-benefit analysis of the roll out of smart meters and the State Government's Electricity Retail Market Review as well as identifying barriers to competition and customer choice; and
- Regulatory issues - the appropriate regulatory framework for the use of prepayment meters in WA, taking into account the interests of electricity customers, retailers and distributors and existing regulatory arrangements for prepayment meters in WA, other states of Australia and overseas.

The research should include review of other research relating to the use of prepayment meters with an emphasis on the Australian context.

Stakeholders that should be consulted within this study must include at least:

- The Economic Regulation Authority Consumer Consultative Committee;
- Office of Energy;
- The Department of Housing and Works;

- The Department of Indigenous Affairs;
- The Department of Consumer and Employment Protection, including the Energy Safety division;
- Electricity Licensees – in particular Horizon Power, Synergy and Western Power;
- Consumer Representative Organisations – including WACOSS Consumer Utilities Project and the Financial Counsellors Association of WA;
- Electricity Industry bodies – Energy Retailers Association of Australia, Energy Networks Association;
- Jurisdictional regulators including the Australian Energy Regulator and State based regulators; and
- Relevant federal government agencies (e.g. Centrelink).

Current prepayment meter customers in Western Australia will be surveyed by consultants working for the Office of Energy prior to September 2008. It is anticipated that the results of this work will be available to inform this research project. Current prepayment meter customers in some other jurisdictions have already been surveyed and it is anticipated that those findings will inform this research. Therefore, it is not anticipated that direct interviews with customers will be required as part of this project.

The Economic Regulation Authority will provide the expert consultant with some available literature on the use of pre-paid meters in use in other jurisdictions and in Western Australia. However, it should be emphasised that this study should make a significant contribution to this body of knowledge.

*Appendix C*

# Stakeholders

The following stakeholders were consulted as part of the project.

Table C.1

**STAKEHOLDER CONSULTATION**

| Company | Title | First | Surname | Position |
|---|---|---|---|---|
| Alinta Sales | Mr | Ray | Myles | Customer Service Manager |
| Australian Energy Regulator | Ms | Michelle | Groves | Chief Executive Officer |
| Centrelink | Mr | Jan | Lipiec | State Manager |
| Chamber of Commerce and Industry of WA | Mr | Andrew | Canion | Senior Advisor, Industry Policy |
| Chamber of Minerals and Energy of WA (Inc) | Mr | Paul | Hynch | Executive Officer, Industry Policy |
| Consumer Credit Legal Service (WA) Inc | Ms | Alison | Pidgeon | A/Senior Solicitor |
| Consumers Association of Western Australia | Mrs | Genette | Keating | President |
| Department of Consumer and Employment Protection | Mr | Gary | Newcombe | Director, Policy & Strategic Development |
| Department of Consumer and Employment Protection | Mr | Gerald | Milford | Manager Policy |
| Department of Housing and Works | Mr | Trevor | Tann | Officer - Essential & Municipal Services to Indigenous Community |
| Department of Housing and Works | Ms | Nicole | Gibbs | |
| Department of Indigenous Affairs | Ms | Mia | Kriznic | Program Manager, Economic Development |
| Energy Networks Association of Australia | Mr | Andrew | Blyth | Chief Executive |
| Energy Ombudsman's Office | Mr | Wayne | Mann | Manager |
| Energy Retailers Association of Australia | Mr | Cameron | O'reilly | Executive Director |
| Energy Safety | Mr | Geoff | Wood | Director Gas, Energy Safety Division |
| Essential Services Commission South Australia | Dr | Pat | Walsh | Chairperson |
| Financial Counsellors Resource Project | Ms | Dianne | Hayes | Coordinator |
| Horizon Power | Mr | Graeme | Eley | Strategic Programs Manager |
| Horizon Power | Mr | Grant | Stacy | Regulatory Manager |
| ICRC | Mr | Paul | Baxter | Senior Commissioner |
| Office of Energy | Mr | Ron | Gerritsen | Senior Manager, |

| | | | | |
|---|---|---|---|---|
| | | | | Industry & Community Branch |
| Office of Energy | Mr | Adam | Welch | Policy Officer, Industry & Community Branch |
| Office of TAS Energy Regulator | Mr | Andrew | Reeves | Regulator |
| Pastoralists & Graziers Association of WA (Inc) | Mr | Tony | Seabrook | Vice President |
| Property Council of Australia | Mr | Damian | Stone | Research & Communications Assistant |
| Synergy | Mr | Simon | Thackray | Regulatory Manager |
| Utilities Commission | Mr | Alan | Tregilgas | Utilities Commissioner |
| WA Council of Social Service | Ms | Lisa | Baker | Executive Director |
| WA Council of Social Service - Consumer Utilities Project | Ms | Irina | Cattalini | Senior Policy Officer - Consumer Utilities Project |
| WA Farmers Federation | Mr | Peter | Bligh | Board Member, Nothern Region |
| WACOSS Consumer Utilities Project | Mr | Aden | Barker | Senior Policy Officer |
| WALGA | Mr | Ian | Duncan | Economist |
| Western Power | Mr | Gino | Guidice | Manager Customer Services |

*Appendix D*

# Detailed information on cost and benefit parameters

## D.1 Introduction

In this appendix, more detail is provided on the assumptions used in the cost-benefit analysis of the use of prepayment meters in communities subject to the Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program.

## D.2 Horizon Power (retailer/distributor)

### *Meter costs*

It is estimated that on average a prepayment meter will cost $160 more than a standard credit meter. This estimate is based on information supplied by Horizon Power that prepayment meters would cost $410 each installed, compared with $250 for a standard credit meter.

Horizon Power provided the following information on prepayment meter and standard credit meter infrastructure costs.

- The AMPY prepayment meters installed in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities cost $260 each (single phase meter) and are protected by a custom-made mild steel cover, which costs a further $30 per meter.
- Standard (single phase) credit meters cost $100 each (and a cover would likely cost $30 per meter).[43]
- Installation costs are around $120 per meter and are the same for prepayment meters and standard credit meters.

### *Meter life*

Prepayment meters have shorter operating lives than standard credit meters and are required to be replaced more frequently.

Aurora Energy advised that the Siemens prepayment meter it uses has a life of 15 years, while its standard credit meters have an expected life of between 30 to 40 years.

Power and Water Corporation in the Northern Territory indicated that its prepayment meters have a life of around five years, although it noted that in general electricity meters had a shorter life in the Territory, in large part due to the climate. It expected a shorter life for prepayment meters compared to standard credit meters resulting from greater 'wear and tear' from a greater number of moving parts in the meter.

[43] Horizon Power has not had a custom-made cover developed for standard credit meters, but have assumed that the cost would be similar to the costs for a cover for a prepayment meter.

Horizon Power indicated that it selected the AMPY prepayment meters for use in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, as they are 'fairly' robust.. Horizon Power indicated that it had not been using prepayment meters in remote indigenous communities for long enough to have established the rate at which they would need to be replaced but expects that the AMPY prepayment meters will last a minimum of ten years provided that they are properly protected with a metal cover.

As shown in Table D.2, Ofgem estimated that, depending on the technology, prepayment meters had an operational life that was between half to a third of that of standard credit meters.

Table D.2

**OFGEM — COSTS OF METER PROVISION FOR DIFFERENT TYPES OF PREPAYMENT METERS AND CREDIT METER**

| Meter | Expected life (years) |
|---|---|
| Electricity credit | 21 |
| Token | 10 |
| Key | 9 |
| Smartcard | 7 |

Source: Ofgem (2005:19)

### *Consumer education*

Horizon Power conducts a consultation and education process as part of the regularisation of electricity supplies in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities. Horizon Power employs a three-stage process during regularisation projects, involving three separate visits to residents of the community, each taking two days.

- The first visit to the community is informal (for example, over a barbeque) and is used to explain to the community the changes that will occur as part of the regularisation process and the reasons for those changes.
- During the second visit to the community, Horizon Power collects customer information such as names, addresses and eligibility for government concessions and rebates.
- The third visit to the community occurs once the electrical system is ready to 'go live'. During this visit, Horizon Power completes any gaps in customer information, provides residents with advice on energy conservation, demonstrates how to use the prepayment meter and displays a working 'demonstration' prepayment meter at a local shop so that residents can familiarise themselves.

Information provided by Horizon Power suggests that the second day of the third visit could be avoided if standard credit meters were installed instead of prepayment meters. This is because about half of the time spent with customers providing education on the changes arising from regularisation relates only to prepayment meters.

## D.3 Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program customers

### *Reductions in electricity consumption*

There was insufficient data to confirm that prepayment meters (unambiguously) result in a reduction in electricity consumption.

Horizon Power provided information on the value of electricity consumed in communities that had had prepayment meters installed before and after the prepayment meters were installed (refer Table D.3).

Table D.3

**ELECTRICITY CONSUMPTION BEFORE AND AFTER INSTALLATION OF PREPAYMENT METERS**

| Community | 12 months before | 12 months after | Percentage change |
|---|---|---|---|
| Community A | $137,988 | $130,247 | -6% |
| Community B | $81,070 | $89,707 | 11% |
| Community C | $166,514 | $194,810 | 17% |
| Community D | $212,632 | $288,632 | 36% |

Source: Horizon Power

As the data provided by Horizon Power in Table D.3 demonstrates, the data on electricity consumption with prepayment meters is inconclusive in considering effects on electricity consumption. While electricity consumption fell in Community A, it rose in Community B. In contrast, there was a substantial increase in electricity consumption in Community C and Community D, although Horizon Power attributed this to the installation of air conditioners in residences by the Department of Housing and Works.

In any event, it is not clear that an observed reduction in electricity consumption could be attributed unambiguously to the use of prepayment meters.

- A reduction in electricity consumption may reflect an increase in the frequency and duration of disconnection of electricity supply.
- Regularisation of the electricity supply would make individuals liable only for their consumption of electricity. The previous approach, where the cost of the whole community's consumption was met through a 'chuck-in' system, would have dulled any incentive for any individual household to lower electricity consumption.
- The education provided to Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities on ways to reduce consumption by avoiding inefficient electricity use would have taken place irrespective of whether prepayment meters or standard credit meters were installed.

As further evidence of the uncertainty of these benefits, Horizon Power claimed that households in Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities operate air conditioning with open windows or while the residents are not at home, implying little understanding of ways to conserve electricity and minimise costs. However, a survey conducted by Horizon Power and the Office of Energy in 2006 of the Djarindjin community indicated that residents had a high level of awareness of which appliances are high energy users and which are low energy users.

*Appendix E*

# Prepayment meters in Australia and internationally

## E.4 Introduction

### *Background*

Part 9 of the Code currently *applies only* to prepayment meter customers in a remote or town reserve community in which the Aboriginal and Remote Communities Power Supply Program or Town Reserve Regularisation Program has been implemented. Although the Code does not explicitly preclude retailers from installing prepayment meters outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities, without the exemption from certain sections of the Code provided by Part 9, retailers may find it is not be practicable (or possible) to comply with their obligations under Code.

Both Horizon Power and Synergy have expressed an interest in offering prepayment meters outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities (Electricity Code Consultative Committee, 2007a, p. 118). Horizon Power has indicated that the installation of prepayment meters as part of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program has generated interest from residents in the nearby towns, including residents that may be moving to towns from town reserves or remote communities (Horizon Power, 2008). In addition, Horizon Power has previously commented that:

> certain characteristics (highly transient, low levels of literacy and technical sophistication, higher levels of alcohol and substance base [sic, abuse] and associated violence, higher levels of unemployment and dependence on welfare, and residing and working in remote and isolated locations in difficult climatic conditions) may make prepayment meters attractive to its customer base (Horizon Power, 2008:13.)

Similarly, Synergy has suggested that prepayment meters represent a payment option that should be available to customers to choose if it suited their particular circumstances. For example, Synergy has suggested that prepayment meters may be attractive to owners of rental or holiday homes (Synergy, 2008).

In December 2007, the Government Utilities Essential Services Hardship Inter-Agency Working Group (Working Group) also concluded that prepayment meters offered opportunities to assist those in financial hardship manage their utility bills, and that while the meters themselves were more expensive, significant cost savings could be achieved in the delivery of the retail function (Office of Energy, 2007).

### *Future use of prepayment meters in Western Australia*

There are clearly a myriad of ways in which prepayment meters could be used in Western Australia if they were able to be rolled-out outside of Aboriginal and Remote Communities Power Supply Program and Town Reserve Regularisation Program communities.

In the remainder of this chapter, we consider how prepayment meters are currently used in other Australian jurisdictions, and also in New Zealand, South Africa and the United Kingdom. The manner in which prepayment meters are used in these jurisdictions is likely to be informative in considering how prepayment meters might be used in Western Australia in the future.

## E.5 Australia

In the main, prepayment meters are not widely used in Australia. The only exception is Tasmania, where around 20 per cent of electricity consumers prepay for electricity. 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.

It is understood that prepayment meters are not used in Victoria, New South Wales or Queensland. A more detailed overview of the use of prepayment meters in Tasmania, the Northern Territory and South Australia, and the respective retail market environments, are provided in the following sections. Also briefly summarised are the regulatory arrangements that would govern the use of prepayment meters in the three remaining states where prepayment meters are not currently used.

### *Tasmania*

Tasmania has been progressively introducing competition in its retail electricity market since July 2006. However, currently only customers consuming more than 750 MWh per annum are contestable, and residential customers are not expected to be able to choose their own electricity retailer until 2010 at the earliest. The introduction of full retail contestability is contingent on a public benefit assessment finding that it is in the public interest.[44]

Aurora Energy (Aurora), a government-owned electricity distribution and retail company, has an exclusive retail franchise for the supply of electricity to all non-contestable customers, including residential customers, on mainland Tasmania and Bruny Island. Aurora is also one of only two companies licensed to retail gas in Tasmania and is the only dual energy retailer (Aurora, 2008a).

Tasmania is the currently the only jurisdiction in Australia where prepayment meters are used by a significant proportion of residential electricity customers. The Office of the Tasmanian Energy Regulator (OTTER) estimates that around 40,000 residential customers, or around 20 per cent of the residential customer base, are supplied through prepayment meters (OTTER, 2007). The high penetration of prepayment meters in Tasmania most likely reflects the Aurora pre-payment service, Aurora Pay As You Go (APAYG), being marketed as a product of choice that allows customers to access time-of-use (TOU) tariffs. The key features of the APAYG service offered in Tasmania are summarised below.

[44] This review is currently underway. The Regulator's draft assessment does not endorse full competition from 1 July 2010, as is currently proposed. However, the draft assessment does propose that competition could be extended to small to medium sized businesses, with annual consumption above 50 MWh, as the costs of doing so would be low and these customers might have better opportunities to benefit.

### *Prepayment meter system*

Two types of prepayment meters are in use in Tasmania as part of APAYG — a Siemens prepayment meter and the ACTARIS Talexus PayGuard (refer Figure 2.4), the latter is installed along side the existing standard credit meter. Both types of prepayment meters record information on the customer's electricity consumption, while the newer ACTARIS prepayment module also records information on the customer's use of emergency credit, whether the electricity supply has disconnected and the duration of any disconnection.

Both prepayment meters use 'smart card' technology, which permits two-way communication of information between the customer's meter and Aurora's back office systems. The APAYG smart card is linked to a specific meter and customer account, and will only operate with that meter (that is, it can only be used to load credits onto a single meter).

The APAYG smart card has to be taken to an authorised recharge agent to load additional credit to the card, which allows data that is downloaded from the prepayment meter to the APAYG smart card to be captured by Aurora's back-office systems. The APAYG smart card can be charged with any amount of between $5 and $200 at a recharge agent — Aurora notes that its recharge agents prefer cash, and are not obliged to accept cheque, EFTPOS or credit card payments.

Until recently, customers could recharge their APAYG smart card through one of around 160 Bill Express agents in Tasmania. However, the Bill Express service was placed in administration in July 2008, and as a result Aurora has had to roll out a back up payment system. APAYG customers in Tasmania can currently recharge their Aurora PAYG smart cards at around 40 recharge agents (Aurora, 2008b). Recharge agents are usually newsagents or service stations, with extended opening hours.

Customers that have life support systems running on mains power are not eligible for the APAYG service. In addition, customers that live more than 20 kilometres from a recharge agent are required to sign an Out of Area Agreement. Aurora notes that this intended to ensure the customer is aware of the limitations this may present.

Aurora charges a fee of $55 for installing an APAYG prepayment meter. If the property already had a prepayment meter, the fee to establish an APAYG account is $25.70 (compared with an account establishment fee of $72.60 that applies for customers with a standard credit meter). The fee for replacing a lost or damaged card is $20.

At any time within the initial three-month mandatory trial period (refer to the regulatory section below), a new APAYG customer may choose to revert to a standard credit meter at no charge. If the customer chooses to revert after the expiry of the trial period, the cost of removing the prepayment meter is $58. In addition, if the electricity supply is disconnected due to illegal use or meter tampering, Aurora charges a reconnection fee of $54.

### *Prepayment meter service*

Under the *Electricity Supply Industry Act 1995* and the *Electricity Supply Industry (Tariff Customers) Regulations 1998*, Aurora's retail electricity tariffs for residential customers must be approved by the Tasmanian Energy Regulator. The current approved standard residential electricity tariff (Tariff 31) is shown in Table E.4 below.

Table E.4

**AURORA RESIDENTIAL LIGHT AND POWER 2008-09**

| | Units | Charge |
|---|---|---|
| *Light and Power (Tariff 31)* | | |
| Daily supply charge | Per day | 66.414 cents |
| First 500 kWh (per quarter) | kWh | 19.236 cents |
| Next 1,000 kWh (per quarter) | kWh | 18.324 cents |
| Remainder | kWh | 15.620 cents |

Source: Aurora

However, APAYG tariffs are not regulated, and as discussed above, gives customers access to TOU tariffs, which are shown Table E.5.

Table E.5

**AURORA — TASMANIA PAY AS YOU GO TARIFFS (CENTS PER KILOWATT HOUR), APPLICABLE 1 JULY 2008**

| | | | | |
|---|---|---|---|---|
| APAYG Standard | | | | |
| *Summer* | | | | |
| | *6.30 am - 11 am* | *11 am - 4.30 pm* | *4.30 pm - 10.30 pm* | *10.30 pm - 6.30 am* |
| Mon-Fri | 19.18 | 14.92 | 19.18 | 8.69 |
| Sat-Sun | 14.92 | 14.92 | 14.92 | 8.69 |
| *Winter* | | | | |
| | *6.30 am - 11 am* | *11 am - 4 pm* | *4 pm - 8 pm* | *8 pm - 6.30 am* |
| Mon-Fri | 19.21 | 15.42 | 12.19 | 9.81 |
| Sat-Sun | 15.42 | 12.19 | 12.19 | 9.81 |
| Daily Standing Charge: 98.11 cents/day | | | | |
| Daily Standing Charge (Pensioner): 12.68 cents/day | | | | |

Source: Aurora

It is important to note that although electricity supply may be self-disconnected under APAYG due to a lack of credit (and the expiry of emergency credit), the daily supply charge will nevertheless continue to be incurred and will accrue to the meter (increasing the customer's 'debt' above the amount of the emergency credit).

Compared to the regulated tariffs (refer Table 2.3) there are savings available to customers that shift electricity consumption into off-peak periods, in its most recent price comparison, OTTER found that (OTTER, 2008):

- low consumption customers, with typical fortnightly costs of around $37, might pay $2 per fortnight more on APAYG in summer, although in winter payments could be $1 less. Annually, these customers may pay up to $22 more on APAYG; and
- high consumption standard customers, with typical fortnightly costs of around $65 in summer and $90 in winter, may pay $2 more per fortnight in summer and up to $8 less per fortnight in winter on APAYG. Over a year, such customers may pay $70 less on APAYG.

That said, OTTER noted that it was:

> difficult to make a definitive comparison between APAYG and standard tariffs because the bills for standard tariff customers are calculated on consumption for each tariff over a quarter and APAYG charges vary according to time of use and summer and winter rates.
>
> Therefore, a comparison of customer costs determined by standard and APAYG rates will depend on:
>
> - the tariff mix, ie whether they use Light and Power only, Light and Power and Hot Water, HydroHeat or OffPeak;
> - whether they use comparatively more electricity in winter or summer, which will relate to the use of electric heating, among other things; and
> - how much electricity is used in the lower price period, such as after 8.00 pm in winter or on weekends, rather than the higher priced morning and evening working day periods (OTTER, 2008b).

However, OTTER also noted that;

> …as a general observation, APAYG may be less attractive for low consumption customers – in particular OffPeak customers – who appear to be paying consistently more on APAYG over the course of the year. APAYG also appears to be slightly more attractive for winter usage due to the lower winter rates; however, every customer will have a different pattern of use and this will affect the comparative cost (OTTER, 2008b).

### *Regulation*

The Tasmanian electricity industry is regulated by the *Electricity Supply Industry Act 1995*, associated regulations and the Tasmanian Electricity Code. The Code includes provisions dealing with the protection of tariff customers and retail metering.

From the time of their introduction in the mid-1990s up until early 2007, prepayment meters were not regulated in Tasmania. However, in July 2004, OTTER released an Issues Paper on Aurora's APAYG product, noting that:

> Until 2002, Aurora maintained the policy that customers could not convert to APAYG if there was an outstanding debt for previous consumption. A trial 'Progress Rate' was introduced in 2002, allowing some customers to repay outstanding debts through a loading on the APAYG energy rate. Aurora has since proposed changes to its credit policy, which would extend this practice. Thus it may be the case that, faced with the prospect of disconnection, a customer may have no choice but to accept APAYG, even though APAYG may not suit their circumstances (OTTER, 2004: p.iii).

OTTER's Issues Paper and subsequent recommendation report considered the ability of customers to make an informed choice, without the prospect of coercion, about the likely costs of APAYG compared to the standard tariff. In addition, it sought comments on self-disconnection through not maintaining sufficient credit on the meter, and the customer protection measures that should be provided.

Although APAYG tariffs continue to be unregulated, in May 2007 the Tasmanian Electricity Code was amended to include Chapter 9A, which governs the use of prepayment meters. Customer protection mechanisms in Chapter 9A of the Code include the following.

- Mandatory three-month trial period, within which a new APAYG customer can elect to revert to a standard credit meter at no cost.
- Requirement for the retailer to offer to revert the customer to a standard credit meter at no cost if there are more than three disconnections of longer than four hours each in any three month period.
- Ability to revert to standard credit meter within 28 days of an increase in APAYG tariffs.
- Limitation on disconnection of electricity to either between 8am and 2pm weekdays (ACTARIS prepayment meter) or 8am and 8pm weekdays (Siemens prepayment meter).
- Limitation on the proportion of any credit that can be used to reduce a prepayment meter debt (70 per cent).
- Allow for the recovery of up to 50 cents per day (progress rate) through APAYG towards an outstanding debt.

Aurora has indicated that many of these provisions formalised operating procedures that where already in place.

#### *Disconnection*

Research undertaken in Tasmania indicated that:

> …23% of respondents having run out of electricity at least once in past 12 months. The majority (58%) had forgotten to re-charge their APAYG card and most remained without power for less than 24 hours. However, 6% of households were without power for longer, and running out of power was most common in single parent households (43%) and households where at least one person was unemployed (33%) (TasCOSS, 2006:3).

### *Northern Territory*

As in Tasmania, residential customers in the Northern Territory are not currently able to choose their own electricity retailer. Only customers consuming more than 750 MWh per annum are contestable, although Clause 6 the *Electricity Reform (Administration) Regulations* states that all customers will be contestable from 1 July 2010.

Residential customers in the Northern Territory are supplied electricity by the Power and Water Corporation (the Corporation), a government-owned statutory corporation established by the *Power and Water Corporation Act*.

The Corporation has indicated that prepayment meters have been in use since the mid-1990s, and that currently there are around 8,500 prepayment meters in the Northern Territory (PWC, 2008a). This represents around 15 per cent of the Power and Water Corporation's total residential customer base of around 55,000.

While residential electricity customers may choose to be supplied through a prepayment meter instead of a standard credit meter, the Corporation has indicated that prepayment meters are used in the following specific situations (PWC, 2008a).

- All residential customers in remote Aboriginal communities are supplied electricity via a prepayment meter.
- All residential customers in town camps within urban areas are supplied electricity via a prepayment meter.
- Where customers have had their electricity supply disconnected due to an outstanding debt to the Corporation, supply may be reconnected provided the customer enters into a payment arrangement with the Corporation and agrees to by supplied electricity via a prepayment meter.

### *Prepayment meter system*

The prepayment meters used in the Northern Territory are single-use magnetic card operated meters.[45] The magnetic cards are available in denominations of $5, $10, $20, and $50. In the wet season, remote communities are often inaccessible for extended periods, and it is therefore necessary to ensure sufficient magnetic cards are available in each community (PWC, 2008a).

In order for the Corporation to install a prepayment meter, the customer must have access to the electricity meter box to allow for credit to be loaded unto the meter, and where the customer is living in rental accommodation, the landlord's written permission is required before a prepayment meter can be installed.

There is no charge for customers switching from a standard credit meter to a prepayment meter, but a fee of $56 is payable if a customer wishes to revert to an ordinary credit meter after a prepayment meter has been installed.

### *Prepayment meter service*

Electricity tariffs in the Northern Territory, including for prepayment meter customers, are set annually through an Electricity Pricing Order made by the Treasurer under section 44(1)(a) and (b) of the *Electricity Reform Act*.

[45] The Corporation has indicated that it has a five year program to replace its existing 'wide-mouth' prepayment meters with 'narrow-mouth' Email+AMPY prepayment meters.

As shown in Table E.6, Northern Territory prepayment meter customers pay a higher variable consumption charge than customers supplied via a standard credit meter, but do not pay a daily supply charge. Consequently, for customers consuming less than around 1,250 kilowatts hours (kWh) of electricity per quarter (or 5,000 kWh per annum), prepayment meters are likely to represent a lower cost supply option compared to being supplied via a standard credit meter.[46]

Table E.6

**POWER AND WATER CORPORATION PREPAYMENT TARIFFS**

| | Supply charge | Consumption charge |
|---|---|---|
| | (Cents per day) | (Cents per kWh) |
| Standard credit meter tariff | 30.60 | 15.52 |
| Prepayment tariff | nil | 17.72 |

Source: Power and Water Corporation

The Corporation has advised that due to the high use of air conditioning, electricity consumption in the Northern Territory is high — average annual residential electricity consumption is around 8,000 kWh (PWC, 2008b). Based on the tariffs in Table E.6, a residential customer consuming 8, 000 kWh of electricity in a year would pay around $64 more per year if supplied through a prepayment meter than a standard credit meter.

### *Regulation*

The Utilities Commission published an Electricity Standards of Service Code in December 2005, which establishes minimum standards of reliability, quality and customer service for electricity industry participants. However, it appears that neither this Code nor other regulatory instruments impose specific requirements for the use of prepayment meters in the Northern Territory.

## *South Australia*

The South Australian retail electricity market is fully contestable, with residential electricity customers able to choose their own electricity retailer. There are around 15 firms are currently licensed to retail electricity in South Australia, of which at least 11 are marketing and selling electricity to small customers (ESCOSA, 2007).

Aurora, whose main business is as an electricity retailer (and distributor) in Tasmania, also holds a retail licence in South Australia. Its retail business in South Australia is exclusively based on the APAYG product (refer to preceding sections for further information on APAYG). Aurora has indicated that it has installed around 4,500 prepayment meters in South Australia. It is the only retailer to offer prepayment meters in South Australia.

[46] We note that residential customers consuming more than 16,000 kWh of electricity annually are eligible for the domestic (residential) Time of Use tariff, which reduces the cost of off-peak consumption (between 8pm and 6am) to 13.01 cents kWh (instead of 15.52 cents).

### *Prepayment meter system*

The costs associated with APAYG in South Australia are the much the same as those in Tasmania. Specifically, there is an installation fee of $55, and a meter removal fee of $55 if the customer chooses to revert to a standard credit meter after the expiry of the three-month mandatory trial. Customers can also revert to a standard credit meter at no cost within 28 days of an increase in APAYG tariffs. If an Aurora prepayment meter is already installed, customers only need to pay $25 when moving in or out of a residence.

### *Prepayment meter service*

In South Australia, tariffs for electricity supplied to *standing contract* customers are regulated by the Essential Services Commission of South Australia (ESCOSA) (refer Box E.1).

Box E.1

**SOUTH AUSTRALIA — STANDING CONTRACTS**

Section 36AA of the South Australian *Electricity Act 1996* provides that a declared electricity retailer must, as a mandatory condition of its retail licence, agree to sell electricity to a small customer on request at the retailer's standing contract price and subject to the retailer's standing contract terms and conditions.

Of the electricity retailers licensed to operate in South Australia, only AGL has been declared as being an entity to which section 36AA of the *Electricity Act 1996* applies. Further, Clause 4.2 of AGL's Electricity Retail Licence requires that, where it sells electricity to a small customer, it must comply with the terms and conditions set out in the *Electricity Act 1996* and the Energy Retail Code, including the provisions relating to standing, market and default contracts detailed in Part B of that Code.

As a result, AGL is currently the only electricity retailer in South Australia that must offer to supply electricity to a small customer at prices regulated by the Commission's determination, and under terms and conditions that are set by government.

Standing contract terms and conditions, and regulation of standing contract prices, are intended to protect small customers that do not choose to enter into a market contract with an electricity retailer.

The Commission is required under section 36AA(4a) of the *Electricity Act 1996* to fix a standing contract price through making a determination following submission by AGL of the price it proposes be fixed as the standing contract price. However, the *Electricity Act 1996* requires that the Commission must, before making a determination, have conducted an inquiry under Part 7 of the *Essential Services Commission Act 2002* into the question of the appropriate price to be fixed as the standing contract price.

Section 36AA(4a) the *Electricity Act 1996* also requires that the price determination made by the Commission expire no earlier than three years from the date determination is made, although during the period covered by the determination prices may vary at specified times according to a formula specified in the determination.

It is estimated that around 35 per cent of residential customers in South Australia continue to be supplied under standing contract terms and conditions and at regulated prices, while around 62 per cent of small use business customers remain on standing contracts (ESCOSA, 2007a).

Source: Allen Consulting Group , ESCOSA (2007a)

The current regulated standing contract price is a supply charge of 43.065 cents per day, and a usage charge of 18.964 cents per kilowatt-hour for consumption up to 3.2877 kilowatts per day, 21.285 for consumption between 3.2877 and 10.9589 kilowatts and 24.079 cents for additional consumption.

In comparison, the APAYG (uncontrolled) tariffs that apply in South Australia are shown below in Table E.7.

Table E.7

**AURORA — SOUTH AUSTRALIA PAY AS YOU GO TARIFFS (CENTS PER KILOWATT HOUR), APPLICABLE 1 JULY 2008**

| | | | |
|---|---|---|---|
| **APAYG Standard (uncontrolled load)** | | | |
| ***Summer*** | | | |
| | *7 am – 4 pm* | *4pm - 9 pm* | *9 pm - 7 am* |
| Mon-Fri | 20.90 | 19.99 | 15.0 |
| Sat-Sun | 19.99 | 17.76 | 15.0 |
| ***Winter*** | | | |
| | *7 am – 4 pm* | *4pm - 9 pm* | *9 pm - 7 am* |
| Mon-Fri | 19.50 | 17.76 | 15.0 |
| Sat-Sun | 17.76 | 14.70 | 15.0 |
| Daily Standing Charge: 46.80 cents/day | | | |
| Daily Standing Charge (Concession): 10.64 cents/day | | | |

Source: Aurora, available www.apayg.com.au/features_and_benefits.html

### *Regulation*

The South Australian electricity industry is regulated by the Electricity Act 1996, associated regulations, the Energy Retail Code and the Energy Marketing Code. The use of prepayment meters in South Australia is regulated by a Energy Prepayment Meter System Code (the Prepayment Code).

The Prepayment Code, which was introduced in May 2005, includes the following customer protection mechanisms.

- Mandatory three-month trial period, within which a new APAYG customer can elect to revert to a standard credit meter at no cost.
- Requirement to revert a default customer to a standard credit meter on request at no cost to the customer.
- Requirement to establish a Prepayment Meter Customer Consultation Group.
- Requirement for the retailer to offer to revert the customer to a standard credit meter at no cost if there are more than three disconnections of longer than four hours each in any three month period.
- At least 20 days notice of an increase in tariffs.
- Limitation on disconnection of electricity to between 10am and 3pm weekdays.
- No ability to recover outstanding debt (aside from the amount of emergency credit accessed by the customer).

The Commission's most recent performance report of the South Australian electricity industry was published in November 2007 (ESOCSA, 2007), and provided the following information on the use of prepayment meters in South Australia. It is understood that prepayment meters began to be used in South Australia in early 2006, and that currently around 4,500 have been installed.

Table E.8

**PREPAYMENT METER SYSTEM STATISTICS 2005-06 AND 2006-07**

| | 2005-06 | 2006-07 |
|---|---|---|
| Total number of prepayment meter customers | 76 | 376 |
| Number of small customers self-disconnected 3 or more times in any 3 month period for longer than 240 minutes on each occasion | 3 | 5 |
| Total number of times a small customer has self-disconnected for longer than 240 minutes | 2 | 70 |
| Number of prepayment meters removed or rendered non-operational during the trial period | 1 | 0 |
| Number of prepayment meters removed as a result of a small customers facing payment difficulties | 0 | 0 |
| Number of prepayment meters removed for other reasons | 0 | 0 |

Source: ESCOSA (2007, p.59)

## *Other jurisdictions*

### *New South Wales*

In New South Wales, Section 106(1)(i) of the *Electricity Supply Act 2006* was amended in 2005 to permit the Governor to make regulations allowing prepayment meters for small retail customers and specifying requirements relating to any such prepayment meters. To date, no such regulations have been made suggesting prepayment meters are not in use in New South Wales.

### *Victoria*

In Victoria, Section 40E of the *Electricity Industry Act 2000* provides for the Governor to make regulations prohibiting or regulating the implementation of a prepayment meter scheme in respect of small retail customers. While no regulation prohibiting prepayment meters has been made, retailers' licences also prevent the implementation of a pre-payment meter scheme without the prior approval of the Essential Services Commission of Victoria (ESC).[47] We understand no such approval has been given to date, and consequently prepayment meters are not currently in use in Victoria.

[47] See for example Clause 10.1 of the retail licence issues to AGL Sales Pty Ltd. A copy of the licence is available at www.esc.vic.gov.au/NR/rdonlyres/A90C6A9F-815E-4411-BBFA-87EB045A1240/0/AmendedElectricityRetailLicenceAGLSalesPtyLtdexAGLVictoria20060222.pdf.

#### *Queensland*

In Queensland, Clause 1(c) of Schedule 2 of the *Electricity Act 1994* provides for regulations to be made with respect to payment and charging for electricity and services, including payments in advance. No such regulations have been made. Consequently, it appears that prepayment meters would be permitted under the existing regulatory framework in Queensland, although their use would be unregulated.

The Allen Consulting Group understands that Energex, the distribution system manager in south east Queensland, has previously conducted a prepayment meter trial in that State.

### E.6 United Kingdom

The retail electricity market in the United Kingdom has been fully contestable since the late 1990s, allowing residential customers to choose their electricity supplier (Ofgem 2007). There a six suppliers that serve the bulk of the residential retail electricity market, being British Gas, Powergen, Scottish and Southern Energy, npower, EDF Energy and Scottish Power (Ofgem 2007).

The United Kingdom has the longest established use of prepayment meters in the world, with prepayment meters having been in use for almost a century. prepayment meters account for around 15 per cent (or 3.8 million) of all electricity meters in the United Kingdom (ABS Energy Research 2007, pp. 7).

In the United Kingdom, there is a correlation between low incomes and customers using prepayment meters, although the regulator, Ofgem, notes there is a common misconception that most prepayment meter customers are in fuel poverty. Only 20 per cent of prepayment meter customers meet the definition of 'fuel poverty', with energy bills accounting for ten per cent or more of household income (Ofgem 2005).

Prepayment meters are used for debt collection purposes in the United Kingdom. For example, Scottish and Southern Energy notes on its website that around half of electricity prepayment meters are installed by suppliers to 'help customers repay energy debt' (Scottish and Southern Energy, 2008). According to Ofgem (2005:2), 14 per of electricity prepayment meter customers and 35 per cent of gas prepayment meters customers are currently repaying a debt through their meter.

Research into customer attitudes towards prepayment meters was undertaken in 2007 on behalf of Ofgem. This research was in the form of a questionnaire followed by a workshop with selected respondents. Ofgem noted that while around 20 per cent of respondents to the questionnaire indicated that they had first obtained a prepayment meter because their retailer had insisted upon it, none of the workshop attendees admitted to being required to have a prepayment meter (Ofgem 2007). This suggests that some caution is necessary in taking at face value the results of surveys and customer interviews.

#### *Prepayment meter system*

There are four types of prepayment meter technologies currently in use in the United Kingdom, being magnetic cards/tokens, smart keys, smart cards and key pad meters (ABS Energy Research 2007).

The various types of cards, tokens and keys needed to recharge prepayment meters are sold through a network of payment outlets, including Post Offices, Paypoint and Payzone. Paypoint and Payzones are often located in local shops and can support a number of technologies, but are limited in rural areas. The network of Post Offices is better in rural areas, but do not support all technologies (ABS Research 2007:18).

The licence conditions applied to Former Public Electricity Suppliers oblige these retailers to make facilities for obtaining credit for prepayment meters available to other suppliers on a non-discriminatory basis (Ofgem 2005:3).

The market for prepayment meters is dominated by Bayard (Landis & Gyr/Ampy) with between 60 and 70 per cent of the market, followed by Actaris and PRI (ABS Energy Research 2007).

### *Prepayment meter service*

Price controls for residential electricity customers were removed in 2002 (Ofgem, 2007) and subsequent proposals to mandate uniform prices for prepayment meter and credit meter customers were rejected (Ofgem 2005).

In the United Kingdom, prepayment meters customers have generally paid more on average than customers with standard credit meters or those that pay by direct debit. Data presented on the National Housing Federation website (purportedly for August 2008) suggests that the difference is in the order of £34 to £71 per year (Table E.9).[48]

Table E.9

**PRE-PAYMENT METER PREMIUM – DUAL FUEL PRICES FOR ELECTRICITY AND GAS**

| | BG | EDF | Npower | E.ON | SSE |
|---|---|---|---|---|---|
| Average yearly standard credit bill | £1,328 | £1,210 | £1,056 | £1,063 | £1,006 |
| Average yearly prepayment meter bill | £1,399 | £1,246 | £1,127 | £1,097 | £1,063 |
| *Pre-payment meter premium* | *£71* | *£36* | *£71* | *£34* | *£61* |

Source: National Housing Federation - Figure based on energywatch figures (5 August 2008).

However, an increased focus by Ofgem on prepayment meter customer (see for example Ofgem, 2007) appears to have contributed to PM customers achieving improved offers in recent times. For example:

- Scottish Power charges prepayment meter electricity customers less than they do for customers on standard credit;

[48] Scottish and Southern Energy has announced that it has abolished the extra charge levied on all of its electricity (pay as you go) or pre-payment tariffs in England and Wales compared with its standard credit tariffs.

- British Gas' Essentials tariff charges the same price for half a million vulnerable prepayment customers as it does for Direct Debit customers for both gas and electricity; and
- Scottish and Southern, EDF Energy and Powergen also charge their electricity customers on prepayment meter meters the same price as standard credit customers (Ofgem 2008).

### *Regulation*

Electricity suppliers are obliged to establish and comply with a code of practice for prepayment meter customers. The code must set out the supplier's policy with regard to debt recovery and the provision and maintenance of charging facilities (Ofgem 2005).

## E.7 South Africa

Eskom, a state-owned utility, dominates the retail electricity market in South Africa. It supplies about 96 per cent of South Africa's electricity requirements, owns and controls the high voltage transmission grid and supplies about 60 per cent of electricity directly to customers. The remainder of electricity distribution is undertaken by about 240 local authorities, which buy bulk electricity from Eskom (Eberhard 2001).

South Africa has the highest penetration of prepayment meters (for electricity) in the world, with 54 per cent of its 7.3 million electricity customers having prepayment meters (ABS Energy Research 2007:22).

prepayment meters were installed as part of the electrification of communities that did not previously have electricity supplied to individual premises. As part of the electrification process, and following agreement with the community in question, the whole community is fitted with prepayment meters (Eskom 2008).

The use of prepayment meters simplified the process of supplying electricity to communities by circumventing a number of problems that would have been associated with the use of standard credit meters.

- *Infrastructure* – many communities lacked basic infrastructure to support billing systems for standard credit meters, such as fixed residential addresses, postal services and bank accounts.
- *Staffing* – for Eskom prepayment meters obviated the need to maintain personnel in communities (for billing and managing connections and disconnections). With the prevalence of political protests, township unrest and crime, reading meters became difficult and dangerous and can be avoided through prepayment meters.
- *Social* – newly electrified customers are predominantly poor and have low levels of literacy. Eskom believes that prepayment meters assisted its customers with budgeting (by relating electricity usage with payment) and by preventing customers going into debt (Eskom 2008).

### *Pre payment meter system*

There are two types of prepayment meters used in South Africa, being magnetic card meters and numeric keypad meters (which accept a 16 or 20 digit number) (ABS Energy Research 2007:14).

While there are only two types of technology in use in South Africa, prepayment meters are produced by a number of different manufactures. Initially, attention was given only to standardising prepayment meters, but not to prepayment meter credit 'vending machines' and other infrastructure. As a consequence, a variety of vending systems were established, which were only compatible with some meters.

In the early 1990s, Eskom contracted for the development and implementation of a 'Common Vending System' capable of selling credits for different types of meters. To enable the new vending system to transfer credit to all types of meters it developed a standard transfer medium and protocol, the Standard Transfer Specification, which has been a feature of all prepayment meters used in South Africa since 1994 (ABS Energy Research 2007:24).

### *Pre-payment meter service*

The tariffs available to prepayment meter customers are different to those available to customers with standard credit meters. Residential customers with standard credit meters pay a large initial installation cost to be supplied with electricity (covering the infrastructure costs), and pay a fixed monthly charge and a variable charge for electricity consumed.

Eskom has two types of prepayment tariffs: under one tariff the customer pays for the initial installation costs and under the other the customer only pays a very small amount administration and distribution outlets. prepayment meter customers do not pay the monthly fixed charge, only the variable energy charge (which is proportionately higher reflecting that these customers do not pay the fixed charge).

Customers in South Africa have the option of installing prepayment meters behind the main meter (at their own expense). This allows customers to have additional meters for tenants, flats or holiday camps/homes to enable them to charge occupants for their individual electricity usage.

### *Regulation*

It is unclear whether there are specific regulations applying to the use of prepayment meters in South Africa.

## E.8 New Zealand

Full retail competition was introduced in New Zealand in 1999, and the retail electricity market is dominated by five companies: Meridian Energy Limited, Contact Energy Limited, Genesis Power Limited, Mercury Energy and TrustPower Limited.

prepayment meters were first introduced in New Zealand in 1992 and were marketed as a value-adding service to customers (ABS Energy Research 2007, pp. 47). Use of prepayment meters in New Zealand remains relatively low at around 3 per cent of customers (Electricity Commission 2008).

The Electricity Commission undertakes an annual survey of electricity retailers to determine the current state of prepayment meter use in New Zealand. Although most retailers offer prepayment meters, reasons for not offering prepayment meters included that there was no noticeable consumer demand or they were not part of the retailer's business model (Electricity Commission 2008). In an earlier survey, some retailers had indicated they were waiting for improved technology before introducing prepayment meters or considered that prepayment meters were not viable in the medium term (Electricity Commission 2006).

### *Prepayment meter system*

Contact Energy uses Siemens key-pad prepayment meters and Landis and Gyr key-pad prepayment meters (Contact Energy 2008). Genesis Power has trialled PRI Liberty prepayment meter smart meters (ABS Energy Research 2007, pp. 48).

Customers can recharge their meter by entering a 20 digit code into their meter, which they receive after purchasing credit through a PostShop, store or over the phone.

### *Prepayment meter service*

The Electricity Commission reported that on average, consumers with prepayment meters pay around two to three cents more per kilowatt hour for electricity than consumers on anytime contracts (Electricity Commission, 2006). The retailers that offer prepayment meter also apply a fixed daily charge (although one incorporates this into a higher variable usage charge). While this may be standard practice across all metering types in New Zealand, one retailer noted that their charges were set to reflect the higher capital cost of prepayment meters (Electricity Commission 2008).

The average minimum recharge amount set by retailer has increased from between $5 and $10 in 2007 to between $10 and $20 in 2008 (Electricity Commission 2008).

In New Zealand, retailers have been encouraged by the regulator to investigate the use of prepayment meters to recover electricity debts, including charges to install and remove meters. In response to the 2008 survey, three retailers reported recovering debts through prepayment meters, of which two negotiate the repayment rate with the consumer. The remaining retailer noted that it recovered 50 per cent of customer debts through the prepayment meters.

### *Regulation*

The *Electricity Act 1992* states that regulations "providing for terms and conditions on which electricity retailers must offer prepayment meters to domestic consumers" may be made upon recommendation of the Minister of Energy.

However, it is understood that prepayment meters remain unregulated. Instead, the Electricity Commission monitors the compliance of retailers with 'Guideline on arrangements to assist low income and vulnerable consumers'. Amongst other things, these guidelines recommend that retailers endeavour to provide prepayment metering and where a retailer is unable to provide prepayment meters, it should assist consumers who request prepayment meters to switch to a retailer who can (Electricity Commission 2008a).