

## Product description

PowerProvider, developed by Sustainable Control Systems, enables electricity to be sold to consumers with low electricity consumption levels, on a secure and affordable basis. It provides significant capital and running cost advantages over conventional kilowatt-hour meters and additional benefits including demand-side management.

With PowerProvider, the consumer is allowed to draw a current up to a prescribed limit at all times, for which they pay a fixed monthly fee. If the current exceeds the prescribed limit the PowerProvider automatically disconnects the supply. Whereas other load-limiting devices must be manually reset, PowerProvider automatically resets, and can therefore be mounted in an inaccessible place, such as on the service pole. This reduces problems with electricity theft through bypassing.

Further technical information is given in the technical overview and data sheets.



## Advantages

### Low revenue collection costs

Revenue collection costs are very significant for supplies to consumers who use very little electricity. For such supplies, the cost of conventional meter reading, billing, collection and administration is similar to the amount of revenue collected, even without considering the costs of generating the electricity and maintaining the network or the initial capital costs. The cost of revenue collection is reduced substantially by using PowerProviders instead of meters because, since payments are fixed, there is no need for meter reading or billing, and accounting is easier.

### Low initial capital cost

PowerProviders cost less than standard electricity meters, are cheaper to install and are supplied pre-calibrated.

### Reduced supply-side costs

PowerProviders are effective in demand-side management, as they limit the maximum power that the consumer draws from the supply. Widespread use of PowerProviders instead of meters can result in substantial savings on transmission, distribution and generating equipment.

### Reduction in theft of electricity

Since PowerProvider is pole-mountable, any attempt to bypass the device will be difficult as well as clearly visible to the electricity company.

### Payments made in advance

Bills for PowerProvider customers can be made payable in advance since the amounts are fixed. This improves cash flow for the electricity company.

## **Easier budgeting for consumers**

The fixed monthly payments for a PowerProvider supply make budgeting easier for the consumer and reduce the likelihood of defaulting on payments. An annual advance payment option can be offered, to enable rural consumers to pay for their supply when income is generated at harvest time.

## **Load forecasting and control**

Demand forecasting is much easier when the majority of customers are supplied by PowerProviders. Supply overloading can be controlled by allowing upgrades to higher capacity PowerProviders only if sufficient capacity exists.

## **Common concerns**

### **Lack of acceptance by consumers**

Consumers will subscribe to a load-limited supply in preference to a metered supply if there is a clear financial benefit (see below). This has been proven in Zimbabwe where approximately 40% of consumers choose a load-limiter rather than a meter.

To ensure that PowerProviders are accepted without difficulty, leaflets should be provided that describe how the device operates and what appliances can be connected without exceeding the current rating.

### **Uneconomical use of electricity**

The limited life of electrical appliances discourages excessive use. In Zimbabwe measurements have shown that consumers typically use just 24 to 29% of the electricity available to them.

## **PowerProviders complement prepayment metering systems**

Prepayment meters are too expensive for customers with low consumption levels. By offering customers the choice of a prepayment meter or PowerProvider, low-income households can be supplied with electricity on a cost-effective basis.

A lower connection fee can be charged with PowerProvider to reflect its much lower capital cost and the reduced supply-side cost due to peak demand limitation. The connection fee for a prepayment meter can be set much higher when a PowerProvider service is also offered, as those that cannot afford it can still obtain an electricity supply. This results in substantial cash-flow benefits.

The same sales points can be used for PowerProvider and prepayment meter customers and an upgrade path to a prepayment meter made available for a suitable fee.

## **Tariff setting and management**

It is important that customers can see that there is a clear financial benefit from subscribing to a load-limited supply. The approach taken in Zimbabwe is to charge a lower connection fee and set the tariff for the smallest load-limiter, in this case a 1 Amp supply, at the same level as the fixed monthly charge for a metered supply. As the metered consumer is also charged for kilowatt hours used, the load-limiter is clearly the cheaper option.

The electricity company can prevent overloading of the supply by reserving the right to provide upgrades to higher current ratings of PowerProvider only if sufficient supply capacity exists.



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