Prepaid Meters

Power In Your Hands

2010

PrePaid Metering for Sectional Title

"The power to manage your sectional title utility prepayment."

www.PrePaidMeters.co.za

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About this Book

As a leading prepaid vending service provider, PrepaidMeters.co.za has interacted with thousands of customers in South Africa and internationally over the years. Each month, new customers approach us wanting to learn more about prepayment and how they can best move their body corporate from post paid to prepaid billing.

Many of the people we speak to have some idea of how prepayment works but do not understand many of the details. Most people intuitively understand that prepayment offers an alternative solution to post paid billing and revenue collection methods.

Generally, people tend to approach us because they are looking to solve an existing billing or revenue collection problem. In most cases they are already stressed and confused. Not knowing what to believe, trying to make sense of it all and trying to make the correct decision for their body corporate.

Our experience of this situation is that; it is best to go back to basics and help build up the knowledge from scratch, and then everything makes more sense.

When dealing with Sectional Titles there are many complex issues to address. We would all like to change from post paid to prepaid billing to be a simple one, but the reality is there are many legal and technical issues to consider and address.

That said, once a person understands the basics and is confident that the people they are working with can provide then with proper consultation, then the process for adoption of prepayment billing in a body corporate is so much easier and faster.

This book came about from the need for sectional title owners, trustees and managing agents to fully understand metering before making crucial decisions for the sectional title to install prepayment systems.

We wrote this book in the simplest manner we could. We tried to make it as comprehensive as possible in the simplest way possible. While we have tried to answer everything, we must concede that it is not possible to answer every question.

For this reason we ask that you see this book as a work in progress. Our hope is that it will bring you much of the way to a better understanding, but we do not expect it to be the “Holy Grail”. For this reason we ask that you feel free to contact us and ask questions. This book is an ongoing process of evolution; for this reason we welcome your feedback and comments because they will help us improve on the book as we take all comments into account for future editions.

For any feedback, comments and compliments please write to: Karen@prepaidmeters.co.za .

Introduction

Electricity, Water, Natural Gas ... all familiar resources which we are accustomed to using in our homes and businesses. All familiar resources for which we are accustomed to being billed based on the amount we use.

When we receive a bill for electricity, water or gas, our tendency is to think that we are being billed for the amount of electricity, water or gas we used in a given period. We understand that our bill is a calculation based on a difference between a previous and current meter reading.

We rarely take time to consider that these resources are supplied to us as services, for which we also have to pay. In other words, we need to pay for the amount of electricity, water or gas we have used, and the service of delivering these resources to our homes and businesses.

We do not consider the complex network of stages, wires and pipes that bring these resources to us as a service. We simply press a switch, turn a tap or open a valve and electricity, water or gas starts flowing.

The fact that we do not wait for a person to arrive with a battery, a bucket, or a gas bottle, makes the process of receiving these resources seamless and near transparent. We do not see the transport infrastructure via which we take receipt of these resources. So we do not equate the means by which we get these resources as a service.

It's not until we do not have this infrastructure of wires and pipes, or when the system fails, that we realize that we have no services and start referring to their supply as a service.

The reality is that before we can enjoy the benefits of any of these resources there is a complex network of operations and infrastructure that needs to be developed, managed and maintained. All of which amounts to a cost that is carried by us, the consumers.

The entire process of producing, distributing and delivering each of these resources to consumers is a complex, expensive and labour intensive process that has resulted in the huge industries that support whole economies.

Let's pause a moment. Can you identify the key term we have used in the paragraphs you have just read?

The key term, of course, is “resources”.

Resources, resources, resources, from the basic commodities we are discussing to the industries surrounding them, resources are the most important asset in the whole picture.

As populations and industries grow, the entire resource chain is continually coming under additional pressure to increase capacity to supply.

If we are to be capable of meeting these ever growing demands, it is clear that we must get two fundamental tasks right.

1. We must be able to accurately bill consumers.

2.We must be able to collect the revenues we billed.

Accurate billing and revenue collection are the keys to the management and sustainability of resources throughout. However, it is not enough to say that we must get these two tasks right. We must also get them right in a way that is seen to be just and equitable to all stakeholders.

Our legacy of failing to bill correctly has shown to lead to dissatisfaction, suspicion, frustration and illegal actions on the part of consumers, often leading to disputes, and in many cases, tampering or by-passing of metering equipment.

Everything in this situation leads to reduced revenue collection which, if left unchecked, eventually leads to degradation throughout the industry resources that support delivery of these services.

The pain of stunted social and economic development is a downward spiral that is often very difficult to reverse. The knock on effect of poor billing and revenue collection starts as a micro problem and rapidly becomes a macro problem when funding resources can no longer increase capacity to meet new demands or maintain existing and ageing infrastructure.

As a property manager, trustee or member of a body corporate you may be asking, “What does all this have to do with me?”

The answer is that this theory can be applied on any scale, national, regional or within your sectional title scheme.

The effects of incorrect billing and poor revenue collection present a growing financial risk to all sectional title schemes as much as it affects municipalities.

The problems associated with billing and revenue collection are very apparent to property managers. Every property manager will agree that these problems are further compounded by a number of factors ranging from differences in payment culture to the individual financial ability to pay of members within the body corporate.

The current trend toward increases in the costs of resources and services from utility service providers is further increasing the financial risk property managers must manage. All revenues not collected from body corporate members place the body corporate under financial strain and can lead to the position where the body corporate is not able to cover the bills received from their utility service providers. The result of this situation is often disconnection of service to the detriment of all body corporate members.

This book is about helping you the property manager, trustee, body corporate member to better understand the practices of billing and revenue collection for utilities within your sectional title scheme. In particular, this book is about using prepayment as a means to better managing billing and revenue collection for these utilities.

In this book we will explain different types of metering concepts, metering methods, technologies and facilities you can use to better manage your utility billing and revenue collection process and so better manage the associated financial risks you face.

Basics of Utility Metering

When you mention utility metering most people automatically think of a bill they receive each month. A closer look at this will show that some of these people will think of the bill they receive from their municipality, while others will think of the bill they receive from their body corporate management company.

Answering the question of why there is a distinction between municipal and body corporate bills is a good place for us to start laying the fundamentals you need in order to understand utility metering.

We start our explanation with the basics of town planning.

Historically, a new town or suburb grew in an organic, informal nature without much thought or planning. New structures were generally erected on an as seen fit basis with little thought as to boundaries, roads, utility services, sewage or zoning. The result of such development would often get out of control.

Gradually, people started organizing development and the profession of town planning became the means to build better living spaces. To plan for a growing city or suburb, town planners would have to take into consideration many factors. Current requirements would be a large contributing factor to the plan, but consideration for expansion and for future demands would heavily influence decision making.

Various inputs, calculations and projections would eventually result in a town plan which would serve as the basis for all development projects within the region. Everyone who wanted to buy land and build in the region would be subject to the town planning requirements. No plan would be passed for development without approval.

As a consequence of the town plan and to promote and facilitate co-ordinated development and management, local authorities would be formed. These authorities would also supply civil infrastructure such as roads, drainage, electricity, water and gas. This infrastructure would generally be supplied at great capital expense and would generally be limited to the common areas that joined what would be privately owned pieces of land that would have been mapped by the surveyor general.

The resulting civil infrastructure would be paid for through a system of local rates and taxes that would be billed to the land owners, businesses and residents of the local authority. It would allow for the effective travel and delivery of services such as electricity, water or gas throughout the area and would often link with adjoining areas.

Large production national facilities would already be in place to supply resources such as electricity, water and gas to the homes and businesses in the local authorities. Effectively connecting the homes and businesses in the region to what would often be called “The National Grid”.

The concept for metering the services supplied via these vast infrastructures was based on the premise that the civil infrastructure would run up to the boundary of each property. At this point the local authority would install metering equipment which would be read by meter readers on a monthly basis. This information would be used to bill customers for their consumption.

This entire infrastructure was planned with a current and future capacity for service delivery in mind. However, no amount of future planning is able to take into consideration social, economic and political change. Some areas would grow as expected, others would grow less than expected and some would totally out strip expectations. Eventually the course of time would see even those areas which grew as per planning, having an ageing infrastructure that was not designed with the new present day capacity in mind.

Factors such as urban sprawl were often not a priority consideration when there was so much space to use. The need for increased density in urban areas was not something many civil infrastructures had been planned for.

As demand for land grew, property prices increased and new high density methods of building residential and commercial space evolved. New concepts of land ownership and use emerged, changing from owning a single title deed to an ERF, to concepts such as share blocks, sectional title schemes and home owners associations.

These new ways to property ownership made owning property cheaper, but they also increased the demand for supply on a civil infrastructure that was not made to support such density.

Where the need for metering had once been to provide a single meter on the boundary of an ERF, these new property ownership schemes required metering at a much higher density and greater scale.

While it would be possible to supply additional infrastructure for electricity, water and gas to every new dwelling, this would come at a huge capital cost to the local authority. The cost of such extension to the national grids and the pace at which new development was taking place made it near impossible for local authorities to embark on such an investment.

The solution would be for local authorities to focus on increasing existing civil infrastructure capacity while making it the responsibility of property owners and developers to supply what would eventually become known as **sub-metered infrastructures**.

This would alleviate the local authority from the pressures of financial costs and lead time to infrastructure delivery, while enabling developers simply to submit requirements for grid connections and press forward with their project development plans.

Initially, sub-metering was not something any of these high density projects did anything about. Instead they would choose a method of billing by “participation quota” to determine how a single utility bill would be covered by all the residents within a scheme.

This method of billing remained the de-facto standard for utility metering in sectional title schemes for many years. However, it was not very popular as consumers bill would be calculated by the “participation quota” of the section within the scheme. This could be based on the size of the section within the scheme as a percentage or by the number of persons the section was intended to be used by.

Obviously “participation quota” billing did not take into consideration variable factors such as the actual number of inhabitants within a section, as a result there where many inequalities in the “participation quota” method of billing.

To rectify the “participation quota” system, new developments started to install post-paid sub-meters within the structures they were building and many existing structures were retro-fitted to follow suit.

The idea was simple.

The local authority would bill the scheme based on the main meter located on the boundary of the property. The check meters within the property would be used to monitor and calculate the consumption of each dwelling within the scheme. The sum of all readings from the check meters would equal that of the municipal meter reading. The residents would then each pay their bill and the body corporate would then use the money collected to pay the main bill from the local authority.

This two tier system resulted in a new class of utility metering known as **sub-metering**. To distinguish between the local authority meter and the sub-meters new terminology was developed. The meter located on the boundary of the property which was supplied by the local authority would be referred to as the **“primary meter”** or the **“bulk supply”**. The meters located after the primary meter would be called **“secondary meters”** or **“sub-meters”**.

This method of billing was an improvement on the “participation quota” system. It was more accurate and therefore more just and equitable to residents.

While the sub-meter system was an improvement it was not without its' short comings. Sub-metering did not take into consideration factors such as common property within the scheme. Areas such as stairs, elevators, parking lights and other common facilities would need to be independently metered.

This problem was overcome by taking the sum of all sub-meters on the property and subtracting the result from the meter reading supplied by the municipality on the bulk meter. The difference that remained was attributed to the common property.

While this was a logical and effective method of calculation it still meant that the body corporate had a financial shortfall which would generally be absorbed by what is called a sectional title levy paid by each section holder. The levy would also be used for general maintenance and up keep of the structures and common property.

It was soon apparent that this system would only work effectively under the assumption that every section holder paid their utility bills and levies on time. It also worked under the assumption that there would not be any tampering or by-passing of metering equipment and that all metering equipment was reliable and accurate.

Obviously, such assumptions could rarely be replicated in reality. Over time expenses would grow, levies would need to be increased, residents would resist and not everyone would play the game. Many body corporates, under increasing costs and inability to effectively bill and collect revenues succumbed to financial disrepair and would often be taken into administration.

In such cases, the value of sections within the scheme often fall to prices far below what people had originally paid for their sections. Many sections holders fell into large arrears with their body corporates. Some of the sections would be repossessed by the body corporate and the proceeds of sale used to cover losses.

However, the process of repossession was not a quick one. It also carried a significant legal cost. Many cash strapped body corporates simply could not repossess the sections with the result that the people living in these sections continued to draw on resources and continue not paying, drawing the body corporate into further disrepair.

Many such schemes eventually degraded to such an extent that the buildings became unsafe for human inhabitancy. Local authority would have to condemn the building and absorb the total losses. Some of the buildings could be salvaged with significant capital cost by private investors, many had to be demolished.

As a result, the origin of our monthly utility bills is dependent on whether we receive our services direct from a local authority or from a body corporate management company that is mandated with managing a residential or commercial scheme.

Risk Implications of Primary and Sub-Metering

How the task of metering within a scheme is managed has a direct impact on the financial risk the scheme has towards utility service suppliers. The reason for this risk exposure is directly related back-to-back to the key tasks of billing and revenue collection.

Where a customer meter is a primary meter, it is billed directly by the local authority; the customer is therefore directly liable for opening an account for services and settlement of the account. The body corporate, seemingly, has no direct liability to the local authority.

Legislation in many countries ultimately holds the owner of a property liable for any and all charges resulting on a property. This is regardless of whether the account holder is the actual owner of the property or a person removed from the account holder. The person or entity in whose name a property is registered is held liable for all debts relating to a property.

An example of this is often seen where a property owner is letting to a tenant. Where the utility accounts are opened in the tenants name with the utility supplier and defaults on the accounts, the owner of the property will ultimately remain liable for such debt regardless of the fact that the account was not in the owner's name, nor resulting from the actions of the owner.

Primary metering gives all management and decision making powers to the local authority who decide factors such as tariffs, service fees and events such as connection and disconnection of service.

Where a meter is a sub-meter to a primary or bulk supply, the customer is billed by a body corporate. The customer is therefore directly liable to the body corporate that is, in turn, liable to the local authority.

Sub-metering gives, within legal reason, all management and decision making powers to the body corporate who decide factors such as tariffs, service fees and events such as connection and disconnection of service.

In addition to these differences in perspective there is the responsibility of meter reading. In the primary scenario a customer meter is read by an employee or contractor that is appointed and paid by the local authority. In the sub-meter scenario, the body corporate must appoint and pay a company to read all meters every month.

With this in mind, it is clear that a body corporate with sub-meters has to cover additional costs of meter reading, account management, reconciliation and debt management. The implications of these costs are an added financial risk to the liability a body corporate faces to its' local authority utility suppliers.

In order for a body corporate to continue receiving bulk utility services, the body corporate needs to ensure that revenues for services and levies are collected on time before settlement dates stipulated by suppliers. Any late or non-payment for services can lead to the body corporate having to utilize funds intended for other purposes in order to ensure that bills are paid and services remain uninterrupted.

In the event that a body corporate is unable to settle service bills there is a risk that the local authority will order disconnection of the bulk supply service. This disconnection affects everyone in the body corporate as the property has in effect been disconnected from the supply grid. The service interruption impacts all sections within the scheme, regardless of whether a section holder did or did not settle their body corporate bills.

The two main reasons why body corporates expend effort and cost to collect outstanding bills are inability to settle and dispute over bills. In both cases, there is a negative financial impact on the body corporate.

Financial Implications of Primary and Sub-Metering

Utility bills are notorious for not being understood. As discussed in the introduction to this book, people generally think that utility billing is simply a case of a calculation based on a difference between a previous and current meter reading.

Very little awareness is given to the service providing aspect of distribution and services delivery, required so that we can simply press a switch, turn a tap or open a valve that allows electricity, water or gas to flow.

While some sectional title schemes do have direct billing from their local municipality, most have a bulk services supply. To obtain a bulk service the body corporate of the scheme would have to apply for and open an account with the relevant authority.

The terms and conditions of the account agreement are broad and are out of context for this discussion. For our purposes we will focus our discussion on tariff and charges normally found on a utility statement. For simplicity we will limit this discussion again to billing for electricity.

As with any supplier, utility companies create product offerings. These offerings are designed to match the requirements of different customer requirements. Usually the organization of product offerings will be arranged into broad groups. For example: Eskom categorizes various product offerings into the Urban, Residential and Rural groups. Within these groups there may be one or more product offerings.

Each product offering is comprised of a number of billable components. Following is a list of common factors that determine how and how much electricity costs:

- supply size – measured in kVa

- service charge – charged as fee per day
- admin charge – charged as fee per day
- transmission network charge – charged as fee per kVa
- distribution network charge – charged as fee per kVa
- energy demand charge – charged as fee per kVa
- (active) energy charge (non time of use) – charged as fee per kWh
- (active) energy charge (time of use) – charged as fee per kWh
- reactive energy charge – charged as fee per kvarh
- electrification and rural subsidy – charged as fee per kWh
- environmental levy – charged as fee per kWh

As you can see, these charges are quantity-based. The fees charged for each of these components vary between different product offerings. As a result, knowing which product offering or tariff your body corporate is on is a good starting place.

We assume that your body corporate has applied for and has an account agreement that is suitable for the capacity and demand requirements of the scheme.

As a starting place it is always worth checking that the tariff plan you are on is suitable. It can happen that you have applied for and been placed on a tariff that is far in excess of on the ground infrastructure capabilities and requirements. In this case, starting costs for electricity will already be higher than required.

Changing tariff may result in immediate savings for a sectional title scheme. However, investigation into whether your tariff plan matches your measurement may also reveal that you need to change to a more expensive plan.

In either case getting a sectional title scheme onto an appropriate tariff plan from the start is the basis for all decision making when developing a billing regime for sub-metering. Understanding the different charges found on a utility bill is an important input for schemes that have sub-metering infrastructure.

The billing regime must also cover costs associated with management of the sub-metering infrastructure. Typically there is either a charge per meter per month or a percentage fee of funds collected on the meters which is levied by a private metering company contracted to the body corporate management company.

Armed with this information, the body corporate must calculate and determine how they will recover all associated costs. The decision making essentially centres on where the money will come from to pay for various aspects of the service. In some cases levies will be used to cover certain costs and in others a tariff charge will be imposed that includes these costs.

Whichever method is used, the body corporate must plan a billing regime that will ensure 100% recovery of all costs charged by the utility supplier and private meter readers.

The financial implications discussed will have a direct impact on levy and cost of utilities. In some cases levy may be reduced while in others it may be increased. It all depends on where the cost of electricity and services is billed.

However the billing plan engineered by the trustees of the body corporate must be able to justify the expenses in order to comply with local or national regulations.

Understanding Prepayment Metering

Faced with increasing financial risk many are opting to prepay utilities. The trend toward prepayment has been driven, for different reasons, by both consumer and supplier stakeholders.

The initial driver for a movement to prepayment originates from with local authorities wanting to reduce their losses from bad debt.

Following the model for prepayment which had already been successfully demonstrated by mobile operators selling air time, local authorities in South Africa pioneered the development and standardization of technology that would take into consideration the unique differences encountered when selling electricity as opposed to air time. The resulting technology standard is today known as the Standard Transfer Specification (STS).

The STS Association was formed in 1997 as the custodian of the STS prepayment metering technology standard. Its aims are to maintain the necessary infrastructure, promote the technology internationally and further develop the standard to meet emerging international demands for additional functionality. The Association ensures inter-operability between system components from different manufacturers by accrediting and maintaining a list of test laboratories that ensure correct STS functionality of equipment; through the managed availability of encrypted vending keys to manufacturing members of the Association; and by ensuring consistent use of manufacturer identity codes and meter serial numbers.

The Standard Transfer Specification (STS) has become recognised as the only globally accepted open standard for prepayment systems, ensuring inter-operability between system components from different manufacturers of prepayment systems. The application of the technology is licensed through the STS Association, thus ensuring that the appropriate encryption key management practices are applied to protect the security of the prepayment transactions of utilities operating STS systems. It has become established as a de facto worldwide standard for transfer of electricity prepayment tokens since its initial introduction in South Africa in 1993.

The STS has found widespread application, initially in South Africa and subsequently in many developed and developing countries. To date, over 10-million STS-compliant meters have been installed at 400 utilities in 30 countries around the world.

The success of the STS lies in that it is:

- internationally recognised, having been published as an International Standard by IEC in 2007.

- an open standard, allowing STS-compliant equipment from any number of suppliers to be integrated into an electricity sales system.
- a secure standard - the encryption technology used has proved to be extremely robust.
- supported by complementary specifications and standards, for prepayment meters and vending systems.
- simple for customers to use.

If you want to read more about STS please visit: http://www.sts.org.za/

From the onset prepayment for utilities using STS technology was targeted at primary meter customers of the local utilities. Local authorities also started to supply prepayment sub-meters but then retracted these offers when they realized the additional scale of infrastructure they would have to capitalize.

The municipal policy was then amended to the position that they would supply one prepayment meter per property. If a customer wanted to sub-meter dwellings after this point then they would have to approach private service providers.

This opened the market for prepayment service providers like www.PrepaidMeters.co.za . At the onset of this opportunity many companies emerged in an attempt to service the demand for prepayment sub-meter management and vending. Only a handful of businesses had the technical skills to develop and have approved prepaid meter management and vending systems that would pass the STS compliance specification.

These new management and vending systems were akin to municipal systems but had significant difference designed into them to cater for the unique needs of sub-metered projects.

By the early 2000's the prepayment market had seen significant acceptance from consumers and the market was once again defined by two distinct market segments:

1.Primary Prepaid Metering

2.Prepaid Sub-Metering

As with the older utility metering systems, primary prepaid metering would be the domain of the local authority. Prepaid sub-metering would be the domain of private prepayment sub-meter service providers.

Sectional title property managers, trustees and body corporate members are often not aware that these two market segment exist and that they are services by different entities.

It is common for property managers, trustees and body corporate members to assume that their local authority is the first port of call when investigating how they can change their scheme from post paid to prepaid. However, in practice these two market segments are distinctly different.

Local authorities will not install or service prepaid sub-meters and prepaid sub-meter companies will not install or service primary prepaid metering requirements. As a result the two industries often

refer business to one another once customers needs have been identified as primary or secondary metering.

Risk Implications of Prepaid Sub-Metering

Since 1993 prepayment as a method for billing and revenue collection has demonstrated that it is a just and equitable solution for both local authorities and consumers. The same results have been proven to extend to the sub-metering market segment.

From the perspective of the body corporate a number of key benefits are immediately noted.

- Improvement in cash-flow on the basis that money is paid for services before they are used.
- Elimination overhead costs related to late or non-payment of utility bills.
- Elimination of utility billing disputes resulting in a more harmonious relationship between body corporate management companies and members.
- Improved flexibility in the decision making ability concerning tariffs.

From the perspective of the consumers within the body corporate a number of key benefits are immediately noted.

- Improved ability to manage utility bills.
- No more end month shock bills and outstanding liabilities to the body corporate.
- Reduced utility expenses because of a change in consumer usage behaviour

Prepayment, done correctly, in a sub-metering scenario can be instrumental in reducing or even eliminating the financial risks both the body corporate and its' members have to one another.

Provided that primary tariff and sub-meter tariff plans are implemented properly and residents of the scheme refrain from meter tampering, then the same should be true of the financial risk that a body corporate is exposed to with utility service providers.

Financial Implications of Prepaid Sub-Metering

The financial implications for implementing prepaid sub-meters will vary from scheme to scheme. However, some things remain common across all schemes. All schemes will have a capital cost, including:

- Cost of prepaid meter devices
- Cost of installation of prepaid meter devices

Many people think they will need to rip and replace existing check meter equipment. This is not so and if done would just increase the initial capital cost for no reason. Existing meter equipment should be left untouched unless there is a good technical reason as to why it should be removed.

In addition to the capital cost a scheme implementing prepaid metering will have an operational cost for meter management and vending.

The operational cost associated with prepaid meter management and vending effectively replaces the costs associated with manual meter reading services. In prepaid metering this cost is called a service fee.

Once prepaid billing systems are in place there will be a marked improvement in the cash flow of the body corporate. The reason for this cash flow improvement is twofold:

- Funds for utilities is paid in advance
- Funds collected will generally be greater than the amount of utility consumed at bill payment date.

Prepayment for utilities will not only eliminate late or non-payment for utilities, it will also eliminate disputes over utility bills. Eliminating these disputes will transfer into further savings for the scheme as managing agents have to charge additional fees for resolving such disputes in order to cover their labour costs.

With prepayment billing for utilities implemented the body corporate has essentially reduced the risk associated with defaulting to utility suppliers. With this in place many body corporate tend to then want to use the prepayment system as a means to also ensure collection of levies. This issue is further discussed in Legalities Surrounding Service Disconnection on 17.

Implementing Prepaid Sub-Metering in Sectional Title

The process of implementing prepaid sub-metering in a sectional title scheme cannot be a sole or unilateral decision taken by the Body Corporate Management Company or trustees.

Sectional Title requires that body corporate members should be consulted and reaches a unanimous resolution to change how things operate when it concerns something as important as how their utilities are billed within their body corporate.

In order to consult the members it is customary that the managing agent or a trustee will research the facts to understand the implications of changing to prepaid billing. Often this process starts by the appointed person contacting companies like www.PrepaidMeters.co.za who can provide consultation and assist with information that can help to inform all stake holders. Information such as that which is found in this book may be further augmented by a personal consultation from a person representing a company such as PrepaidMeters.co.za.

It is often very difficult when starting out for people to determine “who are the best people to speak to” and receive consultation from. Every industry has its’ rats and mice, small and unreliable companies which could close down any day and leave their customers hanging.

Getting Credible Consultation

As a general rule it is best practice to speak to prepayment sub-metering companies who are at least paid up licensee members of the STS Association. This ensures that the company is bound by the STS Association Code of Conduct which was put in place to protect customers’ interests as well as has responsibility towards Eskom conduct, practices, rules and regulation. Should a company provide you with AMI/AMR equipment, it is best that they also belong to the AMI/AMR association to ensure compliance and best practices are adopted and updated to best serve customers.

If you want to read more about STS please visit: http://www.sts.org.za/

Once all the facts have been gathered and conveyed to the members it is time to call a meeting to vote on the decision. The voting process is used to allow members of the body corporate to steer the decision making of appointed trustees. This means that, from time-to -time, owners will be called upon by trustees to exercise their democratic right by voting. The outcome of a vote results in a “resolution” being passed.

There are three kinds of resolutions:

- An ordinary resolution
- A special resolution
- A unanimous resolution

The Unanimous Resolution

A unanimous resolution is required in order to execute any project that will change the body corporate utility billing management system from that of post paid billing to that of prepaid billing.

There are two ways to reach and pass a unanimous resolution:

- Every owner agrees.
- An 80% Quorum is reached at a general meeting and everyone agrees that this decision is unanimous.

Reaching a unanimous resolution can be difficult, especially if there are problematic owners who are the cause of financial loss to the body corporate. They may not want to change from post paid billing to prepaid because this would mean that they have to make payment for utility services and cannot get away with using these services without paying or delaying payments.

Unlike an ordinary resolution an owner cannot be prohibited from voting when a special or unanimous resolution is required. If it is only an ordinary resolution that is required, where a simple majority of 51% is required, then an owner can lose the right to vote if:

- The owner is in arrears with levy or other payments
- The owner has received written warning from the trustees or management agents for breaching conduct rules of the scheme, and despite receipt persists in the conduct.

That said, it should also be kept in mind that the owner can request that a bondholder vote on behalf in both these conditions.

The Quorum

To reach and pass a unanimous resolution an 80% quorum must be reached.

So what is a Quorum?

A quorum simply means that a minimum number of people have to be present at the meeting for it to proceed. The quorum is generally calculated by how many sections are within the scheme. But the quorum can also be calculated by the participation quota of the sections within the scheme.

Generally, each section represents a vote and you need a minimum number of votes to proceed with the meeting. Here are some examples:

- 10 units or less – the quorum will be the number of owners holding 50% of the votes.
- 11 – 49 units – the quorum will be the number of owners holding at least 35% of the votes.
- 50 or more units – the quorum will be the number of owners holding at least 20% of the votes.

In every quorum persons can vote as follows:

- In person
- By proxy or
- By representative recognized by law as entitled to vote.

As is often the case, many people do not attend body corporate meetings. So what happens when you do not have enough people to form a quorum?

In the minimum number of people do not arrive at a meeting then the meeting is automatically postponed to the following week at the same time at the same place. If a week later a quorum is still not present, then the persons present or by proxy will be **deemed to constitute a quorum** and the meeting will proceed on that basis.

Once a unanimous resolution has been reached the trustees of the body corporate can then proceed to execute the project plan for conversion to prepaid utility management.

At this point the trustees should already know which prepaid sub-metering service provider they would like to appoint. With this they will also know which technologies will be used and how issues such as meter management, revenue collection, vending and support will be handled.

Legalities Surrounding Service Disconnection

Many trustees and managing agents take the action of disconnecting services when scheme members do not pay their:

- Levy
- Utility bills

Using disconnection as a means to force payment for non-payment of levy or utility is very contentious issue.

In December 2000, a body corporate disconnected the electrical supplies to the sections of owners who disputed the method of calculation, and failed to pay a special levy raised to pay for improvements to common property. The affected owners made a joint and urgent application to the

High Court, as a result of which the Court ordered the immediate restoration of the electrical supplies to the sections. The Court also ordered the managing agent and body corporate to jointly pay the costs of the application.

The case above dealt with non-payment of a special levy that was not in any way connected to the supply or consumption of electricity.

Would the situation have been different if the body corporate had switched-off the electrical supply to an owner who failed to pay for electricity or a monthly levy? The answer is “no”. Unlike a local authority, a body corporate is not considered to be a supplier of electricity and therefore cannot terminate the supply to one of its members.

A body corporate purchases electricity from the suppliers and re-distributes it to sections within the scheme. In fact, neither the Act nor the Rules make it compulsory for sectional schemes to be supplied with individual electric meters.

Nevertheless, levies and costs must be paid.

Owners who continue to enjoy the benefits and services provided to them while in arrears with their levies may be considered as parasites that are doing so at the expense of their neighbours. However, irrespective of how justified it may seem, a body corporate cannot interfere with either the electrical or water supply, and a body corporate that sanction disconnection must be aware of the risks of so doing. Lost data on a computer, a missed fax or telephone message or spoilt supplies in a refrigerator may well give rise to a claim for damages against the body corporate.

Along with many property practitioners and sectional owners, we would welcome a change in the law to make it possible, under strictly controlled circumstances, to terminate supplies to owners who fail to pay for the electricity that they consume. However, if permission should ever be granted there would be a risk of abuse.

We know of a scheme at which the electricity is switched-off if owners fail to pay their levy and electrical accounts by the fifth day of the month. At others, supplies are interrupted for “offences” such as “illegal” parking or failure to comply with conduct rules. There is even a scheme at which the chairman denies that electricity is disconnected. He claims that supplies “trip-out.” Really? What a coincidence that this should only happen to non-payers! Clearly such tactics, loved by the bullies and power-junkies, are punitive, unacceptable and against the spirit of Sectional Title.

The reason most often given by trustees who disconnect electrical supplies is that “it works”. Of course it works! So would tarring and feathering defaulters, or throwing a rotten egg at them but that does not make it acceptable! There are legal and effective ways that a body corporate can and should employ to recover debts.

If the sectional community is granted the right to switch-off electrical supplies, it will need to do so fairly and to all defaulters. There can be no exceptions or selective application. The switch-off would have to be restricted to non-payment of the electricity portion of the levy and could not be used for arrears of either the monthly levy or a special levy. If sanctioned, interruption of supplies would have to be on terms similar to those used by local authorities.

Sectional owners must pay their share of expenses, but the power to punish late payers and non-payers should not and must not, in my opinion, be put in the hands of a lay person.

Recovering Unpaid Levies the Legal Way

The biggest problem facing many body corporates is the amount that they have outstanding in unpaid levies. Many have arrears summing up in the tens and hundreds of thousands. The question on most trustees' lips is, "What can we do with these hangers-on that won't pay but use all our facilities and continue to be protected by our security service?"

Many trustees resort to actions such as putting names up on a notice board, or stopping the culprits from using the swimming pool."

Putting defaulters' names on a notice board is risky. If an owner's name is published in error, it could result in a claim for damages against the body corporate. Tempting though it may be, preventing defaulters from using body corporate facilities would be wrong and is unnecessary. And how would you do it? Have you got a few steroid junkies that you can use as bouncers?

The Sectional Titles Act and Rules prescribe legal and effective ways of recovering debts, ways that bodies corporate should implement and pursue.

Although many bodies corporate throughout South Africa are facing frighteningly high totals of unpaid levies and special levies, it is obvious that most of them do not have a clearly defined and published policy for handling unpaid levies. Others are often accused of not following the guidelines, or even worse, applying them selectively.

Section 37 of the Act requires the body corporate to establish a levy fund to which every owner must make contributions, calculated according the Participation Quota (PQ) of the owner's section. The body corporate is entitled to institute legal action against non-payers and to charge interest on arrears and to recover legal costs from the defaulter.

In spite of this, I hear of many cases of owners who have not paid their levies for many months and against whom no action has been taken. There is no excuse whatsoever for such inactivity on the part of the body corporate and trustees. Defaulters must be made aware that the money that they owe is not owed to the managing agent or the trustees, but to every other owner in the scheme. Members who do not pay their levies while continuing to enjoy all the facilities are living at the expense of their neighbours.

It is a thread that runs through the spirit and meaning of the Act that all members of the body corporate must be treated equally. There can be no special dispensations for the favoured or punishment for the others. It is absolutely essential that debt recovery procedures must be followed fairly, consistently and swiftly.

Many bodies corporate implement a debt recovery programme similar to the one that follows:

On the 15th day of the first month, the defaulter receives a friendly, written reminder, for which he or she is charged an administrative fee of R50, in addition to which interest calculated at 2,5% per month is added.

On the 15th day of the second month, defaulters receive a less friendly, final reminder for which he or she is charged another R50. Included in this letter is a warning that if the money is not paid, the matter will be handed over to the body corporate's attorney and that all recovery costs will be claimed from the defaulter.

On the 7th day of the third month, the matter is handed over to the attorney with an instruction to issue summons.

Whatever system the body corporate implements, once a year, just after the Annual General Meeting, the trustees should write to all the owners reminding them of the body corporate's policy toward levy arrears. At the AGM, a prudent body corporate may even issue a direction under section 39(1) of the Act, instructing the trustees to implement the procedure.

Unpaid levies affect the well being of every sectional scheme. Members must make sure that the body corporate acts promptly and effectively against defaulters - but please do so legally!

Understanding Prepayment Metering Technologies

We're at that point in this book where we need to give you some insight into the technologies that are available in order to do prepayment in a sub-metering context. For some people a mere mention of the word technology fills them with fear and they go into immediate shut-down. We hope this is not you, but to be sure, we have written the following section with the property manager, trustee or body corporate member in mind and tried to simplify as much as we can.

There are really only two technologies to speak of, one of which we have already mentioned. They are:

- Standard Transfer Specification (STS), and
- Advanced Metering Infrastructure (AMI)

How does STS work?

STS is a token-based technology. A token is generated in secure way then entered to a prepaid meter using a keypad. The meter accepts the token and loads an amount of electricity, water or gas to the meter. STS therefore requires the use of STS compliant devices and an STS compliant vending system.

Generally speaking, one cannot be a member of the STS Association without having STS compliant products and services. For this reason, vendors such as www.PrepaidMeters.co.za are licensees of STS technology and are therefore 100% compliant. When looking for a company to provide STS vending services it is important to work only with companies who are STS Licensees.

A full STS Licensee will have a valid Supplier Group Code (SGC) that has been issued by the STS Association Eskom and will be listed on the STS website.

The SGC is a unique code that is used as one of the protection mechanisms in generating STS Tokens. STS is a standard for transferral of a value between a point of sale vending system and an STS meter. STS does not define how points of sale or vending are managed or executed out in the field. It only defines that a token is generated using the standard encryption and that this token can be decrypted by the specific STS compliant device for which the token is intended.

There are a number of different types of STS token. The most commonly used token is called a Credit Token. This token is used to load, for example, a number of kWh to a meter. The vending system and the meter device are both programmed to a Supplier Group Code (SGC).

Every STS device has a unique 11-digit serial number. When a token is generated it is encrypted against the SGC of the vendor and the 11-digit serial number of the target device. For this reason STS Tokens are non-transferable between different vending systems and different devices. In addition, an STS credit token can only be used once. A token cannot be entered twice to the same device.

When a credit token is entered to an STS prepaid meter it shows the value of the token and adds this value to the current balance of the meter. The consumer therefore sees how much they have loaded. They also see how much they have remaining. STS prepaid meters are designed to automatically disconnect service when the balance is depleted. Service reconnect is therefore automatic once a new positive balance is added to the meter using a Credit Token.

One of the key points about STS technology is that customers are not locked into a vendor. STS technology provides a change mechanism that enables allows STS vendors to move STS equipment between vendors vending systems. This is called a Key Change.

Key Changes are simply another type of STS token that changes the SGC number programmed into the meter. For example, a customer whose vendor supplier group code is 008137 wishes to discontinue service with this vendor and move the vending service to www.PrepaidMeters.co.za that has the SGC 008171.

On a written document from the customer www.PrepaidMeters.co.za will co-ordinate the generation of Key Change tokens that, when entered into the STS metering devices will remove the 008137 SGC and program the meter to accept tokens generated using the 008171 SGC.

The process of Key Changes is an integral part of the efforts of the STS Association to protect consumer interests and to ensure their investment in STS technology is protected. All Licensees of the STS Association are bound by the STS Code of Conduct, which states that a vendor must be prepared to perform Key Changes upon the customer request.

That said there are vending services in the industry that are not licensees and have therefore never signed the STS Code of Conduct. Customers whose equipment is programmed to a Supplier Group Code of such vendors are really at the mercy of this vendor is doing Key Changes.

A licensee STS vendor may also refuse to perform key changes in certain circumstances:

- The vendor and customer have a fixed term contract.
- The vendor has a capital investment in the equipment used by the customer (e.g. hire-purchase).

In either of these cases the STS vendor can choose not to perform Key Changes. Customers should make sure of the terms of their service contract and preferably purchase their STS Meters outright to avoid complications going forward regarding Key Changes.

STS is a wonderfully simple yet effective technology, but it is not without problems. The main problems of STS are as follows:

- There is only one way communication to the meter through STS tokens.
- Since there is no feedback from an STS meter, events such as tampering are difficult to detect.

The fact that there is no direct radio communication to an STS meter means that it is cheaper to deploy and operate in the field, as no radio network is required. However, this also means that important things such as tampering events cannot be detected at the vendor management system. It also means that STS meters are unable to perform billing based on Time of Use or Stepped Tariff plans.

To overcome the important issue of tamper detection clever vending systems will perform system side checks using the mathematics of Standard Deviation. The principle of this theory is based on the purchase history of a customer. The system records how much and how often a customer normally purchases. This builds a buying pattern which is used within reason to determine whether the customer is under or over consuming.

The drawback of this method is that the system will need at least two to three months purchasing pattern to flag a Standard Deviation event. In addition, the fact that they system has flagged a Standard Deviation event does not mean that the customer has actually tampered with the meter. The customer may be:

- Living without because they cannot afford to buy.
- Have gone away for an extended period.
- Have passed away.

In cases where a Standard Deviation event is detected one cannot therefore accuse the customer of tampering. Instead the customer simply has to be approached and the meter inspected.

To overcome the use of Standard Deviation events or to verify them or detect tampering more quickly, a remote access device that can communicate with metering devices using Power Line Communications or Radio Frequency can be installed.

Remote Access Devices simply communicate with all meters in a complex to collect a variety of information types. The Remote Access Device can then be accessed using Internet-based technologies and information provided from the vending system and the Remote Access Device can be checked in order to determine the actual status of the metering device.

Remote access is however only a part solution to try and overcome the lack of a bi-directional communication between the meter management vending system and the deployed equipment. Remote access does not enable human or machine intervention at the meter level itself. In other words a Remote Access Device can only be used to collect data from metering equipment, it cannot be used to send data to metering equipment.

As with every technology there are strong and weak points. It should also be understood that STS is not the only solution to metering and prepayment. Every advancement of technology presents new possibilities. In the metering industry a new metering methodology started to emerge a while ago called “Advanced Metering Infrastructure”.

Introduction to Advanced Metering Infrastructure

Advanced Metering Infrastructure (AMI) presents itself as an alternative metering methodology. The original intent behind the methodology was to enable Automated Meter Reading (AMR). As a result both these terms have become common within the industry, a point which leads to much confusion.

Historically speaking AMR is the predecessor of AMI. In other words the methodology and technologies used in AMI were born out of the methodology and technologies of AMR.

For purposes of our discussion we will therefore focus on AMI. However, one needs to have some insight into both methodologies in order to have a complete picture of AMI.

The basis for both methodologies is founded in the principle that using specialized devices and communications methods it is possible to collect data from metering equipment without having to physically read or interact with the metering device.

Generally speaking, AMR refers to the ability to collect data from electricity, gas and/or water meters remotely and automatically via several different communications networks, including RF wireless, power line carrier, telephone, and other ways.

The term AMI extends our understanding of AMR to refer to a system that is capable of collecting detailed energy usage data more frequently. It also implies that there is a bi-directional communication channel between the meter management system and the devices. Having a bi-directional communication channel the AMI methodology immediately opens the scope of capabilities since it allows data to be received and transmitted between the metering equipment and the meter management system.

To read more about this technology visit:
http://en.wikipedia.org/wiki/Advanced_Metering_Infrastructure

In addition to the networked nature of AMI technology there is another key difference when compared to STS technology.

Where communication within the STS methodology is based on Tokens that are entered into a metering device, communication within the AMI methodology is performed in-band to a communication link. The implication of this is that there is no need to enter tokens to AMI metering devices. Instead, information such as how much power you have purchased is automatically communicated to the meter using the in-band communications system.

Another fundamental difference between STS and AMI is that STS is only intended as a method for prepayment. STS cannot be used to manage post paid billing. This is very important and you should read this paragraph again, as the implications on sectional title metering can be far reaching once this seemingly small difference is understood.

AMI, with roots in AMR, was originally designed to automate the meter reading process and supply this information to a local authority so that they may present a bill to their customer. It was not designed to manage prepayment billing, it was simply designed to collect data and present it for billing. For this reason most AMI meters do not have any prepayment features. This is the exact opposite to STS which was designed and still functions ONLY as prepayment system. The logic of prepayment therefore in AMI must be handled in software at the meter management system.

The meter management and vending service offered by www.PrepaidMeters.co.za supports both STS and AMI compatible metering systems. As a result www.PrepaidMeters.co.za can offer customers a choice of STS and AMI technologies. As previously mentioned and emphasized, for customers using AMI systems www.PrepaidMeters.co.za can offer both prepaid and post paid billing options.

While AMI presents many benefits over STS it is not without drawbacks. The main drawback of AMI is that it cannot be deployed as readily as STS. The reason for this is that a communications network must be established before data can be collected from meters to one or more devices known as Data Collectors. Then, assuming that the communications network is in place and meters can talk to their Data Collectors, the Data Collector must be able to communicate with the meter management system where decision making can be performed.

This is not difficult to achieve, the contrary is quite true. However this does increase the cost of deployment for AMI. It also increases the operational cost as data needs to be communicated to and from the data collection devices and the meter management system. All this communication means is: that there is an operational expense for data costs.

Understanding Meter Management and Vending

We have discussed both the STS and AMI methods of metering. Now we can discuss the aspect of meter management and because we are talking about prepayment, the task of vending to meters.

Once your meters are installed, your meter management system will become your main interface. The meter management system provided by www.PrepaidMeters.co.za is a hosted and managed system. The advantage of this is:

- No information technology skills to keep it running.
- No software to install and configure, all you need is an internet connection and a web browser.
- Anywhere anytime access.

Meters, whether they are STS or AMI, need to be registered on the meter management system before they are actually installed. There are a few reasons for this:

- Meter numbers need to be associated with service locations and customers.
- Tariffs are set on the system and not on the meters.
- Meters that are registered to the system can be supported by support staff, meters that are not registered, cannot be supported.

A registered meter requires a number of parameters to be set. The core of registration and basic parameters are comprised of three components:

- The service location – this is the actual address of the property or section within the scheme.
- The meter – this is the actual meter installed at the service location.

- The customer – the person who is paying for services at the service location.

Planning which service location, meter and customer are associated will help plan the meter installations so that the information displayed on the meter system correlates with the actual information found on the ground. For example, the meter number listed on the system for unit 5 of the scheme is the same one I would find if you were to physically visit the unit.

The most obvious and important thing about registering meters before installation is that it is possible to vend to a registered meter. It is not possible to vend to an unregistered meter because there is no communication via tokens or network to the vending system.

The method for vending to a meter is dependent on the type of meter installed. If the meter is an STS meter then a token number is needed and must be entered to the meter via keypad. If the meter is an AMI device then nothing needs to be done, the information will automatically be sent to the meter from the point of sale.

There are therefore two challenges that need to be overcome, regardless of whether the metering equipment is STS or AMI:

- Purchasing - Customers must be able to make payments.
- Vending – Systems must convey a purchase to the meter device.

In the www.PrepaidMeters.co.za system there are a number of purchasing options, including:

- Cash Payment
- Bank Cash Deposit
- Credit Card
- Mobile Commerce

There are also two methods of management:

- Self Managed
- Outsource Managed

These management methods define how revenue collection will be performed.

Revenue Collection Management Methods

Since all metering devices are privately owned and privately managed in a sectional title by a property manager or landlord, there are two main methods of management:

- Self Managed
- Outsource Managed

In order to register meters to the prepayment system the property manager must decide which method of management will be used. However, it is possible to change between management methods at a later stage if desired.

Please note that www.PrepaidMeters.co.za does not resell utilities. PrepaidMeters.coza only sells a management and vending service for Prepaid Utility systems. As such, www.PrepaidMeters.co.za does not mark-up on tariffs. All purchases are therefore broken down into:

- Cost of Electricity (incl. VAT)
- Cost of Service (incl. VAT)

Another way to think of www.PrepaidMeters.co.za is as a Utility Revenue Collection Management System.

Self Management

Self Management is for the property manager, body corporate or landlord who does not mind being hands on and available to service tenant purchasing requests. Landlords have access to the prepayment system website where they can perform a variety of tasks related to meter management and vending.

Self Management is also well suited for sectional titles such as office blocks, shopping centres, or any property that has a point of sale on site.

Self Management carries a monthly service fee per meter, per month and allows the landlord unlimited access to perform these tasks via the Internet from anywhere at any time (24/7/365).

The monthly service fee is charged by direct debit or EFT in advance. Body Corporates, managing agents and landlords can choose to make their debit orders quarterly, bi-annual or annual.

Please note that in the Self Managed method landlords are required to provide first line of support to their customers. www.PrepaidMeters.co.za will provide second line support to the managing agent, trustee or representative.

Self Managed Service Fee

The monthly service fee at time of writing is a flat fee of R15 per meter per month. This fee covers:

- unlimited access to the prepayment system website
- unlimited first line of support
- unlimited SMS return vending
- unlimited credit tokens
- unlimited clear tamper tokens
- unlimited clear tokens
- seamless upgrades

The management service fee paid by the body corporate, managing agent or landlord is marked as an arrears amount on each meter account on the first of each month. The arrears are then collected from the tenants' first purchase that month.

For example: A meter account has a -R15 arrears set on the 1st of the Month. The tenant then makes a purchase of R100.00. The system will deducted R10.00 (10%) from the purchase and generate a Credit Token for R90.00. The tenant still has arrears of R5 to settle.

The tenant later makes a purchase of R150.00. The system deducts R5 to balance the remaining arrears due for the service fee and issues a credit token to the value of R145.

All future purchases during that month will result in 100% of the purchased amount being generated into a credit token.

In this way the body corporate, managing agent or landlord recoups our Service Fee from each tenant.

Self Managed Purchase Process

In this option, body corporate representative (usually managing agent) or the landlord manually loads credit and tenants generate tokens by sending token requests by SMS at any time or place (24/7/365).

If a meter is Self Managed, then tenants pay funds for utilities direct to the Body Corporate representative nominated bank account. This is either the body corporate bank account or the managing agent bank account.

The revenue collection process can then be described in steps as follows:

1. Tenant makes a payment to the body corporate or landlord.
2. Body corporate representative or landlord adds the received amount as a credit on the prepayment system.
3. Meter user generates a credit token for the available credit, or part thereof.
4. Body Corporate or landlord uses all funds collected to pay the municipal bulk meter bill.

Outsource Managed

Outsourced Management is usually chose by most body corporate and also landlords who do not want to be hands on in the revenue collection management process as described in the previous section. This is typically the case with most property investors, developers, real estate agents, body corporates and organizations providing staff accommodation.

With outsourced management, tenants pay funds for utilities to www.PrepaidMeters.co.za. Once payment is done the vending system automatically allocates funds to the relevant meter. At month end, www.PrepaidMeters.co.za transfers funds collected from various tenants to the landlord less a revenue collection management fee which is a minimum service fee or a percentage of the revenues collected, whichever is the greater.

Please note that in the Outsource Managed method www.PrepaidMeters.co.za provides first line of support directly to tenants. Tenants are therefore required to call www.PrepaidMeters.co.za for support.

Outsource Managed Service Fee

At time of writing our minimum service fee is R15.00 per meter per month or 10% whichever the greater. This fee covers:

- unlimited access to the prepayment system website
- unlimited support
- unlimited SMS return vending
- unlimited credit tokens
- unlimited 3rd party costs such as cash handling and online credit card processing
- account reconciliations, statements and bank payments charges.

Please note that when payments are made to landlord bank accounts our service fee is deducted at source. The percentage deducted is 9.09% which ensures that the landlord receives 100% of the amount required to cover the tariff charged by municipality.

For example: A managed meter is set to a tariff of .70c / kWh (incl. VAT). The Service Fee is therefore .07c (incl. VAT). The result is that the tenant is paying .77c for each kWh.

Please Note The meters are registered according to the tariffs that are stated in your municipal bills and no higher than allowed by Eskom and/or relevant authorities.

Outsource Managed Purchase Process

In the outsourced method the body corporate representative or landlord has access to the Prepayment System for reporting purposes only. The **body corporate representative or landlord does not have the ability** to "Add New Credit" to a meter; this task is done exclusively by Prepaid Meters. This is to remedy any event of double allocations and/or theft of electricity. Using the Internet, the body corporate representative or landlord has anytime, anywhere access and can generate any number of reports (24/7/365) and perform a number of tasks.

The revenue collection process can then be described in steps as follows:

1. Tenant makes a payment to PrepaidMeters.co.za .
2. PrepaidMeters.co.za automatically approves payment and adds the received amount as a credit on the prepayment system. Please note: adding credit and approving payment such as credit card payments is an automated system.
3. Meter user generates a credit token for the available credit, or part thereof.
4. PrepaidMeters.co.za pays revenue collected to the landlords bank account on the last working day of each month.
5. Body corporate and landlord uses all funds received to pay the municipal bulk meter bill.

Prepaid Meter Vending Options

PrepaidMeters.co.za provides a variety of vending options. However, before discussing how these options work, we first need to discuss the concept of what is called a “Wallet Balance”.

Each customer account on the system has a "Wallet". The wallet can be considered as a suspense account. When the wallet is funded using one of the payment methods, we say that there is an "Available Balance".

The Available Balance may be retrieved in "Whole" or in "Part" using one of the vending methods.

For example: A customer may make a payment of R500 and the Wallet Balance will therefore reflect an Available Balance of R500. However, the customer only wants to take load R400 to their meter today, leaving R100 available balance for emergency cases where they forgot to make a top-up purchase.

A customer can only vend when there is a positive or Available Balance. If the Wallet has 0.00 balance then the customer will not be able to vend.

The concept of the wallet is an important innovation when one considers that a Service Location can have a meter for electricity, a meter for water and a meter for gas.

The wallet allows the customer to make payments so that the customer account is in credit and then allocate or appropriate the payment in whole or in part to one of meters.

Using our example above, if the customer wants to vend R400 for electricity; they could use any of the following methods to vend to the meter:

- Website - http://www.prepaidmeters.net
- SMS – Send pin*meternumber*amount to 31696
- WAP – http://prepaidmeters.mobi
- IVR – Call 087 55 00 870 and press 4 to access the meter management Interactive Voice Response.

If the meter is STS then a 20-digit credit token will be generated and given to the customer to enter into the meter using the meter keypad.

If the meter is AMI, then the allocated amount will be sent directly to the metering device using the internet and a radio network.

The website, SMS, WAP and IVR services are available 24-hours, 365 days a year. This means that providing that the customer has a positive or Available Balance that they will be able to appropriate funds from their wallet to one of their metering services.

Choosing the Prepaid Meter Device That is Right For You

There are a variety of meter types and models. We have discussed that meters can be STS or AMI. However, within these two technology methods there are various types or models of devices. Each is designed for specific electrical requirements and environment.

Deciding which equipment is best for your circumstances depends on the following:

- Does each section have its' own Distribution Board?
- Is the supply to the section Single Phase or Three Phase?
- If Three Phase; how many Amps per phase?
- Is there a high risk of tampering with meters?

The answers to the above will help a company like www.PrepaidMeters.co.za to help you select the right equipment for the job.

Naturally, the ultimate issue is one of the capital investments of buying the equipment. So, while a consultant may offer an equipment specification, the cost of purchasing the recommended devices may be prohibitive. In this case the body corporate needs to make a decision whether to find a way to finance the equipment or to settle for a lesser specification than that which was recommended.

Explaining which meters to choose for AMI is the simplest and so we will cover AMI first.

AMI meters are generally the same; they are just very clever meters that can be read remotely. Small differences in equipment will differentiate various manufacturers, but the general overall idea remains the same.

AMI meters do not use keypads, so they are generally installed in a central location. Without splitting hairs, this means that choosing an AMI device is much easier.

The only difference to consider is whether the AMI device has inbuilt intelligence for prepayment or not. While it will not make a huge difference because the prepayment system will balance all accounts and meters over time, there is a more immediate level of accuracy related to an AMI device that has intelligence for prepaid. This is because an inbuilt intelligence for prepayment ensures that there is a disconnect command from the meter itself. This means that there is no chance of the meter allowing the customer account to run into any amount of arrears which a prepayment system would balance off of any future payments the customer makes.

When choosing an STS device further considerations are required. STS metering solutions generally come in two types:

- Single Unit Devices
- Split Unit Devices

Single Unit Devices is a single housing device that may vary in size, and includes the meter, keypad and LCD display.

Split Unit Devices are comprised of the meter as one component and the keypad/LCD as another component.

Split Unit Devices therefore have a physical advantage over Single Unit Devices because the meter component can be remotely located from the Keypad/LCD. This is useful when you have an environment where tampering with the meter in order to by-pass billing is a problem.

While most Single Unit Devices do have Tamper and Significant Reversal detection, these mechanisms only protect the meter device; they do not protect the distribution board which is

another source of by-pass. When using Single Unit Devices it is recommended that protection for the distribution board is also provided. One method to do this is to use lead seals to present opening of boards. The lead seal should have a stamp mark that is difficult to replicate.

Single Unit Devices are perfect for retro-fit situations and are normally cheaper to purchase and install. So they are generally the option of choice in an existing situation.

The reality of every system is that it is subject to abuse. In the case of prepaid it is just a question of how long before you detect this abuse. This why the PrepaidMeters.co.za prepayment system provides a method based on Standard Deviation to help identify potential problems.

Split Unit Devices are generally more expensive to purchase than Single Unit Devices. They can also be more expensive to install in a retro-fit situation simply because a twin flex wire must be used to link the meter component with the remote located keypad/LCD. Factors such as distance from meter housing box to the keypad/LCD and the complexity of the path leading between these two points have always been the key factor impacting on installation costs. Often these factors make the better choice of using Split Units prohibitive.

To overcome the costs of installation related to Split Units a new technology called Power Line Communications (PLC) was introduced. This technology uses the existing electrical wires as a means to establish communications between the meter and the keypad/LCD.

While this solution does eradicate the cost factors associated with running the communication wire between the two end points, it makes the cost of the actual devices more expensive. As a result, what you would spend on a normal installation of non-PLC Split Units will be paid in technology costs within the meter devices itself.

Meter Features that You Must Have

In addition to the above variants one also has to consider that some meters can be supplied without certain features. The following features can be options:

- Tamper
- Significant Reversal (SRE)
- Mains Over Voltage (MOV)
- Optical Port Interface (OPI)

In general when it comes to Tamper, SRE and MOV you do not want to cut corners in order to cut costs. However, when it comes to OPI you may consider a cost reduction if there will never be a need for data collection using a Remote Access Terminal.

Summary

We hope that this book has been of benefit to you, having answered most of the questions you may have about utility metering. We understand that some subjects may be confusing to you and for that reason we encourage you to contact us.

To help you further, we have included a prepayment conversion check list in the next section.

PrePaid Conversion Check List

To make sure the best possible solution is chosen for the sectional title, we have created a check list that includes items that should be present in the solution chosen for reasons we have previously explained in this book.

CHOOSING SECTIONAL TITLE UTILITY PRE-PAYMENT SYSTEM	✓ YES	✘ NO
DEVICES / METERS		
Can the sectional title afford it?		
If not? Does the supplier provide some accommodating payment system?		
Do the meters carry warranty for a minimum of 12 months?		
Are the meters tamper-proof?		
Will the supplier repair meters if necessary after the warranty period?		
Are there swap-outs if a meter needs to go into repair?		
Is there installation assistance if necessary?		
MANAGEMENT SYSTEM		
Can meter users purchase via various payment systems?		
Can meter users purchase electricity outside of working hours and at night?		
Can users generate tokens 24/7, 365 days a year? (applicable for STS only)		
Can users generate tokens via more than one system (e.g. SMS, Web, IVR, WAP, Print)? (applicable for STS only)		
Can the users see their historical purchases?		
Can the users retrieve a lost token?		
Can the prepayment system collect existing arrears?		
Does the software provide additional tamper detection such as Standard Deviation?		
Can the system generate clear tamper tokens for tampered meters?		
Can the meter be put in arrears to collect prior utility and levy debt?		
Can the meters be managed individually?		
Can the tariffs be changed if need be?		
Are national tariff increases automatically updated?		
Can the meter user information be managed and changed if necessary?		
Are there initial costs for software?		
Will the body corporate incur costs in software upgrades?		
Will the tokens generated be free of cost per token?		
Is it a contract free deal, no ties to body corporate?		
Is it minimum-time free, (no minimal time required once registered)?		

Is the meter registration free of any cost?		
Are there options for self-managed of BC and outsource managed?		
Can a meter be DISABLED and ENABLED if necessary from vending?		
Can the management system accommodate electricity, water and gas?		
Can the management system accommodate STS and AMI/AMR in one?		
COMPANY INFORMATION		
Is the prepaid vending company ESKOM STS licensed with own SGC number?		
Is the vending company registered with the STS Association (for STS meters)?		
Does the company supply vending support for meter management?		
Does the company supply vending support for meter users?		
Does the company provide monthly detailed accounts for outsource managed meters for the body corporate to check transactions?		
Does the company audit the outsource-managed accounts?		
Does the company provide services to municipalities? * companies with municipal experience are far more responsible and highly geared due to their high responsibilities to governmental bodies, also have more financial sustainability to be around for a very long time).		

We have highlighted in RED crucial components. If such an option is marked NO, meaning it is not available in the vending system; then vending system has potential to cause harm at one point or another.

Thought the list might look long, this is the minimal requirements for a body corporate to mange meters effectively in all situations.

The more YES you get from a solution in the YES column the better the vending and management solution is. Though one has to use commons sense as some NOs are crucial to body corporates hence one no in a vending system may totally take the solution out of question. And example would be, generating CLEAR TAMPER tokens. If the meter is in tamper and no one knows, the meter user will by-pass the meter and the body corporate will get no payment what so ever for utilities on that meter. Hence tamper detection and clearing a tampered meter is a MUST in any system.

There are additional bonuses which one could look into when evaluation a solution, some listed below:

1 . Generating reports on a vending system is very useful.
2 . Viewing usage history of prepayment
3 . Viewing purchase history of prepayment
4 . Ability to switch between post-paid and prepaid system with AMI/AMR meters.
5 . With the above ability to have a mixed sectional title. Some owners post paid and some owners prepaid. This is only done via advanced systems and only with AMI/AMR.

Our Unique Offering for Sectional Title

In the next section you will find PrePaidMeters.co.za unique offering for electricity and water prepaid metering.

PrePaidMeters.co.za is an international supplier of prepaid sub-meter management and vending services. We enable prepaid meter management and vending in over 200 countries, over 700 mobile networks. As such, we optimize for 24/7, 365 days service delivery around the globe.

Our service platform offers customers an end-to-end solution including STS and AMI metering equipment, Meter Management and Vending.

Products

Amongst the various pre-paid meters we provide, you will find: single phase meters, split single phase meters, three phase meters, split three phase meters and water meters. Please always contact us with your requirement before you purchase devices to make sure you are purchasing the right meter for the right requirement and electrical set-up.

Meter Management System

The Meter Management system offers private landlords, body corporates, letting agents, managing agents and prepaid & post paid metering companies a management system for both STS and AMR electricity, for electricity, water and gas meters.

KEY FEATURES & METER MANGEMENT BENEFITS

- **Token Generation** – 24 hours, 7 days a week, 365 days a year via SMS, WAP, IVR, WEB and PRINT.
- **Credit Purchase** – 24 Hour credit purchase via online payment, ATMs and EFT.
- **Double Tamper Detection** – Meter and software tamper detection through tracking and reporting.
- **Additional Payment Collections** – Arrears and levy collections.
- **2 Management Options** – Self managed or Outsource managed (exchangeable any time).
- **Management and Meter User Access** – Anywhere anytime access via SMS, WAP and WEB.
- **Support** – We provide support for meter users, managers and landlords.
- **Turnkey Solution** – Electricity and water meters all managed in one place with the same advanced features and functionality.
- **FREE Seamless Software Updates** – You have access to all the new features and functionality dynamically as we continue developing.

LONG TERM COST EFFECTIVE SOLUTION

☑ No software installation ☑ No software purchase ☑ No charge for tokens ☑ No Charge for Upgrades
☑ No additional charge or fees for payout ☑ No minimum signup period ☑ No Contract ☑No Hidden Costs

Consumer Payment Options for Electricity

1. **BANK**
2. **Credit Card**
3. **Cell Phone Banking**
4. **EFT and ATM**

Meter Management Functionality

- Issue Clear Credit tokens to reset meters for new incoming residents (via Web & SMS)
- Issue Clear Tamper tokens to remove tamper from meters (via Web & SMS)
- Enable and Disable Meter Vending
- Edit/Update meter account contact information
- Edit/Update meter account tenant information
- View meter purchase history
- View meters usage history
- Send bulk notification to customers*

* Functionality marked with (*) will become available shortly.

Account Management

- Accept Credit via: Cash, Credit Card, Mobile Cell Phone Banking, ATM and EFT (and more payment methods added)
- Issue Tokens via: SMS, Web, WAP, Email
- Issue Tokens via IVR*
- Re-Issue un-received or lost tokens and receipts
- Collect arrears amounts
- Collect Levies
- Tamper Detection - Receive Low/High kWh usage warnings at software level (this is in addition to tamper detection on physical meter).

Consumer Meter Functionality

Consumers with registered meters can perform purchases and account management 24 hours, 7 days a week, 365 days a year.

Purchasing Electricity

- Pay for electricity using bank over counter payment
- Purchase electricity using your cell phone banking
- Purchase electricity online using Credit Card or EFT
- Purchase electricity via ATM
- Purchase from designated agent (for Self-Managed)
- Purchase from landlord (for Self-Managed)
- Availability of scratch cards for bulk users

Consumer Account Management

- Retrieve lost or misplaced tokens for previous purchases
- Generate credit tokens if credit is available
- Management of Personal Contact Information
- Management of Notification Preferences
- View History of Account
- View History of Purchases
- Generate Reports

Using Our Vending Services With Existing Pre-Paid Meters

If you already have STS or AMR electricity, water or gas pre-paid meters and wish to use our vending management system, offerings and services you can do so by contacting us. We will provide you with instructions on how to do this.

www.PrePaidMeters.co.za

Call Us On: 087 5500 870

www.PrePaidMeters.co.za is a division of Enbaya Trading CC registered under ESKOM SGC (Supplier Group Code) 008171 and Licensee Member of the STS Association.

Call to schedule an online SOFTWARE DEMO

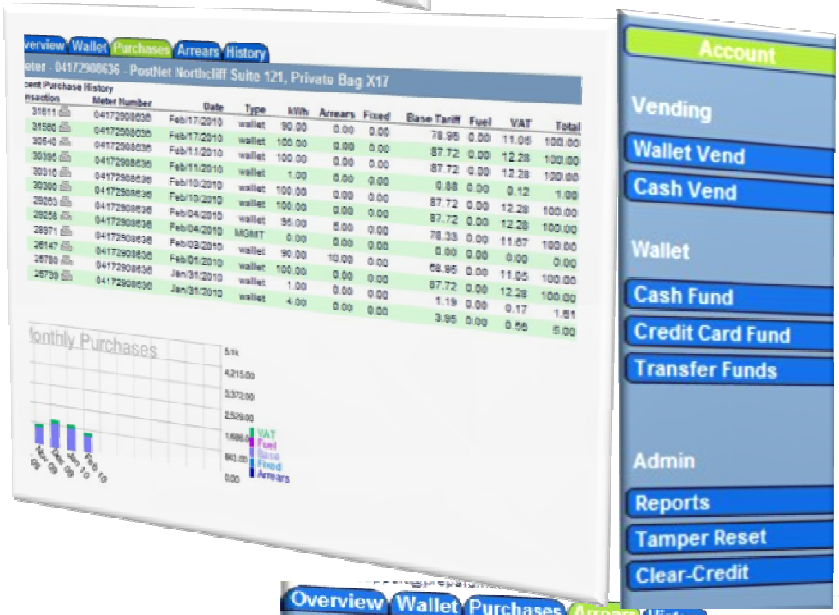
PRE-PAID METER MANAGEMENT RIGHT AT YOUR DESKTOP

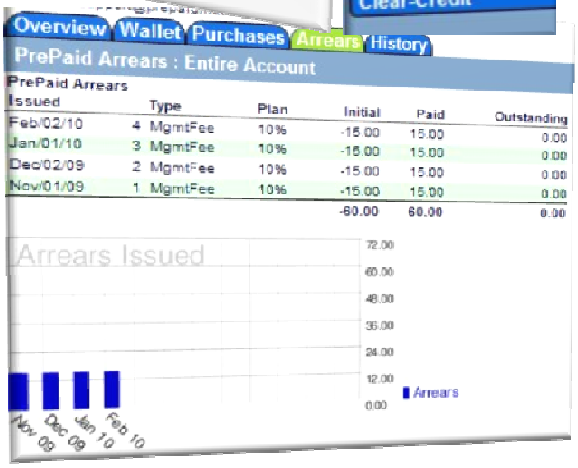
THE EASY WAY TO MANAGE PRE-PAID METERS:

- *Full Account Management*
- *Easy Access Dashboard*
  - *Overview*
  - *Wallet*
  - *Purchases*
  - *Arrears*
  - *History*
- *Detailed Tariffs*
- *Detailed User Information*
- *Detailed Vending Overview*
- *Easy Drill Down Access*

FULL MANGEMENT CONTROL:

- *Detailed Arrears Collections*
- *Detailed Fees Collections*
- *Outstanding Amounts*
- *Arrears Graphs*
- *Detailed Purchase History*
- *Monthly Purchase Graphs*
- *Detailed Purchase Breakdown:*
  - *VAT*
  - *Utility*
  - *Arrears, etc.*
- *Re-printable Tokens*





For More Information

Call Us On:

087 5500 870

www.PrePaidMeters.co.za