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# Meteringonline Bill Verification

*A White Paper by Power Meter Technics*

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**A**s the spotlight on corporate sustainability intensifies, the need to accurately report a broad range of performance metrics across areas including carbon, energy, waste, water, and corporate social responsibility is becoming an imperative. *Meteringonline* provides an innovative and cost effective solution to third-party bill verification.

## Background

Many organisations are finding that they don't have systems to adequately capture, track and manage the broad range of energy data relating to their operations. This problem is amplified in multi site, complex organisations that deal with many utilities and landlords across different geographies.

According to the South African Electricity act, resellers of electricity such as property owners are required to charge their tenants for electricity as though the tenant were purchasing directly from the Municipality. In other words the tenants must be charged strictly in accordance with the tariff promulgated for the area in which the building lies, without any additional charges or markups. There are approximately 350 different tariffs in South Africa alone - apart from Eskom itself, each Metro, City and Municipality have promulgated their own set of tariffs.

## Third-party meter readers

It is a major problem for Landlords to manage this problem unless they have an in-house utility management division and they often outsource utility meter reading and billing to third-party organisations who specialise in this process. Many of these third-party meter reading companies take on the utility debt of the building as a whole from the utility company and then make their money from the differential between the cost of wholesale electricity and water to the complex and the retail costs of these utilities billed form tenants.

While most of these meter reading companies are above board, there are unfortunately some less scrupulous organisations that hide spurious charges within a tenant's electricity account or markup the costs to ensure that that tenants absorb all electrical and metering losses in the building and to maximise their revenue.

## Tariff complexity

Electricity and other utility accounts are often presented in such a way as to make it impossible to verify under normal circumstances; often the bill is simply presented as a single entry in an account without any breakdown of how the amount is determined and the tenant has no practical means to verify that the account is reasonable or fair without resorting to use of specialised consultants who are experts in utility tariffs.

## Meteringonline Billing verification

*Meteringonline's* Utility Billing Verification and Reporting module provides comprehensive controls, verification and reporting features for greater control of utility costs and invoice management. The system provides an intuitive and easy-to-use custom interface for entering both general and detailed charge and tax information from the Landlord or Meter Reading company. Account details including dates, invoice number, tax rates and surcharges are initially entered via the web-based portal and posted to the *Meteringonline* database with the click of a single button within the billing module.

Customers can chose between managing the system themselves or as a completely outsourced solution.

**Complete data capture** Collecting invoices is one thing; organizing invoice data in a way that supports managing and buying energy is quite another. To facilitate relevant comparisons, we classify each line item by category. For example electricity tariffs can be grouped by energy charges, demand charges and fixed charges.

**Billing Error Resolution** The *Meteringonline* Billing Verification system automatically detects invoice errors by verifying the official invoice charge against our independent recalculation of the charge based on *Meteringonline* meters. If this process reveals a billing error, our energy consultants work with you to resolve these issues and to prevent future errors. The system will not only check that the Landlord or Meter Reading company has accurately metered your consumption and that the energy and maximum demand charges are correct, but also check that the correct tariff has been applied and will expose any hidden charges.

**Simplified Invoice Payment** Your accounting staff can make a single monthly payment. We can enhance your company's internal invoice accounting processes to bring savings, simplicity and higher quality data.

**Complete Reporting** The software will automatically calculate actual usage and variance with Landlord billing, including tax, based on bill data. This solution helps managers to

better understand utility bills, verify their correctness and adjust when incongruities are present.

### How it works

The process starts with capturing utility data received from the Landlord or Utility company as shown in Figure 1. First the statement details are captured to include the total amount payable for each utility (water and electricity) for a given billing period. Next the individual bill items as shown in the meter reading sheets that are used to calculate the statement totals are captured for each utility and metering point.



**Figure 1:** Bill verification process

Once the financial and consumption data received from the billing authority has been captured, the bills can be verified by *Meteringonline* against check meters installed by our team which are automatically read several times daily with the *Meteringonline* data acquisition system. All meters that we install are first calibrated in our SANAS accredited meter calibration laboratory and are installed by trained and experienced professionals in accordance with South African National Standards 473 and 474.

The half-hour interval data obtained from the *Meteringonline* meters are used to generate bills using the *Meteringonline* Billing Engine. This software is capable of calculating any tariff used in South Africa and the tariffs are kept up to date by our specialised tariff team who work closely with Eskom, Municipalities and the South African Energy Regulator (NERSA) to ensure that the correct tariffs are applied and that they are updated as amendments are promulgated.

Using the *Meteringonline* bill as reference, the following validation checks are performed on the Landlord bills:

1. Detect missing and out of cycle bills.
2. Validate accuracy of start and end date continuity.
3. Check to ensure that the received statement

totals are consistent with the meter reading slips.

4. Check to ensure that the metering points are correctly identified and that bills do not include charges for which the tenant is not liable. For example, common area charges may not be applicable due to contractual arrangements.
5. Check to ensure that the tariff is correctly applied for each metering point and that the correct rate is applied for each tariff item.
6. Check to ensure that consumption and demand charges are correctly metered.
7. Detect duplicate utility bills and charges.
8. Check meter reading continuity for billing accuracy
9. Monitor consumption variances and issue alerts for irregularities.

## Capturing billing data

Billing data from the utility or landlord can be captured directly on the *Meteringonline* web portal or by means of an Application Programming Interface (API) developed for this purpose. The API allows the *Meteringonline* billing verification system to interface to Enterprise systems such as SAP Real Estate and others. In both cases, the procedure is the same, data from the landlord or utility bills are entered into the *Meteringonline* database.

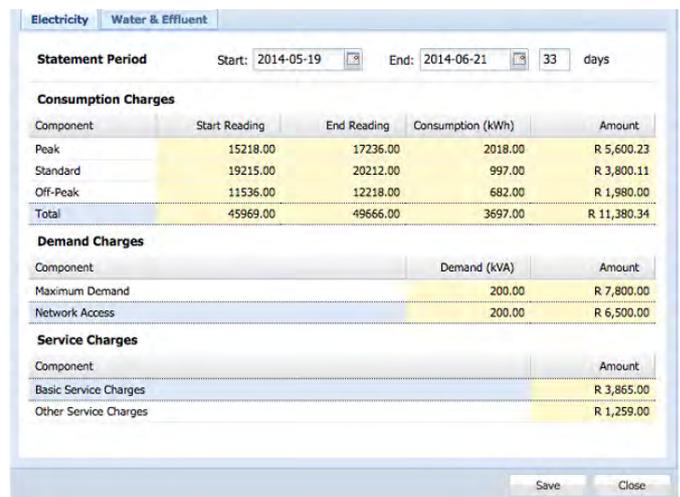
The first step is to capture the statement details for the Landlord. This is a very important document because this is the actual document that payments are made on. Statements usually do not go into any details of electricity or water consumption, but merely define the billing period and summarise the amounts due for each utility. An example of a *Meteringonline* statement captured for a typical commercial building is shown in Figure 2.



**Figure 2: Data Entry Statement**

If the Statement is the overview of amounts owing, the meter reading sheets, which should always be supplied by the vendor, should provide all the data required to calculate the statement. This is the nuts and bolts of the bill and must be very carefully analysed. Although there are a myriad of tariff and tariff items in each of the more than 345 licensed utilities in South Africa, All tariffs have at least some basic commonality, The electricity meter reading slip designed by *Meteringonline* should be able to cope with most tariffs used in South Africa at this time, while presenting the data in such a way that a layman can easily be shown how to fill the data in.

Most prominently, the data entry screen shown in Figure 3 provides for the entry of time-of-use electricity tariffs, maximum demand charges and other levies that make up a typical electricity bill.



Component	Start Reading	End Reading	Consumption (kWh)	Amount
Peak	15218.00	17236.00	2018.00	R 5,600.23
Standard	19215.00	20212.00	997.00	R 3,800.11
Off-Peak	11536.00	12218.00	682.00	R 1,980.00
<b>Total</b>	<b>45969.00</b>	<b>49666.00</b>	<b>3697.00</b>	<b>R 11,380.34</b>

Component	Demand (kVA)	Amount
Maximum Demand	200.00	R 7,800.00
Network Access	200.00	R 6,500.00

Component	Amount
Basic Service Charges	R 3,865.00
Other Service Charges	R 1,259.00

**Figure 3: Data Entry Electricity**

The water entry screen is similar to that of the electricity entry screen, but somewhat simpler as shown in Figure 4

Consumption Charges	
Component	Amount
Water	R 1,891.40
Effluent	400.00

Service Charges		
Component	Water Amount	Effluent Amount
Basic Service Charges	R 350.00	R 250.00
Other Service Charges	R 70.00	R 50.00

Figure 4: Data Entry Water

## Verifying the bills

Once all of the Landlords statements and meter sheets have been captured, *Meteringonline* can be set to work to verify each bill for anomalies.

Account	Billing Period	Start Date	End Date	Reference	Statement	Bill	MCL	Pre-check	Status
Belville	March 2015	2014-12-10	2015-01-16	15020053...	R 134,271.73	R 134,271.73	R 168,393.97		✓
Caledon	March 2015	2015-01-10	2015-02-09	0N100575	R 136,039.89	R 225,306.87	R 157,493.03		✓
Camps Bay	March 2015	2015-01-15	2015-02-16	52/201503		R 69,978.91	R 54,458.87		✓
Canal Walk	March 2015	2014-12-31	2015-01-27	CWN92672...		R 1,234,553.87	R 233,337.98		✓
Canal Walk - Liquor	March 2015	2014-12-31	2015-01-27	CWN3568/...		R 1,618.29			✓
Canal Walk - Liquor 2	March 2015	2014-12-31	2015-01-21	CW367072...		R 14,002.72			✓
Cape Gate	March 2015	2014-12-19	2015-01-20	ho722/201...	R 297,788.45	R 297,788.45	R 1,185.60		✓
Cape Gate - Liquor	March 2015	2014-12-19	2015-01-20	ho723/201...	R 9,539.48	R 9,539.48	R 9,539.48		✓
Cavendish	March 2015	2014-12-24	2015-01-22	700001-11...	R 133,739.38	R 133,739.38	R 127,852.54		✓
Claremont	March 2015	2014-12-29	2015-01-28	20150203...	R 320,261.94	R 320,261.94	R 323,452.85		✓
Constantia	March 2015	2014-12-10	2015-01-12	20150203...	R 378,297.52	R 378,297.52	R 363,526.30		✓
Constantia - Liquor	March 2015	2014-12-10	2015-01-12	20150203...	R 19,643.99	R 19,643.99			✓
Deveytan	March 2015	2014-12-24	2015-01-26	Import	R 111,026.62	R 111,026.62	R 112,072.74		✓
Eerste River	March 2015	2014-12-08	2015-01-12	4323/2015...	R 78,593.56	R 78,593.56	R 86,896.82		✓
Eerste River - Liquor	March 2015	2014-12-08	2015-01-12	4323/2015...	R 8,382.34	R 8,382.34			✓
Gardens	March 2015	2014-12-24	2015-01-23	431/201503		R 328,794.12	R 117,592.75		✓
Glen Garry	March 2015	2015-01-01	2015-02-01	dinggan-28...	R 198,579.20	R 198,579.20	R 196,772.56		✓
Glen Garry - Liquor	March 2015	2015-01-01	2015-02-01	dinggan-28...	R 3,332.19	R 3,332.19	R 3,332.19		✓
Goodwood	March 2015	2015-01-01	2015-02-01	GWD1002...	R 178,218.39	R 178,218.39	R 176,483.59		✓

Figure 5: Bill Verification Process

## Analytics and reporting

- Aggregate billing report summarises spending on utilities throughout predetermined levels of the organisation (e.g. corporate, division, region, facility) allowing you to view cost and usage for a facility or aggregated up through the top organisational levels of your organisation.
- Billing reports provide current and historical bill detail for accounting purposes including a scanned image and the standard bill template for effective and standard presentation of bills received electronically.
- Meter reports track consumption of metered goods or services (e.g. energy, water) at the

facility or meter/service level replicating your billing structure.

- Facility reports provide facility information of selected providers and allows users to enter normalisation factors such as gross letting area, trading area and so on. It is also possible assign a weather station to each location to view heating degree-days (HDD) and cooling degree-days (CDD) to facilitate understanding of weather-related consumption.
- Ad hoc, customisable reports utilise all utility information, down to the meter/service level, collected by *Meteringonline* to create a multitude of custom reports using the *Meteringonline* Reporting Tool. All data can be download to Excel for further manipulation and reporting.

## Conclusion

Driving sustainability and energy performance requires the capture and management of disparate data from a multitude of utilities, suppliers and business systems. With *Meteringonline* Billing Verification, it's no longer complex, costly and time consuming.

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