Section 12L

September 2019

Cova Advisory and Associates

- We are an advisory consulting firm specialising in Government Grants and Incentives.
- We also advise on matters related to carbon tax, energy incentives.
- We are a SANAS Accredited Measurement and Verification Inspection Body (EEMV0007)
- Cova has secured over R2 billion in after tax grants and incentives for clients in the last three years.

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Director: Energy Team

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What is Section 12L

- Incentive aimed at promoting the investment in energy efficient equipment and improvement in processes to increase energy efficiency
- Section 12L is a notional additional tax allowance for energy efficiency savings achieved and verified by a SANAS accredited Measurement and Verification body
- 12L has been effective since November 2013 with an increased rate of 95c/kWh effective for all years of assessment starting of or after 1 March 2015
- All energy savings from fossil fuels will qualify (coal, gas, diesel, electricity etc)

Potential Tax Savings	
R 0.27	per kWh electricity saved
R 2.57	per l of paraffin saved
R 2.83	per l of diesel saved
R 2.95	per m^3 of natural gas saved
R 3.69	per kg LPG saved
R 2.03	per kg Coal saved

Background

In response to South Africa ranking as one of the top 20 contributors of greenhouse gas emissions in the world, the government voluntarily announced during the 2009 United Nations Climate Change Conference in Copenhagen and confirmed in Paris in 2015 that it would act to significantly reduce domestic greenhouse gas emissions.[1] Government has thus proposed a carbon tax policy to encourage behavioural change towards cleaner low-carbon technologies. As a complementary measure, government has introduced environmental-related tax incentives to address concerns related to global warming and energy security. Such an incentive is section 12L which allows taxpayers to claim a deduction for most forms of energy-efficiency savings that result from activities performed in the carrying on of any trade and in the production of income. The deduction can create or increase an assessed loss.[2]

Qualifying activities

- Having regard to the definition of “energy efficiency savings” in the Regulations and the content of the standard, any activity that results in energy efficiency savings may qualify for a deduction if all the necessary requirements are met. This will, for example, include activities that:
  - result in the same production volumes being produced using less energy, or that results in a product being produced using less energy.
  - allows for more products to be produced while using the same amount of energy, or that increases the product yield per unit of energy.
  - captures some or all of the energy from a waste stream that was previously discarded.
- In addition, activities generating energy from combined heat and power as well as those that involve the use of qualifying captive power plants are also considered eligible activities. A person generating energy through a captive power plant will, however, qualify only if the energy-conversion efficiency of the captive power plant is greater than 35%.
- The term “captive power plant” is defined in paragraph 1 and means: “where the generation of energy takes place for the purposes of the use of that energy solely by the person generating that energy”.

Non-Qualifying activities

- Renewable Sources: The general rule is that energy generated from renewable sources (other than energy generated from combined heat and power) does not qualify. The term “renewable sources” is defined as energy generated from:
    - biomass;
    - geothermal;
    - hydro;
    - ocean currents;
    - solar;
    - tidal waves; or
    - Wind
- The generation of energy from biomass is an exception to the general rule. If biomass is produced specifically to generate energy, any resultant energy savings will not qualify for a deduction under section 12L. However, should biomass be a waste product resulting from a particular industrial process, it may be considered under the definition of combined heat and power. Such waste can then be re-introduced into the process to improve the energy usage of the plant. *Example: Forestry industry using woodchips*.
- Concurrent benefits: Under section 12L, a taxpayer receiving a concurrent benefit relating to the same energy-efficiency savings will not be able to claim a deduction under section 12L.

Section 12L - Process

The process followed in applying for the tax allowance is as follows:

a) The client applying for the allowance must be registered on the SANEDI-tax 12L online system

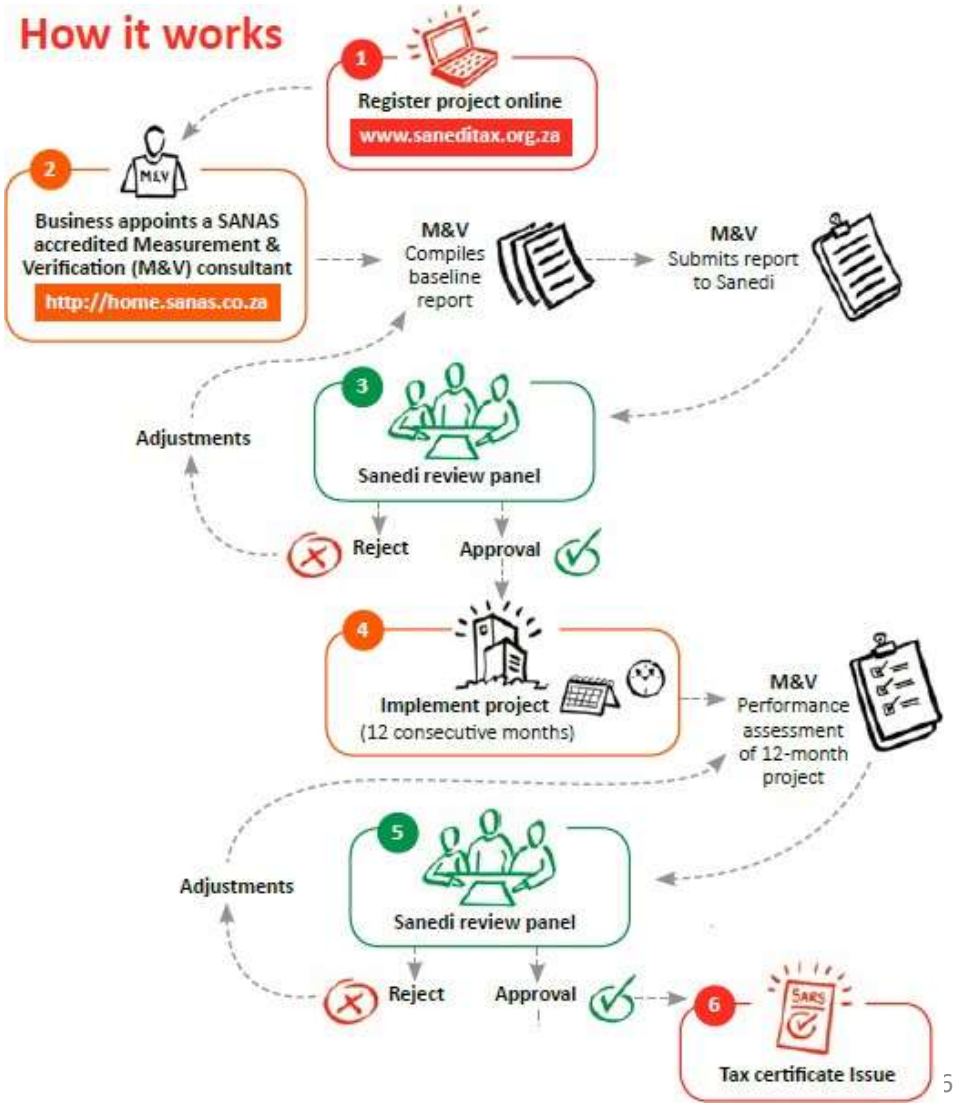
b) Under the company's SANEDI-tax online profile, the energy saving project must be registered, and an M&V company (such as Cova) must be appointed.

c) The M&V company thereafter establishes a baseline for the project. The baseline is submitted to SANEDI for approval.

d) Once the baseline is approved, the M&V company assesses the performance of the project and calculates the energy savings achieved. A performance assessment report is submitted to SANEDI for this purpose.

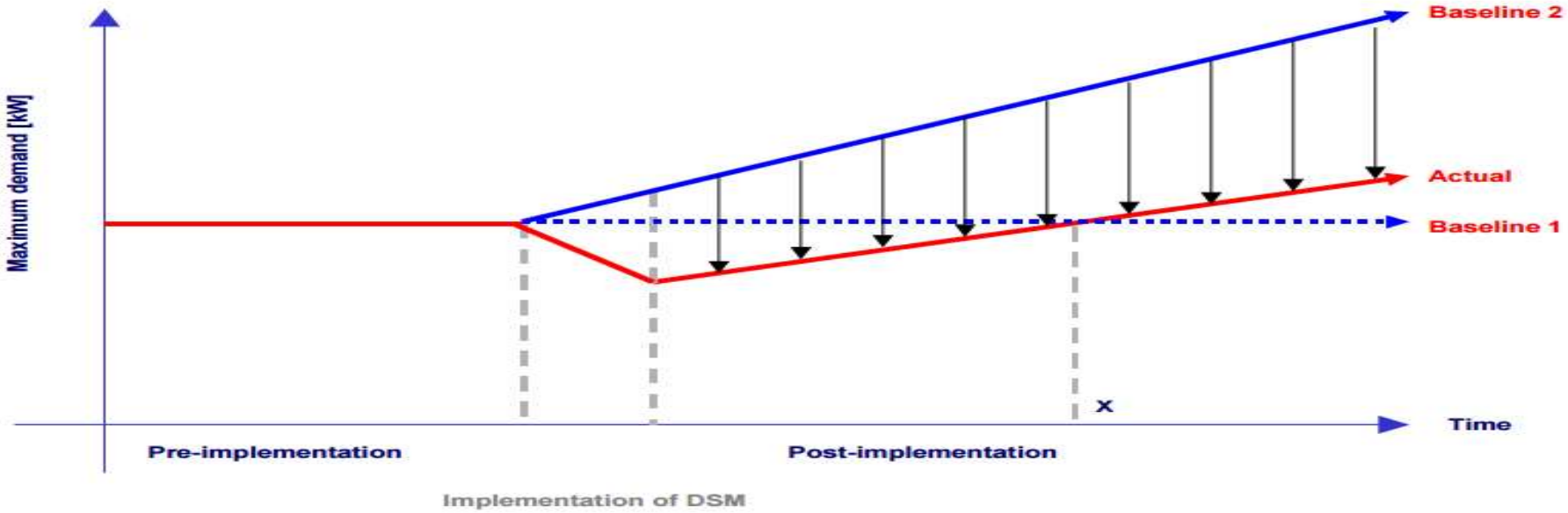
e) If the performance assessment is approved, SANEDI will issue a tax certificate for the project.

f) The tax certificate must be included in the client's tax submissions to claim the allowance



What is Measurement and Verification (M&V)?

- M&V is the process of using measurement to reliably determine actual savings created within an individual facility by an energy management, energy conservation or energy efficiency project or program. As savings cannot be directly measured, the savings can be determined by comparing measured use before and after implementation of a project, making appropriate adjustments for changes in conditions.
- Energy savings are estimated by calculating the difference between:
  - Actual energy consumption after project implementation.
  - Baseline energy consumption: what the energy consumption would have been during the same period if the energy saving project was not implemented.



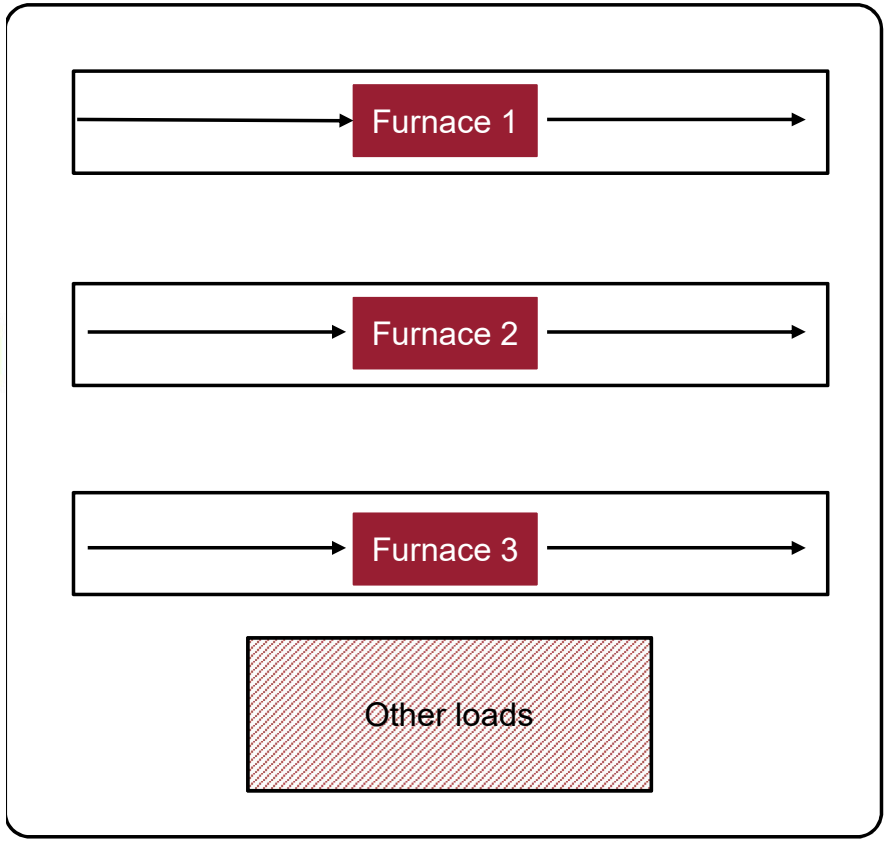
Important notes on metering and data

- Data should be accurate, credible and traceable.
- Meters that requires calibration should be tested on a regular basis and calibrated as recommended by equipment manufacturers.
- SANS 50010 requires calibration to be traceable to national or international standards.
- Records should be kept of metering accuracy tests and calibration certificates.
- Data from energy invoices can be used.
- SANS 50010 NOTE 5: The estimated contribution to uncertainty should be determined and included in reporting where measurements where traceable calibration is not available.

Case Study: The Project

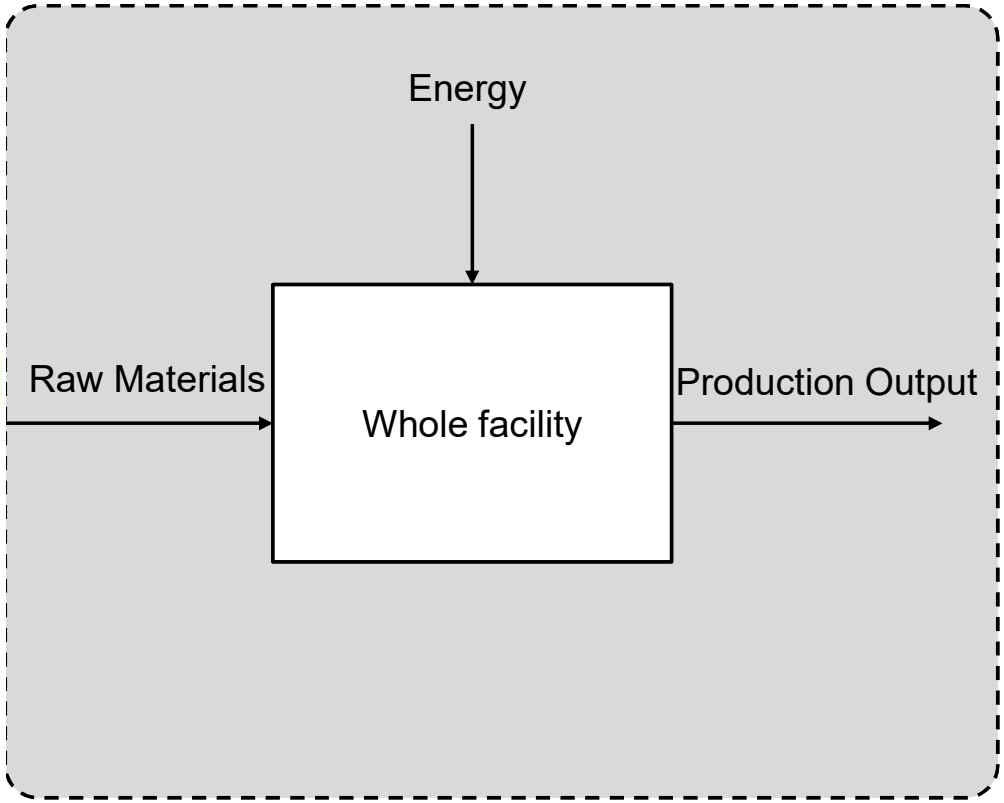
- The installed electrical capacity of the three furnaces are 2MW each, therefore total installed capacity is about 6MW.
- The annual energy consumption is about 28.5million kWh.
- The annual production throughput is about 3 million tonnes.
- Optimising the smelting efficiency of three electric arc furnaces. This involved making modifications to the furnaces which reduced the energy requirements of the furnaces while maintaining similar production throughput through the furnaces.

Case Study: Project Boundary



- According to SANS 50010:2018, savings should be determined for either an entire facility or for a portion of it. The following three options are provided:
  - Retrofit Isolation: A measurement boundary shall be drawn around the equipment in question and all significant energy requirements of the equipment within the boundary shall then be determined
  - Whole facility: The whole-facility option involves the use of utility meters, whole-facility meters, or sub-meters to assess the energy performance of a total facility. The measurement boundary encompasses either the whole facility or a major section of the facility
  - Calibrated simulation This option involves the use of computer simulation software to predict facility energy for one or both of the terms in the energy savings equations. A simulation model shall be calibrated so that it predicts an energy pattern that matches meter data to an acceptable degree of accuracy.

Case Study: Project Boundary



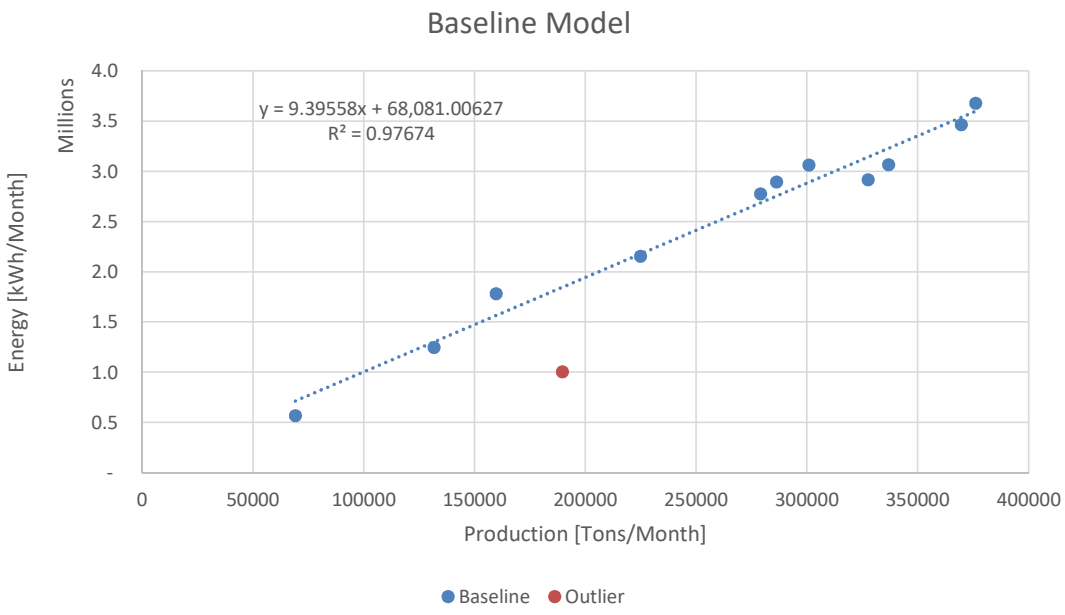
Advantages of the whole facility approach:

- Cost: The whole facility option makes it possible to determine the collective savings of various ESMs implemented at the facility. This approach allows the inspection body to develop only one (whole-facility) baseline instead of various baselines for the various initiatives
- Data accuracy: The whole-facility option involves the use of utility meters, whole-facility meters, or sub-meters. The data from most of these meters are used for billing purposes and typically billing class meters adhere to a higher standard of accuracy which increases the credibility of the data.
- Data availability: Data for calculating the baseline energy use is usually high.

Case Study: Baseline model

Most complex energy using systems are affected by innumerable independent variables. Regression models cannot hope to include all independent variables. Even if it were possible, the model would be too complex to be useful and would require excessive data gathering activities. The practical approach is to include only independent variable(s) thought to significantly impact energy.

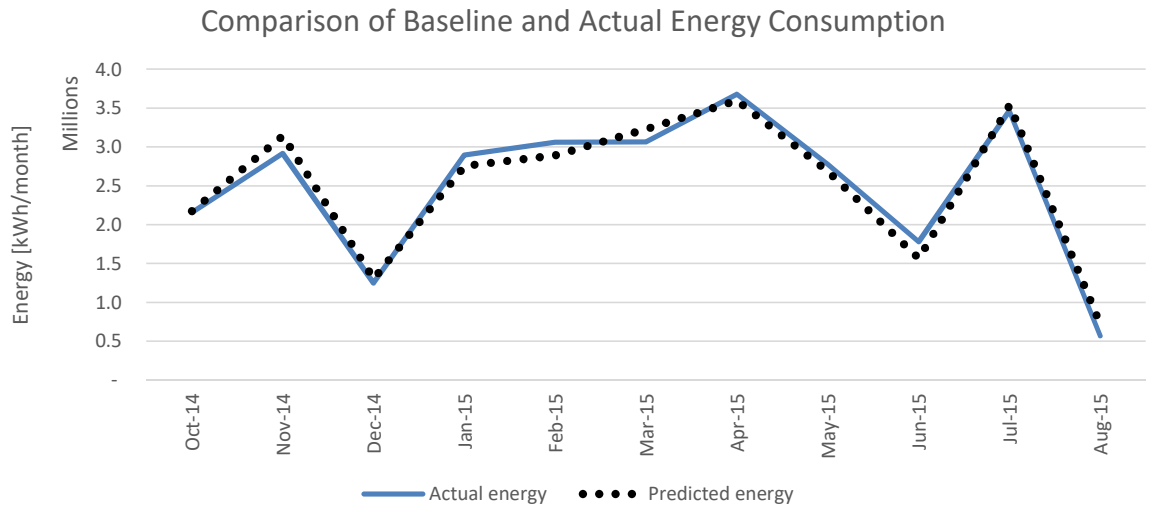
- In the case of this project the Production throughput was chosen as the energy driver since it is the only variable thought to significantly influence the energy consumption of the furnaces.



- A potential outlier was identified.
- Grubbs' test (Grubbs 1969 and Stefansky 1972) can be used to detect a single outlier.
- The Grubbs test showed that the data point is indeed an outlier with 95% confidence.

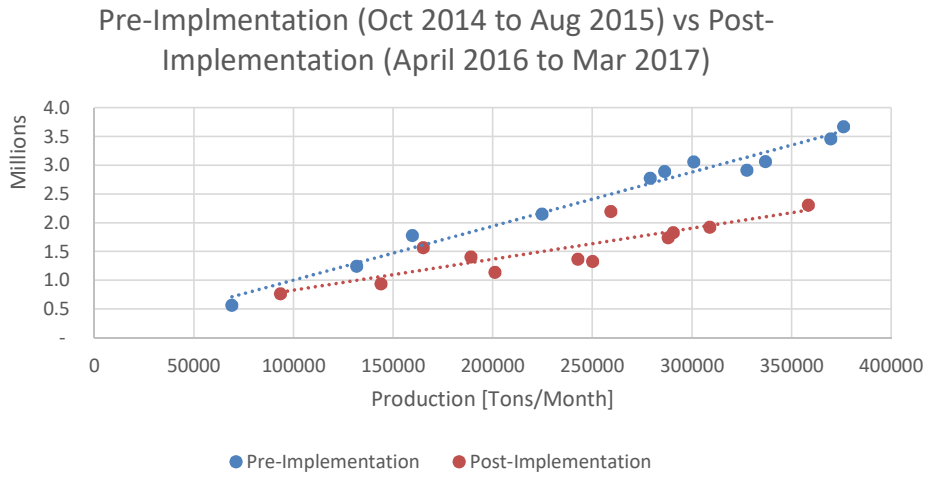
Case Study: Baseline model

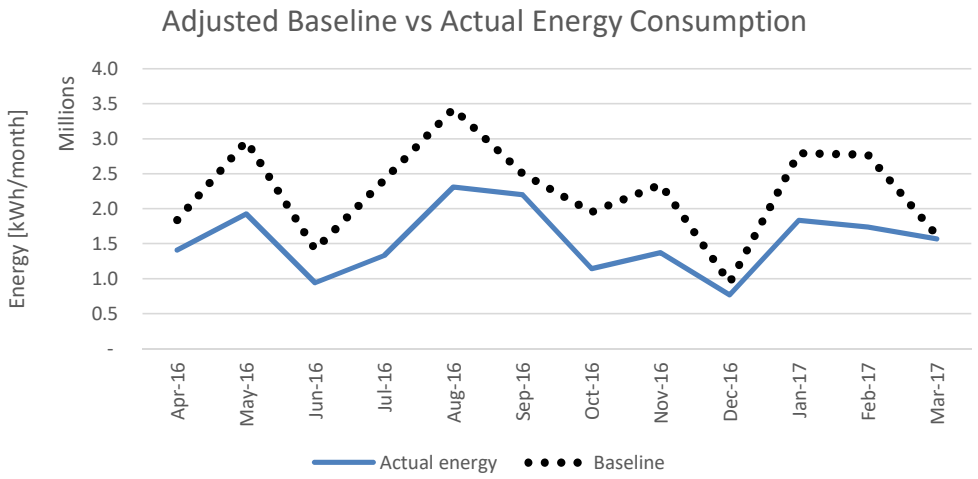
Regression Statistics	
Multiple R	0.99
R Square	0.98
Adjusted R Square	0.97
Standard Error	155036.74
CV(RMSE)	6.17%



<u>From SANS 50010:2018</u>
NOTE 2: Coefficient of Variation on the Root Mean Square Error CV(RMSE), and Normalized Mean Bias Error (NMBE) are to be preferred as goodness of fit measures in M&V, rather than R2 and p-values.

Case Study: Performance Assessment Results





Savings (kWh)	8 469 170.28
Allowance (ZAR)	R 8 045 711.76
Savings (%)	31%
Relative precision of the savings	At 80% Confidence level was 2.5%

<u>From TG 50-02 (GUIDELINES FOR REPORTING UNCERTAINTY IN MEASUREMENT AND VERIFICATION</u>
Targeted confidence/precision is 80/7.5 for up to 12 data points, 80/15 for up to 52 data points, and 80/20 for more than 52 data points..

Questions?

Contact Us

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