

CASE STUDY: Obtaining a SARS Section 12L Tax Rebate for Improving Kiln Efficiency by Replacing Clamp Kilns with RVSBKs



Background

Swisscontact (Swiss Foundation for Technical Cooperation) funded this work as part of their EECB (Energy Efficient Clay Brick) project. The objective of the EECB project is to increase energy efficiency and reduce greenhouse gas emissions in the South African clay brick sector.

VSBKs (Vertical Shaft Brick Kiln) are a prime focus of the project because they are much more efficient than the clamp kilns commonly used in South African brickworks.

An improved version of the VSBK has been developed locally: the RVSBK. The R in the acronym standing for re-circulation, i.e. hot air from the bottom of the kiln is circulated to the top of the kiln to improve efficiency.

The case study was conducted at Rheebock Bricks who have recently replaced their clamp kiln with 24 RVSBKs.

What is a SARS 12L tax rebate?

The SARS 12L tax incentive reduces taxable profit by 95 c/kWh (or equivalent kWh in the case of fuel such as coal) of energy savings.

At the current company tax rate of 28 %, the value of the rebate is $0.28 \times 0.95 = 0.266$ R/kWh. The rebate is tax deductible based on the verified savings for a period of one year.

The purpose of this rebate is to encourage increased energy efficiency by providing tax rebates for verified energy savings projects.

What are the steps to follow to qualify for the Section 12L tax rebate?

SARS section 12L makes provision for tax rebates for improved efficiency. Rebates will only be given if the resulting savings can be accurately quantified. For the RVSBK it is necessary to measure:

- Fuel and electrical energy into the kiln,
- Brick production (for baseline adjustment).

The following procedure describes the 12L tax incentive process:

1. Register the project online with SANEDI (South African National Energy Development Institute); SANEDI will evaluate project viability at no cost,
2. Establish an energy baseline for the kiln/s (in most cases coal consumption) over a one year period – this work has to be done by a SANAS (South African National Accreditation System) accredited M&V (Measurement & Verification) body,
3. Project approval by SANEDI (by email),
4. SANAS accredited M&V body verifies savings (over one year post project implementation period) before being sent to SANEDI for final approval,
5. Once approved, SANEDI will issue a tax certificate to you,
6. Tax certificate is sent to SARS to claim for the Section 12 L tax rebate.

Timing and procedure are important, a section 12L tax rebate is paid on:

- ✓ Energy consumption before implementation of savings activities minus energy consumption after implementation,
- ✓ Energy savings over a one year period.

Applications for section 12L tax rebates can be made by the brickworks, or by an energy service company (ESCO) such as Grey Green acting on their behalf.

Viability

If you are interested in applying for a 12L tax rebate, these are the preliminary steps to follow:

- Contact an ESCo for an initial project feasibility for the 12L tax rebate,
- If the rebate is feasible, an M&V body is appointed,
- The M&V body will do a site inspection and determine the best methodology for determining the coal consumption for the kiln/s.

The M&V body will decide on a suitable baseline and measurement period (this can be up to 12 months – the duration can vary).

Every batch of coal delivered must come with a certificate (from a SANAS accredited laboratory) showing the calorific value.

Contact Swisscontact or Grey Green for M&V methodology plan options.

Additional Tips

A pro-active approach is to modify fuel storage and handling systems a year prior to starting with a VSBK/ RVS BK project. This will:

- Help ensure that a section 12L application is successful,
- Spread the Capex (capital expenditure) requirements over a longer period which is good for cash flow.

Due to the need for one year's worth of data before changing from clamp kilns to RVS BKs it is important to start the process early – i.e. 18 months before the planned shut-down of a clamp kiln.

Design should cater for M&V: wherever possible, ease and accuracy of measurement should be part of the design of the VSBKs. Including the necessary features at design stage results in a lower cost than adding them afterwards.



Financial Projections

A brief comparison of the clamp kiln and RVS BKs is depicted in the table below:

Comparison of Clamp Kiln & RVS BKs

Parameter	Clamp Kiln	RVS BK	% Savings
SEC (MJ/kg fired brick)	2.44	0.78	68 %
Annual cost of fuel (R)	R 17 659 000	R 6 004 000	66 %
Annual energy consumption (eq. kWh)	68 596 000	33 064 000	52 %

Note: Coal costs include transport to the Southern Cape. The baseline adjustment for the increase in production from the clamp kiln to the RVS BKs was accounted for. To remain conservative reduced scrap rate and carbon tax were omitted. All costs are VAT exclusive.

Please also note that the SEC (Specific Energy Consumption) used for this case study was the average of the worst and best case scenarios. The range in which the site's RVS BKs are expected to operate in is: 0.84 – 0.72 MJ/kg fired brick.

Based on a coal savings per shaft of R 486 000 per annum, using the coal costs applicable to this case study, the financials for the SARS 12L tax rebate are:

12L Tax Incentive Financial Analysis

Annual equivalent energy savings (kWh)	35 532 000
Effective tax rebate (R/kWh)	0.266
SARS Section 12L tax rebate (R)	R 9 451 500

- The total capital cost of the RVS BKs was R 25 000 000 and the cost of M&V as well as the coal calorific value tests is between R 300 000 – R 380 000. , therefore:

Without section 12L rebate, payback period will be 2.17 years.

Taking the section 12L tax rebate into account, the payback period will be 1.36 years.

Conclusion

As shown in this case study, obtaining a SARS section 12L tax rebate will result in a significant reduction of future tax payments. The SARS 12L tax rebate is 38 % of the capital expenditure for the RVS BKs for this case study, hence:

- It is very lucrative to do everything possible to obtain the SARS 12L tax rebate.

Improved kiln efficiency also results in reduced coal usage, and therefore carbon tax will be less.

Please also note that labour requirements may change and the scrap rate will likely decrease.

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