

# Fruit facility turns to the sun for cold storage power

**NICK YELL**

In a bold move towards a greater reliance on renewable energy and savings on electricity, Villiersdorp fruit packing and cold storage facility, Arbeidsvreugd, recently had a large solar power system installed.



Clemens Brandt of RED Engineering admires the nearly 3000 m<sup>2</sup> extent of the solar panel installation at Arbeidsvreugd in Villiersdorp. PHOTO: NICK YELL

At about half the size of a rugby field and deploying 1876 PV rooftop panels connected with 13 km of DC cabling, this 450 kWp (kilowatt peak) system is one of the largest of its kind commissioned by the local fruit industry to date. And it's apparently already saving the company significant amounts of money.

"We're currently saving about 55% a month on our electricity bill, which equates to around R65 000," says Danie Jacobs, owner of Arbeidsvreugd. But Clemens Brandt, owner of Cape-based solar power consultants and project developers, RED Engineering, is quick to point out that while he's also "very satisfied with the system's performance to date", the winter months' lack of sunshine will reduce the overall annual saving to about 27%. Added to these savings, though, is the fact that businesses can now offset up to 10% of their electricity related carbon costs when submitting their annual tax returns – another significant reward for the initial outlay.

Besides the benefits of not being totally reliant on the vagaries of Eskom's future supply challenges and the substantial long-term cost savings involved, importers of fruit, particularly those serving EU countries, are now also demanding produce that is as free of CO2 emissions as possible.

"These days, businesses like fruit exporters require renewable energy programmes, not only as a point of competitive advantage, but also to ensure that they're actually able to stay in business going forward," says Brandt. When you note that every kilowatt hour (kWh)

that Eskom generates produces around 1 kg of CO2 emissions, Brandt's claims certainly don't seem exaggerated. RED engineering's installation at Arbeidsvreugd will effectively avoid CO2 emissions of a staggering 733 tons annually, something Brandt believes will still make an impact on their order book in the year ahead.

With all its cost savings and other advantages, plus the fact that South Africa boasts more than 2 500 hours of sunshine every year, one may well ask why the uptake of supplementary solar power (also known as photovoltaic energy or PV) in our country has been so slow.

One reason is the cost of the initial investment. The infrastructure required is significant and the savings you make on your home or business's electricity bill can take between five and 10 years to cancel out the capital expenditure. Coupled to this is the fact that, unlike the rebates Eskom offers on solar water heating geysers, there is currently no capital rebate programme being offered on expenditure for other solar power generation projects. On top of this, government and Eskom have not yet established legislation or a mechanism that will enable private or business energy generators to feed their surplus electricity back into the grid and be paid for it.

But whatever the business expediency of integrating solar power into your home or business is, it will be incumbent on government to ensure that the correct incentives, legislation and mechanisms are put in place to encourage the growth of renewable power sources. On top of this, plans to compensate already cash-strapped municipalities – which will lose important electricity revenue as embedded generation systems proliferate, meaning property rates and taxes could increase dramatically – will need to be finalised and implemented fast.

## Technical specifications

### Arbeidsvreugd, Villiersdorp

- System size: 450 kWp (kilowatt peak)
- Electricity generated: ± 743 000 kWh/year
- CO2 emissions avoided: ± 733 tons per year
- Savings: ± R600 000 per year
- Total savings over 25 years: ± R38 million
- Payback period: ± six years
- Energy audits at 29 facilities have indicated that solar energy can, on average, save about 27% of a pack house or cold store's power bill.

### How solar energy is generated

Solar panels collect sunlight and convert this into energy to produce electricity. A solar power system consists of panels, inverters, and optional batteries and charge controller. Solar panels are connected assemblies of several photovoltaic (PV) cells. Each cell is coated with a positive and negative layer to create an electric field. As photons from the sun, or sunlight energy particles, enter a cell, they allow the electrons in the cell to become free. The free electrons flow through a wire and become electricity.



Blind beneficiary Sicelo Lwabi (pictured with his wife) were the happy beneficiaries of a house in Pine View, Grabouw. The pair are flanked by Western Cape Minister of Human Settlements, Bonginkosi Madikizela, and Deputy Mayor of Tweewaterskloof Municipality, Mlulami Tshaka.



Fifty-one-year old beneficiary Mgcakamen Mbenya (green top and red cap, third from left) pictured inside his house in Roodakke, with the Minister, government and municipal officials, councillors as well as committee members.

# Houses handed over

The Western Cape Minister of Human Settlements, Bonginkosi Madikizela, handed over the keys to houses to beneficiaries in the Pine View and Roodakke communities of Grabouw on Thursday 13 February.

Among the beneficiaries in Pine View was 37-year-old Sicelo Lwabi, who is blind and disabled; Hezekile Jackson (53) and Nhlonhono Nozokile (50), who are both reliant on walking aids. Another recipient was 65-year-old Johanna Saaiman, who was happy to accept the keys to her new home. "I finally have my own house after being on the waiting list for a long time," said Saaiman.

Minister Madikizela urged the beneficiaries to look after their homes. Madikizela also stated, "While government has provided

these houses for free, we need you to meet us half way by paying your rates."

Where problems such as mould, overflowing drains or lack of ventilators were identified by earlier beneficiaries in the Pine View area, the Minister assured that a team of government officials will be engaged to do an assessment of the situation with the view to remedying the problems highlighted.

To the beneficiaries of Roodakke, the Minister said, "Our main aim is to ensure that those who've been living in shacks until now, are housed in decent homes and therefore have a better quality of life. We want you to put your differences aside and help us ensure that development continues." The Minister praised the Roodakke committee for their part in seeing a successful hand-over of houses.

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