Andrew Etzinger (Senior GM: Integrated Demand Management, Eskom): "What we want to do is make it possible for every South African home to move away from electric water heating, to solar water heating and the best way we think to do that is with a rebate program.

The concept is simple: high pressure solar systems for homes that use lots of electricity and low pressure units for RDP houses, like these in Mandela Bay, Port Elizabeth, where over 38 000 low pressure systems have already been rolled out. Thobalani Saku is a community co-ordinator attached to the project.

Thobalani Saku (Community Administrative Coordinator): "It saves a lot of money... in their pockets as well... because now they don't have to use electricity to heat up their water."

And with Eskom hiking its electricity tariffs by around 25% each year, the solar heating industry is set to explode. It's been helped along by the rebate program, a precursor to an imminent new building code.

Chantal Rutter (Carte Blanche presenter): "Very soon new legislation will be passed which will make it compulsory for new buildings to have at least 50% of their hot water come from solar panels or from heat pumps."

Israel was the first country to legislate the use of solar heating. Less than 30 countries have this type of legislation and South Africa is about to follow suit.

But are we ready? When the Camphers in Cape Town decided to install solar panels to reduce their electricity bill, they chose a heating company from the yellow pages.

Leon Campher (Homeowner): "I took it for granted that they were a reputable company."

But they have been deeply disappointed.

Leon: "If I have to wash dishes, I literally have to go to the bathroom and fill up a bucket of water, because there is no hot water in the sink."

And to add to their woes, three weeks after the installation, their hot water geyser mysteriously burst, causing considerable damage.

The Camphers complained to Eskom, which put them in touch with engineer Robin Thomson of SESSA, the regulating body for solar heating in South Africa.

Robin Thompson (Technical specialist: SESSA): "When I see this installation I understand why people can have a negative view."

The Camphers installed their system at a cost of R24 000, hoping to reduce their electricity bill by up to 35% per month. But they were in for the shock of their lives when they received their electricity account.

Liza Campher (Homeowner): "We actually started receiving our electricity account and the
amount was actually higher, instead of saving."

After inspecting the Campher's system, Robin compiled a list of what he thought was wrong with the installation. The Camphers sent this list to Solnet, which dismissed most of it. Then we met with Solnet, but they were not prepared to discuss the dispute with Carte Blanche on camera. We asked a solar heating trained registered plumber to inspect the installation.

Leon: "In your opinion, can this be signed off as complete?"

Kevin Sparks (Registered plumber): "Unfortunately not. The system has not been installed according to the regulations and therefore I could not put my name on the certificate to sign it off."

Like Robin, Fazli Ockers hates it when solar heating gets a bad name. He is a solar warrior. Even his car is adorned with solar panels to provide electricity for those camping weekends. Nature supplies all his electricity needs; he has a wind turbine and his house is adorned with solar panels. He does not pay a cent for electricity; in fact he generates so much of it he feeds back onto the grid.

Fazli Ockers (Owner: Sunhot Solar): "This is just to show people it can be done."

Chantal: "So when you're called out to fix these systems, what are you finding?"

Fazli: "A lot of installation mistakes. You can see the guys who are not used to... you must actually start from the word design."

Design, poor installation and sometimes inferior imports are frequently to blame. This system wasn't properly secured and blew off [the roof]. Here only two small screws were used to hold things in place. Bits slipped down onto the chimney, causing extensive leaking. These systems perished in the extreme cold of the Kouebokkeveld.

And on Hellopeter.com there are masses of complaints regarding installations and bad service. Like civil engineer Geoff Ackerman from Pretoria. He and his wife forked out R25 000 for a high pressure system.

Geoff Ackerman (Civil engineer): "I was told that this system would produce 60 degrees of water all year round and that I wouldn't need to use electricity at all in summer."

They had the jitters just watching the installation, which was hair-raising in terms of safety precautions - or lack thereof... No safety harnesses appeared to have been used, which is against the law. It's been 18 months since the Ackermans' system was installed.

Geoff: "There is no ways I have enough hot water to shower or for general domestic use with this system. It has to run on electricity in order to produce the hot water that I need."

26% of high pressure systems installed so far have failed technical audits and required
immediate action.

But solar definitely has a future in sunny South Africa and not complaining are the tens of thousands of RDP residents who have hot running water for the first time.

The rebate has also meant good business for companies able to provide and install systems free of charge in RDP communities.

Andrew: "This is really taking pressure off the grid; it's reducing the risk of power failures."

Robin has his doubts about this.

Robin: "Traditionally, RDP houses are not really where the savings are to be made because they don't have geysers and they don't have [their] big guzzling appliances. We're talking about the equivalent of two burning light bulbs at peak time per household."

Government however is clear that it wants quality services for every South African, meaning more and more people accessing electricity and hot water. But the companies that are installing these low pressure systems have to provide a five-year guarantee. What happens if they go bust, as some have? Port Elizabeth believes it has the answer to that, in an ambitious project spearheaded by Peter Nielson.

Peter Nielson (Director of Projects: Electricity and Energy, Nelson Mandela Bay Municipality): "What was done in this case, in order to make the project viable, carbon was explored."

While the Eskom rebate isn't enough to cover this mass rollout, carbon credits provide the shortfalls. In terms of the Kyoto Agreement, many developed countries have agreed to reduce their carbon emissions. For certain industries, this is simply not possible, so in order to offset their carbon emissions they are required to buy carbon credits from developing countries like South Africa - in effect, a fine. Since solar heating systems save electricity, they carry a carbon value.

Pieter says the money made from this project in the form of carbon credits has allowed the developer to employ 200 technical staff, administrators and locals to ensure the smooth running and maintenance of their 38 000 systems.

To prevent negative scenarios, Robin says homeowners who go solar and claim a rebate from Eskom should always choose a company affiliated with SESSA. The companies that installed systems in the homes of our case studies were not affiliated.

Robin: "Are the installers SESSA members? If not, why not? Because you must have a good reason not to be part of the industry body. And then, lastly, why is this particular system good for me in terms of my hot water usage, my income, the cost of the system and where the system is installed?"