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The Cape Town scheme that lets you sell electricity to the grid – just don't call it a feed-in tariff…

As we write, htxt.africa's super-secret editorial compound has just been plunged into effective darkness thanks to loadshedding. It's back, and it's not going anywhere. (And we're idiots for not having charged our UPS backups, we know.)

At times like this, we often ask ourselves the obvious question: why aren't more South Africans off-grid and producing electricity for themselves? How come rain-soaked Germany can generate almost 7% of its annual power needs through rooftop solar panels, when sun drenched South Africa can't?

And the answer we often come back to is simple: in many countries, and especially European ones, there are generous "feed-in tariffs" (FITs) through which national electricity suppliers are forced to pay home owners for every unit of electricity that they produce with their own renewables but don't use. High FITs introduced in the UK in 2010, for example, provoked a boom in the solar industry a few years ago as regular consumers discovered they could actually make a profit over the lifetime of a photovoltaic generator on the roof.

Bet you didn't know we have almost exactly the same set-up here in South Africa? Or at least, in one place in South Africa anyway.

Back in September, an office park in Observatory became the first customer of the City of Cape Town's electricity department to legally sell surplus energy back into the grid. The 1.2MW Black River Park Solar Project switched on following two years of pilot programs devised by the city to see how a feed-in tariff would work in South Africa.

The fact that anyone can now apply to be an independent power producer in Cape Town is truly ground-breaking. Not least because the City has had to create its own rules while the national regulator has failed to publish a first draft for general use.

South Africans who want to put solar panels on the roof have a dilemma. Since houses use the least amount of electricity during the day – when PV panels are working flat out – and more in the evening when the panels literally go dark, the only way to go solar economically is to store surplus during the day in battery banks that are drained overnight. Batteries are expensive, though, and need more maintenance than the rest of a solar system combined.

Far better, the thinking goes, to sell that daytime surplus back to the grid energy provider. It means extra power flowing into the grid at peak office and factory hours, and keeps demand for municipal power up at night. Grid operators like nothing more than stable, predictable demand. It's big spikes that require generators to be shut down or fired that knock budgets out of whack.

But anyone holding out for Eskom to introduce big incentives to home producers might be disappointed.

"In South Africa," says head of green energy at City of Cape Town Council, Brian Jones, "Around 50% of [electricity] customers are subsidised through lifeline credit from high end users. The principle we worked from is that the poor don't subsidise the rich to go off-grid."

Paying a premium for electricity generated on domestic rooftops, in other words, is worth doing overseas in countries with a specific agenda for promoting renewables. But in South Africa the worry is that losing income from high usage customers will worsen the problem of infrastructure maintenance, since so many customers can barely afford basic electricity let alone the overhead costs of substations, cable replacements and the like. Nationally electricity demand has fallen in recent years as homes and businesses become more efficient and businesses more wary of the bottom line. But the cost of supplying electricity and maintaining the infrastructure hasn't fallen. The economics of this leads to a bleak future.

"At the moment," Jones says, "Electricity sales subsidise rates and taxes, in the future the grid will have to be partly subsidised."

In the short term, that leaves municipalities in a Catch 22: power supply is constrained, but they can't afford to reduce demand by supporting those who want to opt out of using it, especially when they're the highest value customers.

Cape Town's current scheme, then, is designed to make the best of the situation: if it works, well off customers will at least stay customers, even if they contribute less financially. For that same customer, it reduces the up-front cost of renewables and gives them something back in return.

But for the customer it really cheaper than buying batteries and going completely off-grid? That's a slightly complicated question.

There are some odd and – for the time being – unfortunately quirks in the Cape Town system that will leave anyone looking at PV generation scratching their head. If you register for the scheme, the City will refund you **56.58 cents** for every kWh of electricity returned to the grid from your panels. But when you draw electricity from the grid it'll cost you **R1.09**. To make it worse, there's a **daily R13.03** standing charge added on to cover the infrastructure cost of keeping your house connected. By comparison, France pays domestic producers R1.51 per unit.

Jones says that this is just the beginning, however, and that he believes one of Eskom's solutions to its current problems will be to reintroduce standing charges for everyone, at least those not on a prepaid meter, leaving those who generate at home no worse off.

The sums those looking at renewables need in Cape Town need to do, then, is to look at whether or not that tariff will leave them better or worse off than purchasing batteries to go with their system. It presents an extra choice which may or may not swing them in favour of going completely off-grid.

"At the moment the tariffs favour larger suppliers of electricity," admits Jones, "We'll probably try to introduce a second tariff for domestic consumers."

One thing that is to be admired, however, is the creative use of language through which Cape Town has framed these local regulations. For a start, the scheme is most definitely not a feed-in tariff. Under national regulations, only one organisation is allowed to buy electricity directly from producers in South Africa, and that's Eskom. Cape Town's solar producers may receive a rebate or partial refund on electricity supplied to the City, but it's not the same as a purchase. Oh no.

Following on from that reasoning, only those who remain net consumers of electricity may apply for the scheme. You have to buy more electricity than you return, in other words – and that may not be quite as easy as you think.

Similarly, homes on the scheme are "small scale embedded generators" and not independent power producers. Because proper generators require an expensive licence to operate, and are subject to rigorous safety checks. As it is, Cape Town insists that those who sign up for the scheme pay for a qualified engineer to certify their system, which Jones says is a "barrier to entry". Systems also need to be fitted with "anti-islanding" technology, which stops them

sending power back down the lines during a powercut or loadshedding – to do so is dangerous to utility workers expecting to enter a broken down substation, for example.

Overall, then, the scheme is far from perfect – but it is a start. Jones says that interest has been growing, and currently between 50 and 60 people and businesses have applied using the forms available here. It's not widely known about, though, and press coverage has been slow to start with.

Tony Robinson, of the Cape Town Chamber of Commerce, describes the Cape Town scheme as "practical", and says that it gives those interested in off-grid power concrete numbers to work from when working out the costs over period of time.

"The advantage for the City is that it gets a regular and predictable income from the service or availability charges and when there is surplus electricity available it can buy it at a slightly lower tariff than it pays Eskom," Robinson says, "For consumers who use electricity mainly during the daylight hours… the costs of their solar electricity will be predictable and will not increase every year along with Eskom and municipal tariffs. This will give them a measure of control over future energy costs."

The great hope, of course, is that it will help kickstart more businesses focused on solar power – an economic area which by rights, if you consider the amount of sunshine available, South Africa should be a world leader.

"Perhaps even more important is that the newly opened door will create opportunities for business and jobs for the unemployed," concludes Robinson.

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