

REFIT NERSA Submission

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Date of Submission: Jan. 14 2008

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1. Overview

It is with something like disappointment and sorrow that this submission must begin with a protest about the manner in which NERSA has released its REFIT proposals. Releasing the proposal on the 15th of Dec. 2008 and requiring detailed comments (and asking for tariff methodology suggestions, a complex and technical topic) by the 15th of Jan. 2009 is asking a great deal from the public, given that this period is the traditional holiday period. While legal, it is not an example of fair play.

This submission applauds NERSA for examining REFIT and affirms the principle that REFIT is both a positive development for the economy and the environment. However, this proposal has ten distinct recommendations regarding REFIT and serious concerns about the tariff methodology. The recommendations are:

Recommendation #1: NERSA to revise the REFIT proposal to include Solar PV and mini-hydro (less than 1MW).

Recommendation #2: The contract life be revised to 25 years. This is in line with best practices and matches the modelling assumptions of RE plant life spans.

Recommendation #3: NERSA, in consultation with the Minister, applies a licence exemption for REFIT generators, especially for those under 1MW.

Recommendation #4: NERSA to apply a single REFIT Standard Contract instead of four options.

Recommendation #5: REFIT should be modelled and implemented separately from CDM and other flexible mechanisms; i.e. it should be a “stand alone” financial instrument and separated, as much as possible, from market volatility.

Recommendation #6: NERSA examines its tariff levels and methodology in light of the public hearings and provides a revised set of tariffs. This process should include an alternative set of consultants doing a separate modelling exercise, as system of checks and balances.

Recommendation #7: The REFIT system should be based on Gross Production and not Net Production.

Recommendation #8: NERSA should review REFIT annually at least for the first three years.

Recommendation #9: There should be no limit to REFIT.

Recommendation #10: NERSA should clearly indicate that RE Generators under REFIT have priority to the grid.

There seems to be three distinct flaws to the tariff methodology. These are the avoided cost of conventional power generation, lack of accounting of externalised

costs, and lack of benefit to the economy calculations. All of these three issues have a direct influence on the financial viability (and hence tariff) of REFIT.

2. Lack of Solar PV and Disempowerment of Individuals and Communities

One of the greatest advantages of an Advanced REFIT system would be its contribution to the socio-economic development of ordinary citizens and communities. The most appropriate technology is of Solar PV, and this has been mysteriously excluded within NERSA's REFIT proposal.

The reasons for this omission are not apparent from NERSA's documentation, and only make sense when the entire details of NERSA proposal are put forth. As elaborated on in Section 3, the conditions for qualification for a REFIT seem to exclude that of individual citizens and communities from participating in REFIT. For example, the requirement to obtain a licence, the exclusion of hydro schemes lower than 1MW, short contracts, and multiple contract types instead of a single standard contract.

These conditions and the exclusion of Solar PV indicate that NERSA's REFIT proposals are NOT intended to allow the general public to contribute to supplying the country's energy needs and increase citizen's socio-economic status through revenue generation from the production of clean energy at a household level. Instead, it is aimed at large, wealthy companies. Only a large company has the ability to raise capital and deal with the licensing criteria to build a concentrated solar plant (estimated costs at R5 billion for a 100MW plant). This proposal offers very little for individual citizens, and neither is there any indication that REFIT policy will do so at some time in the near or distant future. This is a severe mistake in approach by NERSA, and would contravene NERSA's own stated objective of contributing to socio-economic development in a sustainable manner.

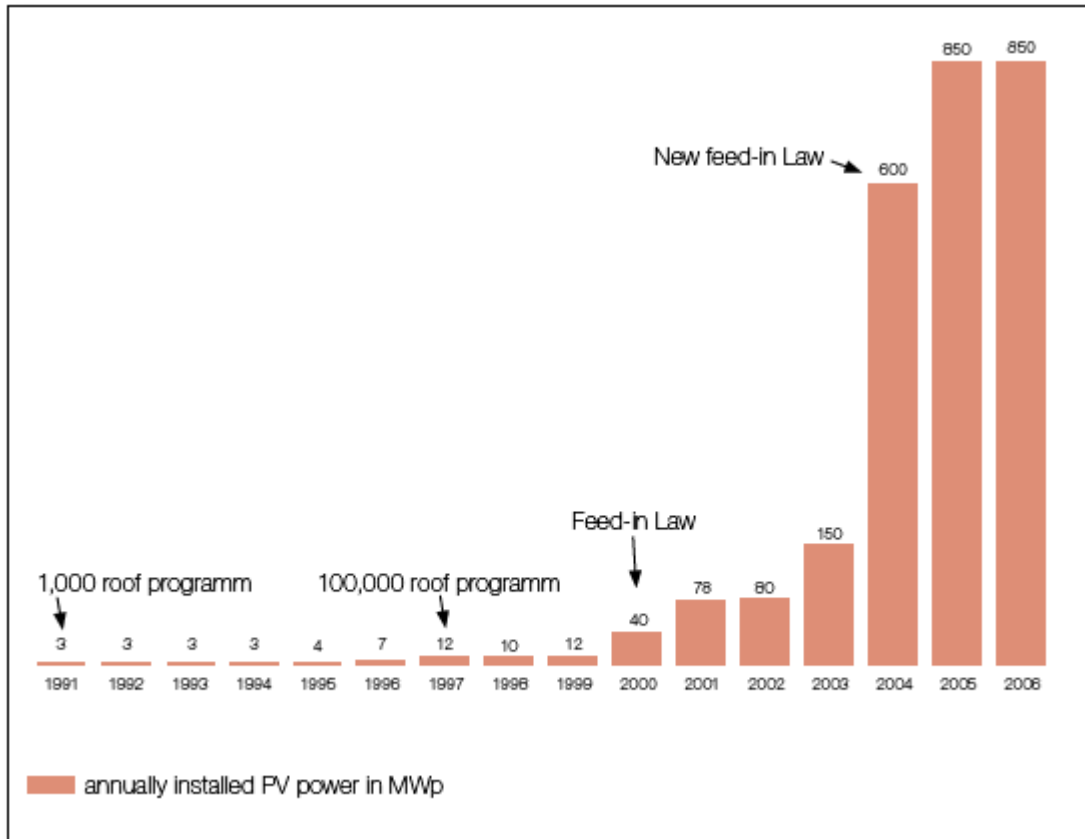
Further, given that NERSA has approved significant tariff increases and will grant further tariff increases (partly due to Eskom's escalating new build costs) at rates far above inflation and above annual salary increases, it will be placing additional burdens on an already overburdened citizenry. Micro generation (and especially Solar PV) would play a significant part in enabling individuals, communities and collectives to defray these costs and play an important role in the redistribution of wealth within the electricity sector. This is most definitely within the remit of NERSA.

In addition, inclusion of Solar PV in REFIT programmes in other countries has sparked a massive boom in local manufacturing, servicing and related industries. Germany, for example, made significant changes to its REFIT programme in 2004. The results have been, even with a steep depreciation rate of 5%, impressive:

- 70,000 new systems were installed in 2004
- 600 MW of new systems were installed in 2005
- A total of 1,500 MW were operating by year-end 2005
- Costs have dropped over 25% since 1999

- A total of 200,000 solar PV installations by 2005¹

The graph² below shows the impact of the altered REFIT laws on the Solar PV market in Germany:



1,500MW from Solar PV, widely spread throughout society (with farmers installing 200MW in 2005 alone with 30kW rooftop systems) is indeed an impressive accomplishment, as this equates nearly to one PWR nuclear reactor.

The example in Germany shows how the principles of diversity of supply, sound environmental sense, sustainable industrial development, and democratisation of the energy sector all combine. NERSA’s REFIT proposals are significantly undermined by the refusal to include Solar PV.

Recommendation #1: NERSA to revise the REFIT proposal to include Solar PV and mini-hydro (less than 1MW).

¹ Paul Gipe, “Renewable Energy Policy Mechanisms” (www.wind-works.org, 2006), pg. 53

² European Photovoltaic Industry Association, “An Argument for Feed-In Tariffs” (2007), pg. 15

3. Specific Points of Contention

The following is a list of specific points of contention with brief analysis and recommendations for improvement.

3.1 Contract Length

The cited contract length of 15 years seems to be too short and is based off a fairly big assumption. The world leaders in REFIT offer significantly longer contract periods, as witnessed in the table below³:

Typical Contract Term in Years for Renewable Tariffs

Country	Wind	Solar	Hydro	Biomass
France	15	20	20	15
Germany	20	20	20	20
Ontario	20	20	20	20
Portugal	12	12	12	
Spain (2007 RD)*	>15	>25	>25	>20

*Life of facility.

It is not proven in the NERSA documentation that the 15 years is adequate, but only suggests that this is in line with world averages, yet it is below world best examples. This is a crucial point as stability of contract (and hence stability of price) is vital for financing arrangements; hence Spain's approach of contracts on the life of the generating facilities. A longer term contract increases financing opportunities as it increases known returns. Further, 15 years is only half the expected life spans of the RE plants, as modelled in the NERSA methodology (25-30 life span, see REFIT Memo 18/09/2008). There is a significant discord between life of plants and contracts. This brings about significant instability into the RE industry, and one of the major advantages of REFIT is that it can reduce instability and volatility, making budgeting far easier for suppliers, purchasers, regulators and financiers.

The NERSA documentation (Draft Guidelines August 2008) states:

Following the end of the contracted REFIT period, RE Generators will be required to negotiate on the electricity market for a new agreement. It is assumed at this point that developers will have achieved the necessary returns on their investment.

There is a significant assumption that there will be an electricity market in 15 years for generators to negotiate on. This not only precludes the ability of smaller players (individuals and communities) to enter into the REFIT scheme, due to their inherent incapacity to negotiate on a market and the costs that this would entail (the costs of which do not seem to be modelled), but offers a vision very different to current developments in the electricity sector. Currently, there is a single buyer (Eskom) with tariffs regulated by NERSA; this can hardly be seen as a free or deregulated market

³ http://www.wind-works.org/articles/feed_laws.html

for electricity, and nor is there significant national consensus for a deregulated market or even a collective vision on how it would work.

Therefore, what happens at the end of the contract term, and halfway through the life expectancy of the RE plant is uncertain. This could introduce significant anxiety into the REFIT scheme and undermine its implementation. Stable and known financial parameters are vital prerequisites for a successful REFIT scheme.

Recommendation #2: The contract life be revised to 25 years. This is in line with best practices and matches the modelling assumptions of RE plant life spans.

3.2 Licensing

While Section 8(I)(a) of the Electricity Regulation Act of 2006 states:

No person may, without a licence issued by the Regulator in accordance with this Act operate any generation, transmission or distribution facility

Section 9 states:

The Minister may, after consultation with the Regulator and stakeholders in the advisory forum, determine by notice in the Gazette that any activity contemplated in section 8(1) need no longer be a licensed activity from the date set out in such notice.

Therefore, the Electricity Regulation Act of 2006 does not necessarily require that generators under the REFIT scheme have to be licensed. There are valid reasons for NERSA to look again at the issue of licenses for REFIT. These are:

A) The ability of NERSA to manage licenses under REFIT. NERSA has not proven that it has the ability to manage a significant number of new licensees. It does not have, by its own admission, the ability to inspect all licensees and will rely on random sampling.

B) License fees and administrative challenges for potential licensees will prevent them from entering the system. This is particularly true for small operators, lower than 1MW and NERSA documentation admits this, stating, “It is not expected that projects below 1MW (mini, micro and pico) will apply for the REFIT during the initial phases, due to the high transaction costs incurred in applying for licences, negotiating PPAs etc.”

This means that licensing arrangements act as an effective Poll Tax on entering into the REFIT scheme. Once again, as stated in Section 2, this means that individual citizens and communities are being excluded from the scheme despite their potential for positive contributions to the scheme. This is profoundly anti-democratic.

C) The need for licenses has not been determined in the NERSA documentation. The contract between the buyer and seller, which is approved by NERSA, should provide ample legal cover to ensure a viable REFIT scheme.

Recommendation #3: NERSA, in consultation with the Minister, applies a licence exemption for REFIT generators, especially for those under 1MW.

3.3 Contract Type

Currently, NERSA has four different contract types. This should be standardised to a single Standard Contract for ease of administrative purposes. According to the World Future Council and based off worldwide experience, one of the keys to a successful REFIT is ease of administration. A single standard contract would considerably ease administrative burdens.

Recommendation #4: NERSA to apply a single REFIT Standard Contract instead of four options.

3.4 Clean Development Mechanism

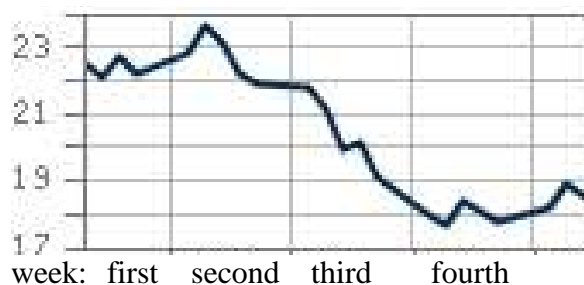
This point of contention should be read in tandem with Section 4, as it touches strongly on the tariff methodology. Given that a REFIT system should be financially secure, straightforward and simple, introducing an additional variable with the complexity and volatility of the Clean Development Mechanism (CDM) is unwise. (We note that CDM is not – but should be - given a variable status in the NERSA documentation (REFIT Model Overview, pg. 5).)

There is every indication that the CDM market (which is based on the price of carbon and not on emission reductions) is heading for a bubble. This could mean a very wild ride under the proposed REFIT scheme, and the assumptions made on the carbon price could prove to be widely under/overvalued. Any volatility in this market would have serious consequences on the intended aim of the REFIT scheme through price distortions, and, given all other variables, is one variable too many.

The 25% crash in the price of carbon in October 2008 is illustrative of the dangers.

Carbon price crash during October 2008

Euros/tonne



Furthermore, there is no conclusive evidence that CDM (or similar flexible mechanisms) are helping to reduce carbon emissions. In fact, given rising global emissions (and rising national emissions) much the opposite should be suspected.

3.5 Tariff Levels.

It is noted that the wind energy tariff is 22% lower than international average, and is 34% lower than the average of France, Germany and Spain's tariffs. It is also noted that the hydropower tariff lower than world average in a water restricted developing country like SA.

This is pause for thought. Comparing the tariffs of world leaders in the industry (as compared to all countries or non-world leaders) provides a better standard for testing ones methodology than the approach taken by NERSA. On this standard the average tariffs set forth by NERSA seem to be need to be raised by approximately US\$0.015/kWh and that NERSA should be looking at a tariff for Solar PV at between US\$0.6 to US\$0.7/kWh.

The question is, why then are NERSA suggested tariffs lower than world and world-leading averages? Please see Section 4 for indications.

This is a vital point for, if the calculations are wrong, the uptake on the REFIT system will be too low and REFIT will be hobbled from the beginning. Therefore, it would be wise to commission an alternative tariff calculation team.

Recommendation #6: NERSA examine its tariff levels and methodology in light of the public hearings and provides a revised set of tariffs. This process should include an alternative set of consultants doing a separate modelling exercise, as system of checks and balances.

3.6 Net vs. Gross Production

The NERSA proposal aims to only pay for Net production rather than Gross production of RE. This will create a distortion in the system, namely that people will buy cheaper dirty energy from the grid and sell clean energy. Under a Net system, this defeats some of the rationale for REFIT.

Recommendation #7: The REFIT system should be based on Gross Production and not Net Production.

3.7 Review Period, Targets, Priority Access

The Review Period envisaged by NERSA is too long at three years. In the initial stages of REFIT it should be review on annual basis, in particular because of the declared target date of 2013.

The idea of achieving only 7500GWh by 2013 is inherently limiting and no reasons were given as to why that target should not be drastically overrun by REFIT. Logically, the world leader (Germany) has no limit for its REFIT programme and other countries have much higher limits than the target proposed by NERSA in accordance with the White Paper. The REFIT scheme is in danger of treating a target as a cap (limit).

In order for REFIT to succeed, REFIT should be given priority access to the grid.

Recommendation #8: NERSA should review REFIT annually.

Recommendation #9: There should be no limit to REFIT.

Recommendation #10: NERSA should clearly indicate that RE Generators under REFIT have priority to the grid.

4. Tariff Methodology

There seems to be three distinct flaws (in addition to the CDM variable addressed in Section 3.4) to the tariff methodology. These are the avoided cost of conventional power generation, lack of accounting of externalised costs, and lack of benefit to the economy calculations. All of these three issues have a direct influence on the financial viability (and hence tariff) of REFIT. Please note that the singling out of these three issues does not necessarily mean an exhaustive list of methodology suggestions. Given the short time for response, further examination of methodological details was not possible.

4.1 Avoided Cost of Conventional Power Generation

As this is a significant, major factor in the determination of the tariff, it is surprising that the figure of ZAR0.35/kWh has been assumed with no reliable figures (from either NERSA or the consultants) to back this assumption up. This is somewhat disturbing, for there are obvious questions to this critical assumption in the tariff calculation:

What is the technology used to determine the avoided cost? Existing coal (base)? New coal-fired plants (base)? Nuclear power? OCGT (Peak)? Pumped storage (Peak)? Or is it an average of all of these? Does the avoided cost count in the cost of borrowing to build such plants and finance costs in lead times?

Further, what calculations, if any, went into determining the rising nature of avoided cost? As oil, gas, and coal prices climb (which is a given, considering global demand vs. supply) are these factored in? If so, at what projection rate? As Eskom has repeatedly indicated to NERSA that rising energy costs have driven up its operating costs and is approaching NERSA again this year for further tariff increases, it is highly likely that today's avoided cost will be higher in six months from now. If not reflected in the REFIT tariffs, this means that within six months (much less than the three year review period) the assumed avoided cost of ZAR0.35k/Wh will be undervalued.

Does the avoided cost include levies such as Treasury's proposed ZAR0.02/kWh levy? Based on the evidence presented, one assumes not.

Given the above, it is likely that the avoided cost is not correct and is, most likely, undervalued. If true, this would create price distortions in the REFIT tariff.

4.2 Externalised Costs of Conventional Power Generation

The White Paper on Energy (Section 5.2.3) states:

...energy prices to be as cost reflective as possible. To this end prices will increasingly include quantifiable externalities.

Therefore, it is within the policy mandate and obligation of NERSA to include externalised costs of conventional power generation. Further, this is vital to determining the correct price of renewable energy. The externalised costs of conventional power generation have a very real cost on the South African economy and an impact on socio-economic development, which NERSA is mandated to promote.

The lack of externalised costs in the tariff methodology further undervalues the REFIT tariff. A conservative estimate of externalised costs from conventional (coal) power generation is 50%.⁴ This European figure is almost undoubtedly too low for the South African context, given Eskom's large carbon footprint, the burning of low-grade coal, lax air pollution standard, and the cost of water usage in coal-fired power stations in a water-stressed context. However, for the mere purpose of illustrating problems within the methodology, it can be assumed.

Therefore, adding the externalised cost to the assumed avoided cost brings a real cost of conventional power production to ZAR0.525/kWh. Add the ZAR0.02/kWh levy and the cost climbs to ZAR0.545/kWh. This is a significant difference and suggests that tariff paid under REFIT should climb to accommodate this.

4.3 Benefits to Society

As society (in the form of electricity users) will bear the costs of REFIT (as much as it bears the real cost of externalities), it would only seem fair to calculate the costs to society of the benefits of REFIT. For example, REFIT in Germany has resulted in:⁵

- 214,000 jobs created
- 97 million tonnes of CO₂ emissions avoided in 2006 through renewables
- €21.6 billion total turnover in 2006 through RE (building and operation)
- €8.7 billion investment per year
- Reduction of around €5.40 worth of environmental damage per household per month
- Cost of approx. €1.50 per household per month

These benefits have a direct impact on the economy. Even if South Africa were to achieve a quarter of this, it would have a significant, positive impact. This impact needs to be added to the equation, and, thus, would provide additional incentive for initially higher REFIT tariffs.

This is not captured in the methodology, and, hence, undervalues REFIT to society.

⁴ http://www.ewea.org/fileadmin/ewea_documents/documents/press_releases/factsheet_economy2.pdf

⁵ World Future Council, "Feed-In Tariffs—Boosting Energy for our Future" (2007), pg. 13

5. Conclusion

While a REFIT is a good idea, the NERSA proposal should be revised. The ten recommendations listed here and the three problems with the methodological approach require serious revision.

In particular, the exclusion of Solar PV and other forms of micro-generation needs to be reversed urgently. NERSA is in danger of disenfranchising the citizenry, to whom its ultimate responsibility lies.

Lastly and regarding tariffs, it seems to make economic sense that if NERSA is committed to the Government policy of encouraging Foreign Direct Investment, the tariffs set would be (at least) in line with other markets. Why invest in South Africa when better returns are available in other countries? Setting the tariff too low may increase the danger of lack of investment in REFIT, something no one wants.