



Commission for Gender Equality
A society free from gender oppression and inequality

**COMMISSION FOR GENDER EQUALITY SUBMISSION TO THE
NATIONAL ELECTRICITY REGULATOR (NERSA) ON ESKOM'S
REVISED REVENUE APPLICATION, MULTI-YEAR PRICE
DETERMINATION, 2010/11 TO 2012/13 (MYPD 2), 14 DECEMBER
2009**

Submitted: 14 December, 2009
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Introduction:

The Commission for Gender Equality (CGE) welcomes this opportunity to submit its comments to NERSA. The CGE is an independent statutory body established in terms of Section 187 of the Constitution of South Africa, Act 108 of 1996. It is hence referred to as a Chapter Nine institution.

The role of the CGE is to promote respect for, protect, develop and attain gender equality, and to make recommendations on any legislation affecting the status of women. The powers and functions of the CGE are outlined in the Commission on Gender Equality Act, No. 39 of 1996. In terms of Section 11(1)(a) of this act, the CGE must *inter alia*:

- Investigate gender-related complaints from members of the public or on its own initiative;
- Monitor and evaluate the policies and practices of state organs, state agencies, public bodies and the private sector in order to promote gender equality and the rights of women. The CGE may make recommendations regarding the protection and promotion of gender equality;
- Develop, conduct and manage education and information programmes to foster public understanding of matters pertaining to gender equality; and

- Evaluate any of the following: acts of Parliament, systems of personal and/or family law, custom and/or customary practices, and systems of indigenous or any other law.

Looking at the history of the CGE's involvement against poverty, an emphasis on the economic empowerment of women has formed a part of the work of the CGE from the earliest days. From 1999, it has conducted activities such as research on pay equity, monitoring the position of women farm workers in 3 provinces, and investigating complaints related to workplace discrimination. It has also held the nationwide poverty hearings, together with the South African Human Rights Commission (SAHRC) and the South African Non-Governmental Coalition (SANGOCO). The CGE gave additional weight to economic equality by creating the formal theme area of Gender and Poverty in 2002. This gave a more strategic focus to its poverty work. During this period one of the highlights was the study on race and gender equality in the private sector, published in 2005.

Finally, in 2007 the CGE put in place committees to oversee the implementation of its strategic plan in each of the theme areas. The Gender and Poverty Committee, currently chaired by Commissioner Abrahams, has amongst others the following functions:

- To provide input, advice and assistance to plenary (the CGE's highest decision-making body) in respect of addressing strategic and policy issues, and challenges to economic equality with respect to gender
- To identify significant emerging issues affecting implementation of the gender and poverty programme and develop solutions to these issues for plenary approval
- To make recommendations around this theme for the purpose of further developing the CGE policy stance around this theme.

The creation of theme committee coincided with a re-evaluation of our strategic direction. New approaches were incorporated to both broaden our area of focus while tightening up our operations through concentrating on key entry points, thus maximizing our impact. The Gender and Poverty Committee now oversees the CGE five-year

strategic plan regarding economic equality measures. The strategic plan's first objective reads:

“The CGE, in collaboration with strategic partners, continues to develop a clear conceptual framework for its gender equality and poverty focus – defining possible entries and monitoring points of government poverty reduction policies, strategies and programmes in order to assess the gendered impact of poverty on the quality of life of poor women, including female-headed households, bearing in mind the effect of various poverty programmes on global climate change and biodiversity.”¹

NERSA has been identified as a key entry point, since through its regulatory functions it plays a critical role both in affecting the quality of life of poor women, and in addressing carbon emissions. As a consequence we anticipate deepening our monitoring and advisory activities with respect to NERSA's work, its effect on the economic equality of women and men, and the welfare of the planet in general.

With respect to the current call for comment, we note that ESKOM does not once refer to gender in its submission, nor does it appear to have any understanding of the differential electricity usage of women, or the differential effect of a tariff hike. We deplore this absence, since 52 % of the population are women and all of us are gendered. In technical terms this is known in feminist analysis as “gender-blindness” and leads to unsuccessful policies which are formulated in ignorance of one of the fundamental organizing principles of human existence. We note further that ESKOM did not see fit to include any of the Chapter 9 Institutions in its preliminary round of consultations. As such it missed the opportunity to ensure that its application is in line with the letter and the spirit of our 1996 Constitution. Our response, therefore, is aimed at filling the void and seeks to contribute to a more sophisticated analysis of the ESKOM application.

1. Introductory remarks: General links between gender, poverty and energy

Broadly it can be argued that:

¹ . CGE Strategic Plan 2008-2013: Towards An Integrative and Effective Organizational Model, pp. 27.

".. women are the backbone of African societies, yet little is done to support their endeavours. Women are often among the poorest of the poor, and we know that it is women who are largely responsible for acquiring energy on a daily basis to keep members of the household clean and comfortable. To do this women juggle with multiple polluting and inefficient fuels, mostly wood, biomass and dung but also kerosene."²

Further, poverty can itself be measured in terms of access to energy: "Having too little energy and using inefficient sources of energy contributes to women remaining poor and unable to enter the mainstream economy."³ Finally, certain forms of energy are not only dirty and expensive, but they also contribute to global warming due to a high rate of carbon emissions, while posing major health risks to poor women and their families. The coal smog which rises over Soweto of an evening is an example of this form of pollution, as well as the regular fires which ravage informal settlements caused by fallen paraffin stoves.

A critical aspect of the relationship between women and energy lies in the reality of women's double working day. The most recent national time-use study shows that in 2000, men spent an average of some 87 minutes per day on productive activities excluded from GDP calculations, while women worked just under three times longer, or an average of about 247 minutes per day.⁴ The value of unpaid labour could be calculated as between 32% and 38 % of GDP, of which about three quarters is provided by women.⁵ For those living in rural areas, the proportion of unpaid labour is considerably higher. The study showed that in 2000 those without a water supply in the house, but with water within 100 metres from the dwelling spent an average of 44 minutes per day collecting water, while those with water at a distance of a kilometre or more spent an average of 71 minutes per day. The former category spent an average

² . Annecke, Wendy "The Ethics and Economic of Including Women in the Electrical Supply Industry" Energia no date, pp.1

³ . *Ibid.*

⁴ . Budlender, D and A Brathaug Calculating the Value of Unpaid Labour: A Discussion Document *Statistics South Africa Working Paper 2002/1*, 2002, pp. 15.

⁵ . Depending on what method of calculation used. Cf. Budlender *op cit* pp. 17.

of 78 minutes a day collecting fuel, and the latter, 128 minutes a day.⁶ Almost without exception this work was done by women and young girls.

One final aspect which needs to be considered is the evidence that women who obtain electricity outside the legal network, such as those living in backyard shacks tend to pay almost double for electricity than those connected to the formal network. This is because they are paying a middleman, who adds a mark-up to the price received by ESKOM.⁷

From the point of view of assisting women out of poverty, therefore, as well as reducing health care costs and the costs of lowered productivity due to ill-health, the case for connecting women and female headed households up to the national electricity supply network is clear cut. At present, there is considerable gender inequality in access to electricity: "Although Africa has seen the appointment of women to the position of Minister and Deputy Minister in several countries, including South Africa and Uganda, ordinary and especially poor women are still largely excluded from electricity, petroleum and large scale renewables."⁸ Energy deprivation is thus a major contributing factor in keeping women in poverty. Providing legal electricity to women or female headed households is cheaper than the forms of energy they used previously. It also makes it easier for women to pursue various forms of micro-entrepreneurship – for instance hairdressing, catering or laundry.

Access to electricity allows women to use labour-saving equipment such as stoves, geysers and washing machines. This significantly reduces the amount of time women spend on household tasks and frees up time for them to start a small business (or attend gender workshops). This also begins to stop trans-generational transfer of

⁶ . Ibid.

⁷ . Abrahams, Yvette Smartietown: Women, Water and Sanitation in Paar Municipality, Gender Advocacy Programme, Cape Town, 1999;

⁸ . Anneck *op cit*, pp. 2.

poverty: "Too often girl-children in Africa have to take on the domestic tasks including fuel and water collection and caring for siblings and the elderly. School attendance is then irregular and grades suffer. Elizabeth Cecelski has shown that in Tunisia the access of girl-children improves as the rate of electrification improves.⁹ Education is a fundamental factor in ensuring that poverty is not passed on from generation to generation. It would be interesting to see a local study of this effect.

Certainly local research argues that women are the managers of electricity demand. In a survey of 250 households in Khayelitsha, Cape Town, it was found that:

"Women manage electricity much as they managed wood: they supply the money, they walk to buy credits (for the prepayment meters) and they are heaviest users of the electricity – albeit mostly for family rather than personal activities, such as cooking or ironing. In most households, men assist in some way or other, and there was evidence that men recognise the difference between using the most electricity and benefiting the most. Having electricity meant better education, television, health and safety as well as more leisure time for both men and women."¹⁰

In other words, access to electricity (in association with understandings of the related transition to modernity) seems to be leading to a gradual improvement in crucial aspects of gender equality. All these factors improve women's ability to lift themselves out of poverty.

With regard to ESKOM's current initiatives, then, the gender aspects are clear-cut. Its current efforts at demand-side management are gender blind, i.e. they do not direct themselves to women as key demand-side managers, they do not recognize the gendered implications of electricity use, and they do not specifically include women or gender equality advocates such as the CGE in decision-making. With regard to the proposed tariff hike, a 36 % rise in electricity prices would in the simplest terms be the same as reducing women's access to electricity by 36 %. However, bearing in mind the

⁹ . Annecke *op cit*, pp. 3.

¹⁰ . Annecke, Wendy "Whose Turn Is It To Cook Tonight?: Changing Gender Relationships in a South African Township", ENERGIA News 8.2, December, 2005.

differential mark-up of women in informal settlements, a 36 % rise in electricity tariffs could well imply over 80 % increase in the prices they pay as end-users. It is likely that they will end up restricting electricity use to the bare necessities and instead substitute electricity with then one resource they do have: free labour. While no local evidence has been found, a study in Argentina found that when women were forced to economize on electricity, they reacted by putting in more unpaid working hours and putting their health at risk:

“The report documents some 7% of women turning off fridges with questionable effects on the food and budget, of women using the washing machine less or going back to bending over the bath and washing by hand... and of women not heating the house during the day or reverting to kerosene or wood for space heating. Women and small children were generally the ones at home during the day so they were the ones suffering from the cold in unheated cement-block houses... Men, even those who were unemployed, escaped the household cold and made use of heated public spaces such as bars and coffee shops during the day. Although 60% of men also tried to save electricity, this was predominantly through turning off the lights if they were not needed and, in 20% of cases, advising their wives not to use certain appliances.”¹¹

This evidence shows that the cost of a gender-blind demand side management, whether in the form of higher prices or reduced access, is likely to be paid primarily by poor women and girl-children. It will also undermine our other efforts at poverty eradication. In other words, Eskom’s proposed increase is likely to discriminate on the basis of gender and ensure that the poorest become poorer.

2. Funding Model

Stakeholder question 1: what are your views of funding by the shareholder and debt as provided by Eskom in its application?

First, as the South African Faith Communities’ Environmental Institute (SAFCEI) has done, we too would support Earthlife Africa’s analysis and recommendations regarding Special Purpose Agreements. It:

¹¹ . Annecke, Wendy and Marialba Endeli Gender and Prepayment Electricity in Merlo, Argentina, unpublished draft, pp 4.

"calls for their review and an end to tariff structures that do not encourage energy efficiency. We would also support the view that encourages the Government as owner and shareholder of Eskom to take responsibility for its future direction. In terms of financing for the future, in line with sustainable development objectives, government equity needs to be directed towards renewable energy, energy efficiency and free basic electricity." (SAFCEI submission pp. 3)

Second, we would also add that ESKOM's proposed funding policy is gender-blind, and fails to set out either its effect on gender equality, or positive discrimination measures as set out in the Constitution to ensure that its policies empower women.

Third, we are of the opinion that it is not in line with effective business practice to seek to pay for future investments through current tariffs. ESKOM should do like any other business and if it is unable to pay for future investment through savings, it should borrow the money on the capital market and pay it back over time. Its cost calculations should then base themselves on the effective lifetime of the investment, i.e. 20 – 30 years. At present it appears to wish to either raise the money in advance or repay the debt within an unreasonably short time-span.

Lastly, ESKOM needs to revise its funding model and postpone any tariff rises until we are clear on the outcome of current climate change negotiations in Copenhagen. One of the outcomes of Copenhagen is likely to be a commitment to developing National Adjustment Mechanisms, and it is possible that fossil fuel energy may be taxed and that renewable energy may become fully funded through emissions taxes and foreign funding. We are of the view that ESKOM has not adequately taken into account such changes in the energy funding environment and needs to do so before it can fully develop its next five year plan. In particular, ESKOM's application was made prior to the promise by President Zuma in Copenhagen, to achieve 42 % renewable energy by 2020. One would assume that this implies major revisions to ESKOM's development plans. ESKOM needs to explain how it is going to achieve this political commitment before it can be discussed how to finance it. But clearly additional financing for fossil fuel energy is likely to be unnecessary.

Stakeholder question 2: what are your views of funding through the tariffs as stated by Eskom?

See responses to question 1 and 3.

Stakeholder question 3: What would be the appropriate balance for the Eskom's funding options?

With respect to this question we support the SAFCEI response that:

" The Government policy direction is to implement cost recovery for services such as water provision and energy provision for example. However, such cost recovery mechanisms must ensure that they are in the public interest and that to fulfil the obligations under the constitution and relevant laws.

However, part of government's role is to allocate treasury funds (tax payer's money) to where it will be best placed to provide public benefit. As Eskom is owned by the state, it seems reasonable that the state should intervene (through loans, grants etc) for specific interventions that are in the long term public interest. Such interventions are also needed to drive a policy shift - for example, the shift towards renewable energy and energy efficiency.

SAFCEI believes that it is fundamental principle of this approach is the need for transparency and clear accountable mechanisms to ensure that public funding is used to achieve the public good and such funding is not entrusted to ESKOM to use as it sees best but under a government directed specific programme." (SAFCEI, pp. 3)

Second, we would add that it is specifically NERSA's responsibility to ensure that ESKOM does fulfil its statutory obligations. ESKOM is a parastatal and as such belongs to the South African people. While it is the duty of every South African citizen to uphold the Constitution, it is doubly important for the state and state institutions to uphold our constitutional rights to gender equality and socio-economic rights. ESKOM should be obliged to explain what it is going to do to ensure that it works in synergy with all the developmental obligations made by our government in delivering on the rights guaranteed under the Constitution, as well as the impact of the post-Copenhagen international policy environment on domestic energy production.

Stakeholder question 4:

4.1 Does Eskom’s proposal on the real pre-tax WACC (weighted average cost of capital) represent a fair and reasonable risk adjusted return?

4.2 Please provide comments regarding the components of the pre-tax WACC as proposed in the Eskom application

First, we would support the SAFCEI response to these questions, namely that:

“Refer to Table 2 provided in the NERSA *REFIT reasons for decision* document. This table, copied below, provides a framework of financial parameters for renewable energy generation.

We submit that we need to move towards a system of equitable treatment of electricity generation and propose that these financial parameters are applied to Eskom too. One small example: in **Appendix A** of the ESKOM application, it refers to a tax rate of 28% whereas in the table below, the tax rate is given as 29%.

Table 2:

Financial parameter	Unit	IPP REFIT
Debt	%	70
Equity	%	30
Nominal cost of debt	%	14.9
Inflation	%	8
Real cost of debt after tax	%	6.39
Tax rate	%	29
Real return on Equity ROE after tax	%	17
Weighted Average Cost of Capital (WACC)	%	12

However, as Eskom’s credit ratings are not optimal and it is struggling to raise capital, it is possible that the cost of capital for Eskom might be more expensive.

However, it is then incumbent on NERSA to perform a comparative assessment and give direction as to the mix of energy that will provide the

most affordable electricity and provide security of energy supply. Such a comparison might lead to the conclusion that Eskom's proposed new build programme is too expensive compared to that of IPPs." (SAFCEI, pp.4)

Second, we would like to add that NERSA's REFIT calculations themselves are in need of revision. They do not include the cost of possible emissions taxes which may be imposed on ESKOM energy production, and thus may understate ESKOM's potential cost of capital. Moreover, they do not include externalities (non-market costs) which accrue to society as a whole, specifically the poorest of the poor. Often such costs have to be provided for through the social safety net which in itself is paid for through taxes. A full calculation of tax costs should include all such secondary costs. The cost factor should also be considered in a long-term perspective. In this respect we are pleased to welcome the new NERSA calculations, which show that the cost relationship of fossil fuels versus renewable energy is due to be reversed over the next thirty years, with 2023 appearing to be the year when renewables become decisively cheaper.¹² The conclusion to be drawn from these calculations is that it is well-worth it making those investments now, for the sake of cheaper energy in the future. If we invest heavily in renewable energy now, the unit price will decrease simply because increasing market size allows companies to invest more heavily in research and prototype development. This is what happened to desktop computers and cell phones, and there is no reason why it should not happen to solar panels and wind generators. Moreover, NERSA should pursue its cost-calculating initiative further, going beyond current market prices by compiling cost calculations that include externalities. After all, one of the functions of NERSA is to ensure that electricity is regulated for the greater good of society. The prices used by NERSA do not, for instance, include a carbon price for the emissions produced by the use of fossil fuels over the next thirty years. Yet all the literature is unanimous that it is the poorest (and in particular the African poor) who are most vulnerable to climate change, and who are least able to recover from the disasters caused by extreme weather. In addition, NERSA should also be calculating the human cost. All NERSA has to do is to visit the ghost towns of Okiep, Nababiep, Concordia and

¹² . NERSA Reasons For Decision on Renewable Energy Feed-In Tariffs Phase II, pp. 14.

Kamieskroon in the northern Cape to realize the extremely high human and ecological costs of mining. As these mines closed people lost their jobs but could not sell their houses because the closure of the mine meant property prices fell through the floor. Not only people experience a loss of their major asset, their property value, but also an uncertain future. Those who could find jobs elsewhere left. Those who could not remain, ekeing out a meagre living on shared social grants in a dead town where the only action is the acid water emanating from the closed mine. In short, the non-market costs of mining are borne by the poor, and an organization like NERSA should be including such social costs in its cost calculations. Such revisions might well radically revise cost estimates on renewable versus fossil fuel use, and demonstrate that it would pay us as a society to invest in renewable energy right now.

The same argument is applicable to ESKOM. It is critical to the development of the renewable energy sector, yet it needs to do more to enable it to make a real contribution to this sector. The fact that it continues to exclude producers of less than one megawatt in renewable energy from contributing to its grid is in itself making it more difficult for the poor, the majority of whom are women, to uplift themselves from poverty. It is through the poor that we can easiest reach the very poor. Small and Medium Enterprises (SMME's) tend typically to create more jobs per rand invested, so for ESKOM to exclude SMME's from its renewable energy program is in itself an antisocial action. This includes non-market mechanisms of exclusion such as insisting on an Environmental Impact Assessment (EIA) before accepting an Independent Power Producer application. In areas such as farms, it is nonsensical to insist on an EIA, and it merely serves to exclude emerging farmers, while particularly dairy, chicken and pig producers could be making a major contribution to our electricity grid through biogas production, creating jobs and reducing emissions as they go along. It stands to reason that building one million biogas digesters will create more jobs than a single Modupi power station, and the social benefits of this would save the state far more money in the long run than can now be made by the proposed tariff hike. The mere fact that such comparisons have not been researched in ESKOM's application is disturbing. It has

a duty to society. We submit that it is the responsibility of NERSA to ensure that Eskom carries out this duty and includes the full tax burden on the state (including income transfers) which are likely to arise from its proposed financing mechanism.

Stakeholder question 5:

5.1 Please comment on the transitional rate of return to be implemented on a phased approach in line with the above calculation

5.2 Comment on whether these should be considered as transitional or a representative risk adjustment rate of return?

Stakeholder question 6: What are your views on these benchmark figures?

Stakeholder question 7: is the return on equity suggested by Eskom representing a fair real return for a regulated utility?

For people to be able move out of poverty it is necessary that the right economic environment be provided. A stable, low inflation economy with minimal barriers to entry and a low risk environment is the best for poverty eradication.

The concept of risk is a complex one, but broadly speaking, the lower the level of risk, the more likely it is that small to medium enterprises will succeed. Normally one includes political stability and policy consensus in the category of low risk environment. From a gender perspective there is much to be said, but to give just two examples, ensuring that female hawkers are not robbed of their goods or violated in the evening is a way of lowering risk. Ensuring that women are able to travel in taxis unmolested, likewise, reduces the risk of being a productive citizen.

Tariff hikes are clearly set to increase the risks of running an enterprise because they will increase input costs and lower the rate of profit. In highly competitive markets, where most SMME's are concentrated, the ability of a business to pass these costs on to the consumer is limited. Moreover, to seek to introduce a hike of 43 % in a single year

is absolutely irresponsible. Young businesses, like growing economies, can weather adverse circumstances if they are exposed to change gradually and in a predictable manner. This reduces risk. In other words, if electricity price rises are to be introduced, they should be phased in over a period of years, and people should know well in advance when and by how much their energy costs are going to rise. In addition variables such as the effect on job creation and employment income should be clearly set out. A crisis management approach will only serve to undermine the economy.

A critical factor is the effect of tariff hikes on inflation. No economy has ever developed under conditions of high inflation. This is because high and unpredictable inflation increases risk, produces barriers to entry (only those with lots of capital can weather the storm) and tends to accompany political instability. History teaches, as we have recently seen in Kenya and Zimbabwe, that the ruling party always loses votes when the economy heads for a recession. Political instability in its turn increases perceptions of risk, and makes it more difficult to run a business. Again, small and medium enterprises tend to suffer most.

Thus, it becomes clear why, in the context of our broader developmental strategies, the SA Reserve Bank has been tasked to keep the rate of inflation in a set band. Global warming has made this difficult, and it is unlikely that we will ever see food and fuel prices go back down to anything like their former levels. The recent estimate that over R 350 million in disaster relief will be needed to rescue the province of KwaZulu-Natal from the effects of extreme weather are a clear demonstration that our energy policy needs to include externalities. Sums of this magnitude could have funded renewable energy and carbon capture, and a failure of imagination in these matters is not excusable. Over the weather we have at present little control. However, we can refrain from making our situation worse. Certainly those who warn that the proposed tariff hikes, if granted, may set the economy off on a Zimbabwean-type downward spiral, are correct. Rising inflation will leave the Reserve Bank no option but to go back to the

interest rates of 1998 (retail rates of 17.5%) or even 1986 (24.5%). Since small and medium businesses tend to have higher debt ratios, that will pretty much be that for poverty eradication through enterprise development. It scarcely needs to be said that as consumers, producers, and business people, women will in every way be disadvantaged. Therefore it stands to reason, as was argued in the previous section, that the proposed tariff increases cannot be discussed in isolation and need to be put in a broader economic policy perspective.

Thus the HSRC has simulated econometric models which demonstrate that:

“If the electricity price increases by 27%, inflation rises by 0.9%, GDP falls by 0.1% and low-skill jobs shrink by 0.3%.”¹³ A 35 % tariff hike would worsen these effects by half again as much. To do this in the middle of a recession would be most unwise, since it could plunge the economy deeper into recession. The government is already running a deficit at the moment, while seeking to stimulate the economy by infrastructure investment and job creation with a view to eventually increasing its tax uptake. At the same time it has expanded its social grants net in order to provide at least a slight protection for the extreme poor and newly jobless. These policies form a sound strategy which has every chance of working, and ESKOM’s pricing policy should be supporting it, not undermining it. Yet ESKOM’s tariff hike could, on its own, wipe out any gains which are made by the government’s counter-recession strategy.

A consequence of renewed recessionary pressures would be a further fall in energy demand, which would lower ESKOM’s income from tariffs. In other words, ESKOM’s calculations of the rate of return on capital are overstated because it has failed to take into account the macroeconomic effects of a tariff increase. It has not sufficiently incorporated projections for the both price and income elasticity into its calculations. ESKOM should recalculate its figures after full econometric projections (including

¹³ Altman, Miriam; Rob Davies, Andrew Mather, Dave Fleming and Howard Harris [The Impact Of Electricity Price Increases And Rationing On The South African Economy: Final Report To The National Electricity Response Team \(NERT\) Economic Impact Task Team](#) HSRC, Pretoria, 2008, pp. 79.

externalities) for the next five years and make a new submission. Only then will NERSA have sufficient information to make a proper policy decision.

Stakeholder question 8

8.1 What is the best way of implementing replacement cost valuation method?

8.2 Should revaluation reserve be allowed to Eskom as a return of capital (amortisation added to allowable revenue) and a return on capital (the revaluation reserve added to RAB on which a reserve is earned)

8.3 Should the revaluation of assets be phased in over time, (e.g. over five years as per EPP or as proposed by Eskom), to limit the impact on prices?

Stakeholder question 9

Should the revaluation of assets be conducted on the basis of the Modern Equivalent Assets (MEA) as prepared by Eskom or should other alternative replacement methodologies be considered?

Stakeholder question 10: How should the principle of stable and predictable price be achieved given the requirements of the EPP to revalue assets?

With respect to these questions, we support SAFCEI's submission that :

"The methodology of how to value assets needs to be assessed in terms of the impact of climate change and international trends in addressing climate change.

There is no doubt that South Africa may face international pressure to reduce its coal fired emissions in the future. Government policy, (as outlined in the LTMS that was accepted by cabinet in 2008) indicates the implementation of an escalating carbon tax.

It may be that the operational expenses of running a coal fired power station including both coal and transport related carbon taxes might render Eskom's coal power stations valueless - they will be too expensive to run, and may be forced to shut down, long before their planned lifespan.

It is unclear how these factors will be addressed by NERSA. Eskom has produce two versions of a capacity plan, included an "alternative plan". According to Eskom (page 19 of application) this alternative plan which results in predominantly coal based power stations to meet the required capacity "does not take into account the possible future

costs associated with emissions and/or technologies that may be mandated to capture and store carbon dioxide”.

The danger is that Eskom is allowed to commence building something that has been vastly undercosted and whose value into the future becomes increasingly less.

Such stranded assets whose financing was based on a 30 year lifespan now need to be replaced after a period of 5 to 10 years for example. How is this financially viable? Surely it is incumbent on Eskom to take all these factors into account in its financing plan?

Given that there is sufficient information available for climate change to be factored into the application, it would be unethical for Eskom to try to claim compensation in the future should its coal fired power stations become stranded.” (SAFCEI, pp. 5-6)

Second, we would like to add that it is necessary for ESKOM to take into account the effects of the relationship between gendered access to electricity and global warming. This relationship is not easy to analyse, since it all depends on how the electricity is produced. Viewed one-dimensionally from the point of view of developing renewable energy forms with lower rates of carbon emissions¹⁴, a tariff increase would be entirely good news. It removes the major argument which used to be made against renewable energy technologies, namely that they were not cost-competitive. It throws into sharp relief the many advantages of renewable energy which up to now have been ignored because of the cost factor. However, with all these advantages, problematic areas remain. These may be summarized by saying that increasing the cost of electricity is a necessary but not sufficient condition for the growth of the renewable energy sector. There are many other measures which must be put into place. These are (in order of priority from the perspective of the CGE) a solid policy, regulatory and administrative environment and a concrete social development infrastructure. Until these are in place, a tariff hike will prove costly in terms of poverty eradication without necessarily providing any benefits in the form of reduced carbon emissions.

¹⁴ . In this category we do not include nuclear energy. Nuclear energy is sheer madness in a country where, as in the 2006 Koeberg shut-down, a 'bolt-shaped' object was accidentally dropped in the reactor. Nuclear energy technology does not make sufficient provision for human error or direct ill-intent and never will.

To take this argument one step further, the fact that ESKOM's energy is coal produced, and that their major motivation for an increase in tariffs is to develop yet another coal-fired station, means that to agree to a price hike solely on that basis would be to set a dangerous precedent. For the purpose of lowering our carbon emissions and slowing down the rate of global warming, ESKOM should be made to feel the pinch of depending on coal, not be rewarded for it. It is bad policy-making. A good policy to reduce carbon emissions would include allowing ESKOM to hike tariffs only in proportion to the rate at which it begins to produce electricity from renewable low-carbon emission energy sources.

Third, what is missing from the debate is a re-consideration of ESKOM's cost-plus pricing structure, which has been with us since *apartheid*. In short, ESKOM has (or should have if it has been properly managed) a good deal of reserve capital for investment and we need to open the debate as to whether a monopoly parastatal should even be allowed to increase tariffs unless it explains why it cannot finance expansion without it. To seek to pay for these investments in advance amounts to passing the costs of bad management on to consumers and should not be allowed, at any percentage, in order to encourage good governance. If ESKOM can show that the cost-plus price structure was enabling it to invest in renewable energy, that would shed a different light on the matter. But for now ESKOM is not being transparent in this regard. It is likely, considering the recent grant of a loan from African Development bank for Modupi power station, that it requires the extra money in order to repay the loan. But to lend money for coal production at a stage when the climate change negotiations in Copenhagen are not concluded and when, as seems likely, our national investment in renewables may well be heavily subsidized through Overseas Development Assistance, makes absolutely no sense.

What is certain is that as a state entity Eskom needs to take cognisance of all these factors in applying for a tariff hike. A parastatal cannot work in a silo. It should be obliged to explain what it is going to do to ensure that it works in synergy with all the developmental obligations made by our government in delivering on the rights guaranteed under the Constitution, as well as the impact of the international policy environment on domestic energy production. Until it has done this a tariff increase should not be considered.

Stakeholder question 11: What are your views on these costs as presented in Eskom's application

See response to other coal related questions

Stakeholder question 12: Stakeholders are requested to comment on the above inflation OPEX increases

OPEX costs are related to coal supply and maintenance of aging plants. Please refer to question 13 and coal section for our comments.

Stakeholder question 13: Stakeholders are requested to comment on the justification of higher maintenance costs in the light of capacity constraints, ageing plant and ensuring security of supply.

With respect to this question, we support the response by SAFCEI that:

"Koeberg nuclear power plant is ageing and in the last few years, has experienced a number of technical problems (eg the bolt incident!). However, in a situation where a nuclear reactor is situated very close to a city of over 4 million inhabitants, safety and maintenance cannot be compromised. But, increasing maintenance, unplanned shut downs etc are going to increase as plants age and there comes a point where the costs of running the plant are going to exceed its income generation potential!

Similarly, with coal fired power stations, such stations are needed at the moment because there is no alternative source of supply. To reduce maintenance is to jeopardise security of supply.

The sensible option in these circumstances is to reduce demand in the short term so as to allow sufficient down time for maintenance to be carried out. " (SAFCEI, pp. 6-7)

Second, we would add that Eskom's demand-side management program is over-focused on the domestic sector which consumes the least proportion of electricity, and does not focus sufficiently on the industrial and agricultural sectors, which are our

biggest users of electricity. In addition, demand-side management has not sufficiently impacted on the state itself, which as constituting 30% of the economy, has a major potential impact on energy savings. We submit that Eskom needs to review its demand-side management program in conjunction with the Department of Water and Environmental Affairs, since a post-Copenhagen policy environment might well create conditions where such programs are completely fundable through international funding. In short, demand-side management through tariff increases has not proved particularly successful and it is time to apply some creative thinking around how it accomplish it more effectively .It is perhaps possible that Eskom lacks the capacity to administer such comprehensive programs, and that the responsibility for this should be shifted entirely to another body, such as the National Planning Commission through DWEA.

With proper demand-side management, there should be enough down-time to allow Eskom to properly service its installations. In addition, it should be paying special attention to servicing its transmissions systems, since efficiency losses there account for large amounts of unprofitable production.

Stakeholder question 14: Are Eskom's human capital costs that are driven by the expansion programme reasonable and justified?

In this respect we agree with SAFCEI's response that:

"The need and therefore the associated costs of variously skilled humans to be employed by Eskom depends on the energy mix it wishes to pursue. It is obvious that if a nuclear programme is pursued, highly skilled nuclear operator and project managers will need to be sourced internationally at international related remuneration rates - given the level of experience and expertise needed to manage a nuclear plant safely. Such an option also requires an added cost of ensuring a well capacitated national nuclear regulator - an added financial burden to the taxpayer, and no doubt, something that Eskom would cost into its tariffs.

For South Africa, without a crop of experienced skilled nuclear personnel, and a dearth of engineers, it would make sense to develop energy supply sectors that would make best use of our skills base, contribute to the development of the country through the creation of jobs." (SAFCEI, pp. 7)

Second, there are grounds to believe that renewable energy would create 25 % more jobs than coal-fired (SAFCEI, pp. 8) More importantly, that these would be created through more appropriate technology which is better fitted to existing human capital levels. In other words, we feel that the ESKOM approach of seeking to lift human capital levels to fit a specified level of technology is wrong, since it does not take into account social and economic realities. As a state institution, ESKOM should be using technology to serve the people, not the other way round. The concept of a knowledge ladder, where basic technology begins to create an income which is then used for further education that allows for higher technology levels, is more appropriate to a developing economy such as ours, and should receive first priority in energy planning.

The first thing such an approach would do would be to look at the energy sector holistically, and in the context of soft resource constraints. It would argue that the advantage we have in developing bioenergy is that there is little left to lose. With reference to building new coal fired generators, the president of the Cape Town Chamber of Commerce has pointed out that:

“The fact that no new power stations have been built in the last three decades means that many of the planning and technical skills have been lost. A whole new generation of engineers has retired and some of the international companies which provided much of the specialist equipment have moved staff to other countries where their skills have been in demand.

The challenges are enormous. A whole new infrastructure has to be laid down to deliver huge tonnages of coal on a daily basis and to handle the accumulating ash. There is also a water problem, for South Africa may have cheap coal, but the water for steam and cooling is expensive and supplies are limited.”¹⁵

No doubt we will surmount these difficulties, yet even when the knowledge and physical infrastructure was in place, it took a minimum of ten years to get new coal stations on

¹⁵ . Wolman, Gerald “Clear Policy, Incentives Need to Harness Readily Available Alternative Energy” Cape Times 31 December, 2007, pp. 9.

line. Thus continuing to depend on coal for power is not only bad news for climate change. It will also still not address our current supply side constraints to development, namely electricity shortages and high prices for electricity.

Coal might be cheap, but knowledge is not. The kind of money required to once again produce the kind of expertise needed might be better spent. In fact, one would think that, if a whole new knowledge infrastructure needs to be put in place, it might as well be around renewable forms of energy. The technology is relatively simple for biogas. It has the advantage that it provides decent rates of profit at relatively small scale investments.¹⁶ Coal and nuclear powered plants, however, require both such large scales of investment and such complex levels of technological sophistication that, in terms of economic empowerment and employment, They are likely to benefit mainly those who are already empowered. Moreover, they will deprive other sectors of scarce skills. In a country already struggling with skills shortages and a backlog in mathematics and science education, it would make sense to evaluate energy policy alternatives primarily on the number of engineers they are going to require.

Biogas is technologically even more appropriate to our knowledge resources. Biogas technology is so simple that a rural women's group in Costa Rica was able to build 16 biogas from cattle manure digesters in the space of a year, with some donor funding and technological assistance from the local agricultural extension officer.¹⁷ Biogas has a proven track record in rural environments with low levels of literacy. Thus in India one organization has distributed over 43 000 biogas from cattle manure digesters to rural villagers since 1993. Each of these plants save about four tonnes a year of carbon

¹⁶ . Austin, Greg and James Blignaut South African National Rural Domestic Biogas Feasibility Study, Agama Energy, 2007.

¹⁷ . Biogas Costa Rica "Biogas in Costa Rica with the Santa Fe Women's Group", Page 2 of 2. Available at <http://www.ruralcostarica.com/biogas.html>. Last accessed 8/01/2008.

dioxide and about three and a half tonnes of fuel wood.¹⁸ The human ecology outcomes, however, are even more profound. As one woman villager says:

“With wood, our hands used to itch when we cleaned off the soot from the pots, our eyes had tears, our chests were painful and we coughed a lot. We had headaches and we had sight problems. With biogas, all these problems are gone.”¹⁹

Such experiences are not conducive to the orderly promotion of human capital creation.

Both the projects cited focus on the production of biogas directly for cooking. Electricity from biogas is slightly more complex. However, in places like Pura Village in Karnataka, India, a community biogas to electricity plant has been running successfully since 1987, and has demonstrated the concept of an entrepreneurship knowledge ladder. The provision of sustainable energy to the village also brought with it new opportunities for economic empowerment, and it was found that village women tended to benefit from these opportunities:

“The explanation is simple: ‘women are better investors and planners than men. They think in terms of steps and consensus, borrowing step by step to generate income, investing in the mid- and long term, as well as in the short term. When a woman has the capacity to invest, one of her first thoughts involve children, so women are prepared to invest in things men won’t consider. The evidence on this is clear and becoming clearer...’ Experience is mounting to confirm that women take into account the long-term and the next generation, a natural consequence of their linkage with children. They are prepared to sacrifice immediate gains for long-term benefits, i.e. the discount rate for women is lower than that of men. It is precisely such a view that leads to sustainability.”²⁰

Biogas to electricity production thus has demonstrated its potential for production technology adjusted to existing knowledge levels, which does not create a technology ghetto but instead offers opportunities for entrepreneurship both within the production itself and in spin off industries. These have been opened up by the provision of

¹⁸ . The Ashden Awards for Sustainable Energy “2007 International Finalist: SKG Sangha, India” , Page 2 of 3. Available at http://www.ashdenawards.org/media_summary07_skg . Last Accessed 8/01/2008.

¹⁹ . *Ibid.*

²⁰ . Batliwala, S and Amulya K.N. Reddy in Energia: International Network on Gender and Sustainable Energy, 1:December, 1996, “Energy for Women and Women for Energy: A Proposal For Women’s Energy Entrepreneurship”, page 3 of 4. Available at http://www.energja.org/resources/newsletter/en_1_artar.html . Last accessed 8/01/2008.

electricity, but also by the fact that women find themselves with more spare time and better health as a result of cleaner energy production from renewable fuels. In the case of women, at least, this can offer an escape out of the poverty trap, particularly as they begin to invest in items like education for their children.

Biogas from sanitation projects are especially useful because they accomplish four things at once. Sanitation has to break down anyway, whether we pump it into the sea or use it to generate energy. It follows that a life cycle analysis of biogas from sanitation projects would show lower net carbon emissions as compared to processing sanitation separately and generating energy from fossil fuels. Therefore they assist in mitigating climate change. Further, by providing an economic use for sanitation, local governments save money and are vastly encouraged to extend waterborne sanitation services. The communities, and in particular women, benefit because they can access cheap energy for heating, lighting and cooking. And the improvement in sanitation collection provides health spin-offs which again benefit women in their social role as family caretakers. Thus in a biogas from sanitation project in Uganda: "Medical reports for the project site indicate a sharp reduction in incidences of water-borne diseases."²¹

All of this can be achieved with an investment which, measured job for job or kilowatt for kilowatt, is a fraction of that required by nuclear energy or coal fired stations. This is an example of systems thinking which works.

It is safe to conclude that an energy policy environment that prioritizes fossil fuels over renewable fuels is badly adjusted to the knowledge environment of South Africa. An energy policy which emphasizes renewable fuels such as biogas and biodiesel is also better suited to our human ecology. Production plants can be built with relatively low capital input, and thus do not offer high barriers to entry for aspiring entrepreneurs. In

²¹ . Kiyaga-Nsubuga, J "Turning Human Waste Into Domestic Gas" *Service Delivery Review* 2:2:2003, pp. 85. Available at http://www.dpsa.gov.za/documents/service_delivery_review/vol2no2 Last Accessed 4/01/2008.

the case of biogas, raw materials are cheap (and often free), low in transport requirements, and infinitely renewable.

Thus we suggest that ESKOM return to its calculations and produce estimates for differential human capital investments for different production technologies. Such estimates should include externalities, eg. what does it cost the state to produce one engineer as opposed to 100 biogas producers? As a state institution, ESKOM cannot ignore the cost implications of its decisions on other government stakeholders.

Stakeholder question 15: stakeholders are requested to comment on the Eskom sales forecast and the balance of production and sales in the MYPD2 control period

The CGE has already raised this issue in its response to question 8. In addition, we support the SAFCEI submission on this question (SAFCEI, pp. 8).

Stakeholder question 16: Stakeholders are requested to comment on the mix of generation that is used to meet the load requirements

We have already commented on this issue in our response to question 4. In addition we support SAFCEI's reasoning on the matter (SAFCEI, pp. 8-9)

With respect to stakeholder questions 17-27: We support the SAFCEI position on these questions.

In addition, with respect to question

27.1 what criteria should be used to allow or disallow research projects?

We submit that research projects which do not show sufficient knowledge or concern around the gendered impact if their work should not be allowed. A gendered analysis should be standard for every research project.

With respect to stakeholder questions 28-35:

We submit that the poor should not be an afterthought, but on the contrary should be at the forefront of our every plan and policy. As a result the CGE response to these questions has been included in our introductory remarks (section 1.). In addition we have mainstreamed considerations of economic development and poverty alleviation, with particular focus on women and female-headed households as constituting the majority of the poor. As a result you will find our response to these questions incorporated throughout our submission, but in particular in our response to questions 4 and 8.

Recommendations:

At this stage, the CGE finds itself without sufficient information to be able to make sound policy recommendations on the proposed tariff hike. While on the surface it would seem as if there was a clear policy conflict between cheap energy for the poor, of whom women form the bulk, and increased investments in renewable energy, a deeper analysis has revealed that this conclusion is only reachable through ignoring the effect of non-market costs and benefits of different forms of energy production. In addition the funding environment is changing rapidly and we may well very soon be having to review everything we now about energy capital investment funding. In view of the potential impact of a tariff hike on the economy, such a decision should not be taken lightly, and certainly should not be taken on the basis of insufficient information. Therefore the CGE recommends that a decision on the ESKOM application be postponed until sufficient information is available. In particular, the following datasets are of critical importance:

1. NERSA should recalculate its comparative costs of different energy investments to include the cost of social and environmental externalities. It should also include estimates of the differential job creation capacity per rand invested for the different technologies.
2. ESKOM should revise its application to include a gendered analysis of the effects of its requested tariff increase, with particular focus on job creation effects and potential increases in the unpaid labour of women.

3. ESKOM should revise its application to show that it has consulted with the Department of Finance and the National Planning Commission on the likely macro-economic effects of its proposed increase. Such a report must incorporate econometric simulations of its proposed price scenario which should include non-market costs, so that the full cost to society is clear.
4. ESKOM should revise its application to show that it has consulted with the Department Of Water and Environmental Affairs and the National Planning Commission on the outcome of our international commitments in Copenhagen. The state must ensure policy synergy, so our energy policies have to work in tandem with other policies and not in disregard of them.
5. ESKOM should revise its application to include a full review of various funding options for energy production once then post-Copenhagen scenario becomes clear.
6. ESKOM should develop capacity in the field of gender policy analysis. The job of the CGE is to monitor, and we should not be obliged to actually conduct the necessary research for a huge organization like ESKOM. While we have done so this time in order to emphasize the necessity for a gendered analysis, in the future we hope that we will be able to restrict ourselves to our Constitutionally mandated role of monitoring ESKOM's gender research, rather than having to conduct it ourselves.
7. In conclusion we recommend that ESKOM tariffs remain unchanged until such time as it has provided sufficient information for policy decisions to be made.

We will definitely be present your public hearings, and look forward to being able to continue the discussion in that forum.

Yvette Abrahams
Cape Town 14 December, 2009