



**NERSA CONSULTATION PAPER**  
**COGENERATION REGULATORY RULES AND FEED IN TARIFFS**  
**PRELIMINARY SUBMISSION BY BUSINESS UNITY SOUTH AFRICA (BUS A)**  
**FEBRUARY 2011**

**1. BACKGROUND**

BUS A is a confederation of business organisations including chambers of commerce and industry, professional associations, corporate associations and unisectoral organisations. It represents South African business on macro-economic and high-level issues that affect it at the national and international levels. BUS A's function is to ensure that business plays a constructive role in the country's economic growth, development and transformation and to create an environment in which businesses of all sizes and in all sectors can thrive, expand and be competitive.

As the principal representative of business in South Africa, BUS A represents the views of its members in a number of national structures and bodies, both statutory and non-statutory. BUS A also represents businesses' interests in the National Economic Development and Labour Council (NEDLAC).

**2. INTRODUCTION**

BUS A welcomes the opportunity to comment on this important document. BUS A considers cogeneration as one of the most cost effective ways of alleviating current electricity supply constraints and trusts that finalisation of these rules will be expedited.

BUS A wishes to submit this preliminary submission with a view to providing further detail during the public hearings.

**3. GENERAL COMMENTS**

In general BUSA remains concerned about the complexity of the process to promote electricity supply from IPP's. Cogeneration can make a significant contribution to alleviating the current electricity supply crisis and as such should be promoted.

#### **4. DETAILED COMMENTS**

Detailed comments are presented in the table below.

#### **5. CONCLUSIONS**

In conclusion, BUSA would like to state the need for a coherent approach to the roles of all the players involved in the procurement of cogenerated electricity and in particular an administrative approach which does not compromise the need to move with speed to procure any electricity available at the cheapest price.

BUSA is particularly concerned about the long delay between the closing date for submissions and the public hearings and requests that this delay be reviewed with a view to expediting finalisation of these rules.

BUSA would like to register for the public hearings on 7 April 2011.

# Comments on NERSA Consultation Paper Cogeneration Regulatory Rules and Feed-In Tariffs

## 1. Section-by-section

Section	Comment	Proposal
Objectives	Accepted	In addition it would be useful to reference the current crisis and need to ensure the cogeneration potential in SA is realised.
Definition and Abbreviations	In TYPE I Technologies Waste Heat, 1 <sup>st</sup> sentence “which no useful application <i>is found</i> ” is incorrect	Should rather say “which no useful application <i>is currently being utilised</i> ”
	Waste Heat 2 <sup>nd</sup> ,3 <sup>rd</sup> & 4 <sup>th</sup> paragraphs contains far too much detail and could limit the possibilities of “alternative technologies”	Paragraphs should be removed
	Furnace Off Gasses are not limited to iron and steel processes	The examples of iron and steel should be removed
	Furnace Off Gases 2 <sup>nd</sup> paragraph should be expanded	“Some [ <i>contain only sensible heat, but others</i> ] of these gases”
	Discard Coal is not suitable for <i>premium</i> industrial use	Add word as per comment
	The sentence “Discard coal also includes by product coal from existing and decommissioned mines.” This is ambiguous with virgin coal.	Edit to suit
	Natural Gas description is odd	the word “shapeless” should be removed
	Natural gas 2 <sup>nd</sup> paragraph is not complete as it doesn’t mention gas for steam	“ <i>in boilers for steam raising</i> ” should be added to the last sentence
	In the 3 <sup>rd</sup> paragraph the phrase “energy is added to the gas stream” makes no sense	Should say instead “ <i>Gas is added to combustion air</i> ”

The term "EFFICIENCY" is too generic.

It should be defined further as "*COGENERATION EFFICIENCY*"

The term "ELECTRICAL EFFICIENCY" is not used in the paper, but the term "energy efficiency" is.

Remove ELECTRICAL EFFICIENCY and define ENERGY EFFICIENCY

LCOE definition is not correct in saying "converted to equal annual payments"

LCOE is normally expressed as R/kWh, i.e. costs divided by total energy.

1. Introduction and Background Good

2. Purpose Good

3. Qualifying Technologies and Principles

3.1 This is a valid argument only if the regulated tariff goes up at similar rates. It is an issue when the regulated tariff is going up so fast and results in a cross over of Megaflex and COFIT tariffs (See graph a the end of the document). As soon as there is a crossover, private power producers lose incentive

3.2 This approach may be too limiting All technologies should be allowed

3.3		This statement needs to be clarified. Who would the buyer be in the absence of a procurement programme?	The process to be followed should be set out.
3.6		The proposed review timing is not adequate	More certainty is required on how the escalations will work
3.10		It is not clear what this will entail and again the relationship between all the players must be clarified.	
3.11		The MTPPP PPA needs better balances of risks and thus is not a very good base PPA	The REFIT PPA would be a much better basis for the COFIT PPA
3.12		The adoption of a standard PPA is long awaited. In the light of the New Generation Regulations is it still appropriate that this remains NERSA's responsibility? This section should also deal with wheeling costs through municipalities and Eskom No allowance has been made for sites with multiple fuels and multiple types of power generation equipment	As previously indicated the role of all roleplayers in the procurement process needs to be clearly set out.  Review accordingly
4.	Purchase Obligation		
4.1		The 'buyer' is not defined at the beginning of the paper  It is understood that the criteria developed for the REFIT will now become part of the procurement documentation. Is it intended that the criteria for cogeneration IPP will be handled in the same way? Whatever the criteria are they need to be made public.	Needs to be added to the Definition and Abbreviations section.  Need to be included in their own section or as an appendix

4.3	This is too limiting as cogenerated power is not always exported to the grid.	COFIT must also reward cogeneration projects that merely offset their current load from Eskom. It is important to incentivise cogeneration in the light of the supply crisis.
4.6	This approach while welcomed is not supported by the New Generation regulations, which is understood to be required before it can occur.	The regulatory framework to allow this needs to be aligned with this statement for it to work.
5. Qualifying Principles for Cogeneration Feed-In Tariff		
5.1 Table 1	<p>Does a mine &amp; wash plant qualify as industrial? Type I – Discard Coals: 5.1 requires tying to an Industrial Process so how will this be applied? Is a discard coal power station next to a mine/wash plant OK (with the mine and wash plant being the industrial process) or does it have to be discard coals being used in an industrial CHP? Definitions need to be refined</p> <p>Type I Specific Licensing: does COFIT apply to the 60% or the full 100%?</p> <p>Type III Primary Fuel: what about agricultural wastes e.g. mielle cobs, husks, cane tops etc</p> <p>Type III Specific Licensing: does COFIT apply to the 90% or the full 100%?</p>	<p>Clarity required Clarity required</p> <p>Type II as “Primary  <i>fossil</i>  fuel-based...” and; Type II as “ <i>Renewable</i>  fuel-based...”</p> <p>Propose making this 70% to allow for upset conditions</p>

Table 4		Type II Nersa Conditions: "combined process energy" is not defined Type III Nersa Condition: Table 4 doesn't have enough detail to know how this will work	Define it
5.7		This statement appears not to make a distinction between generation for own use which does not require a licence in terms of the ERA and sale which does.	Review text accordingly
5.8		Does this adequately cover co-generators that operate within municipalities?	
6.	Description Of Qualifying Technologies	Table 2 is a repeat of Table 1 Primary Fuels	It should be removed to avoid confusion
7.	COFIT Financial Assumptions		
Table 3		A Real Return of 17% is too low for private investors with higher risks than Government /Eskom	Check assumptions
Table 4		Bagasse Var O&M Figure of 2.43 seems wrong Assume O&M costs are ~3% of capital cost p.a. Total investment cost for bagasse = \$3153/kW installed Running hours p.a. is $365 \times 24 \times 0.49 = 4300$ hrs/pa O&M costs = $(0.03 \times \$3153) / 4300 = \$0.022$	Check calculations

Figure in table seems to be about a factor of 100 too high

Bagasse Fuel Cost of \$7.70 seem too high

$\$7.70/\text{GJ} \times 7.4(\text{exchange rate}) = \text{R}57/\text{GJ}$

Coal on KZN coast is ~ R800/ton for 25GJ/ton

Energy value in coal =  $\text{R}800/25 = \text{R}32/\text{GJ}$

Check calculations

Bagasse is being priced at a fuel value (R57) almost twice that of coal (R32).

This can't be correct for a waste product

Check calculations

Bagasse Load Factor seems extremely low

Off crop of 3 months, running for 9 months at say

90% availability = a load factor of 68%

Bagasse LCOE seems extremely high. How does this compare to the EPRI Report figures?

All the issues pertaining to Bagasse also hold true for Cane Fibre 2. Have these costs been calculated correctly?

Capitol cost of Cane upgrade 40% of the 'New' cost, so how can the LCOE be higher

8. Assumptions There is no provision for fuel price crease, PPI and the impact of Eskom tariffs

9. Cogeneration  
Power Purchase Agreement

9.1	The New Generation Regulations use the term “procurer” and “buyer”. The term “purchaser” is not used. BUSA has requested that the role of NERSA in finalising the PPA needs to be clarified particularly in the light of the fact that it is understood that the New Generation Regulations cover cogeneration.	The relationships amongst, Eskom as the designated buyer at least in the short term, DOE, NERSA and National Treasury need to be clarified.
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11.	NERSA Proces s for Approv al of COFIT	Why such a large time gap between the written submissions and the Public Hearings? These cogeneration rules are needed urgently. It understood from this timeframe that the earliest that a procurement process for cogeneration could occur is June 2011. With this timeframe, COFIT will miss the REFIT 2 procurement phase of the IRP2010. COFIT COD's will thus not take place before 2013. This is also problematic with regards to the tariff crossover mentioned elsewhere in the document. If left too late, the COD of some projects will mean that the COFIT is less than Megaflex.	BUSA is extremely concerned about this long delay until the public hearings and requests that this time delay be reconsidered. As above
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**2. Methodology used for calculation of the Cogeneration Feed-In Tariff  
Comment Proposal**

See Comments in 7. COFIT Financial Assumptions above

### 3. Any General Comments

#### Issue

On Cogeneration Regulatory Rules and Feed-In Tariffs

#### Comment

##### **COMPLEXITY:**

With REFIT 1 & 2 and COFIT there are now 15 technologies, all with their own tariff. Clarity of definition becomes vital with this complexity. However this complexity is not necessary as COFIT could be standardised.

BUSA recognizes the need to optimise the procurement process but believes that there are opportunities to simplify the process so that the cheapest options are maximized.

#### Proposal

An option is to offer the market say 90 c/kWh for all renewable and cogeneration opportunities, (meeting the necessary broad definitions of cogen and renewable). This would allow the market to decide what specific technologies, and at what capacities to bid. If this does not present sufficient projects, then the following year the 90c could be adjusted to inflation and further incentives.

It is also recommended that as much consolidation of technologies takes place as possible, particularly where the LCOE's are similar. A single rate for each Type (I, II & III) would simplify matters.

BUSA believes that the level of complexity should be reviewed and will be discussing this in greater detail at the public hearing.

#### **DESCRIPTIONS OF TECHNOLOGIES**

#### **OF**

#### **QUALIFYING**

Too specific in areas

Suggest rather that the details of the technology descriptions be removed, to leave only broad definitions that describe the energy inputs to the process, and the process outputs – being power and in some cases process heat. Detailing the process equipment itself runs the risk of specifying say conventional steam cycle plants, when the gasification and gas engine technology

will take the same fuel inputs; create the same process outputs, with very different equipment. The relevant industry also knows these technologies better than most.

### **INFLATION and “CROSS – OVER”**

This is a real issue for particularly industrial complexes where the on-site power generation is insufficient to fully off-set the grid imports. With the regulated tariff increases at substantially above inflation, but for the REFIT and COFIT tariffs increasing at CPI/PPI or less, there will become a time when REFIT/COFIT sales will be at a rate less than purchases from the grid. There are a number of implications:-

As per comment

- Industrialists will be pushing for shorter term PPA's so that they can get out before “cross-over”. The length of this shortened PPA may mean that it is too short for investment, so resulting in a poor take-up.
- The annual provisions for inflation need to recognise the real inflationary pressures. There is no getting away from the fact that many elements of COFIT will be subject to fuel price increases (primary fuel supply and transport inflation) that needs to be allowed for in annual adjustments.
- CPI/PPI are not good markers for power generation inflation – a far more specific index related to the electricity industries inflation is relevant here.

See graph illustrating this at the end of this submission.

## COMBINATIONS OF PROCESSES

Allowance needs to be made for the combination of fuels and processes. A good example is a modern integrated pulp and paper mill. In the COFIT context, there are Types 1, 11 and 111 COFIT activities taking place all in the one plant – discard and virgin coals being fired for CHP, and waste gases, black liquor and bark being fired for steam generation.

To allow for this, it is recommended that the heat inputs used to ratio the various types of COFIT power being produced. It also needs to be recognised that for engineering design reasons, one turbine may be full condensing (in its self not qualifying for COFIT as there is no process heat production), but it is part of a power station that produces the process heat from a back pressure turbine. Both turbines need to be seen as part of the COFIT process.

On the COFIT Consultation Paper.

Appendix A does not need to be included

**Ave Megaflex Rate vs COFIT Tariffs**

**Crossover with Megaflex**

(Megaflex increasing as per MYPD2 for 7 increases and then at PPIx2 for 2 year, and then at PPI)

(COFIT increasing at PPI)

Assumed PPI: 4,5%

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Megaflex	0.48	0.60	0.75	0.94	1.03	1.12	1.17	1.22	1.28	1.33	1.39	1.45	1.52
Discard Coal	0.69	0.73	0.76	0.79	0.83	0.87	0.90	0.95	0.99	1.03	1.08	1.13	1.18
Waste Heat/Gas	1.02	1.06	1.11	1.16	1.22	1.27	1.33	1.39	1.45	1.51	1.58	1.65	1.73
Coal	0.70	0.73	0.77	0.80	0.84	0.88	0.91	0.96	1.00	1.04	1.09	1.14	1.19
Natural Gas/LNG	1.23	1.29	1.34	1.40	1.47	1.53	1.60	1.68	1.75	1.83	1.91	2.00	2.09
Wood Chips	0.80	0.83	0.87	0.91	0.95	0.99	1.04	1.08	1.13	1.18	1.23	1.29	1.35
Bagasse	1.92	2.00	2.09	2.19	2.29	2.39	2.50	2.61	2.73	2.85	2.98	3.11	3.25
Cane Fibre 2	1.96	2.05	2.14	2.24	2.34	2.44	2.55	2.67	2.79	2.91	3.04	3.18	3.32

