

PROPOSED BIOMASS CO-FIRING DEMONSTRATION FACILITY AT ARNOT POWER STATION, MPUMALANGA PROVINCE

**COMMENTS AND RESPONSE REPORT
 SUBMITTED AS PART OF THE FINAL BASIC ASSESSMENT REPORT**

No.	Issue/Comment	Raised by	Response
General			
1.	Are you only considering establishing a biomass facility at Arnot?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	No, Eskom is also considering putting a biomass facility at the Kriel coal fired power station. If the pilot project proposed at the Arnot Power Station is successful, then Eskom will look at developing a biomass supply chain, potentially to supply more of Mpumalanga. (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)
2.	The Steve Tshwete Local Municipality acknowledges that impacts from the proposed project will be low.	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	Comment noted.
3.	Do you have a flow diagram of what is actually going to happen throughout the process of operating the biomass facility?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	A flow diagram was submitted to the municipality via email on the 13 February 2012 by Alicia Govender from Savannah Environmental.
4.	The municipality acknowledges that Eskom want to limit their carbon emissions.	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	Comment noted.
5.	The municipality will pass the word on that this is just a pilot project. There will always be the question around job creation. From my side, out of interest, I	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	Comment noted.

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	<p>would like to see the process of how the whole biomass facility will work. In future can you show us how the engineering side of things will work, and in turn affect the environment?</p>		
Agriculture			
6.	<p>Our office administers the Conservation of Agricultural Resources Act, Act 43 of 1983 (CARA) which makes provision for the conservation of natural agricultural resources of SA through maintaining the production potential of land; combating and preventing erosion; preventing the weakening or destruction of the water sources; protecting the vegetation and combating weeds and invader plants.</p> <p>I would like to conduct a site inspection at the proposed site and a brief meeting to clarify some issues of concerns. May you please let me know of the dates that will suit your office.</p>	<p>Dan'sile Cindi, Department of Agriculture Forestry and Fisheries, comment received via email.</p>	<p>The proposed project development site is within the footprint of the Arnot Power Station. As such a Savannah Environmental representative explained this to the Department who mentioned that they would no longer need to see the site. This was confirmed via email correspondence on the 29th of September 2011, and reconfirmed with the Department of Agriculture on 23 January 2013. (Response provided from: Savannah Environmental EIA Team)</p>
Construction Phase			
7.	<p>When do you intend to start the construction phase?</p>	<p>Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.</p>	<p>The facility designs are still being finalised, and the fuel supply is still being negotiated. The projected timing to commence with construction is 2015. (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)</p>
Waste			

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8.	Would the facility not have an impact on the ash that is currently being produced at the power station?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	<p>Eskom is conducting ongoing research in this regard. European research indicated there is less ash from biomass, and when co-fired with fuel, there will be a reduction in the amount of ash produced. During co-firing coal is displaced by biomass. The biomass displaces the coal as a percentage of mass of the coal resulting in less coal being used. It is an accepted fact that wood based biomass has less ash content than coal. – “Recognizing that the biofuels (wood based) are typically lower in ash content than the 6coals and also lower in heating value” – source: Biomass Co-Firing Guideline EPRI TR-108952.</p> <p>The quality of the biomass ash is close to that of coal, and would not degrade the ash produced from the coal. The chemical composition of the biomass coal, as per US based research is slightly more alkaline than that of the coal in the US against which the comparison was made. It is in actual fact incorrect to use US based information since Southern African coal and biomass is different in composition to that found and analyzed in the US. Eskom R&D is finalizing the analysis on the ash from pilot scale testing done internally and this analysis will then provide us with a report that compares the Southern African sourced biomass with the coal available to Eskom.</p> <p>Coal and biomass ash will be mixed, and current disposal methods will be used.</p> <p>It is foreseen that the ash produced from the co-firing facility will be similar or better than ash from coal alone but would only be validated once Eskom has completed its own analysis. (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)</p>

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9.	What is likely to be released into the atmosphere after the burning of the biofuel?	GG Mokhabela, Steve Tshwete Local Municipality, FGM, 23 January 2012.	NOx and SOx will be released into the air. All particulates i.e. PM10 will be caught by bag filters as is currently the case at Arnot. Biomass of such a nature reduces NOX and SOX. A specialist air quality study was conducted that simulated the reduction in NOx and Sox emissions (Refer to Appendix D1). US literature in addition indicates that: "...biofuels are highly volatile, and have high atomic H/C ratios, is one basis for their potential to be useful in reducing NOx emissions beyond the simple reduction in fuel nitrogen content.", in addition biomass fuel"... may be low in fuel nitrogen, depending upon the biofuel in question; and they are always low in sulfur content." – from Biomass Co-Firing Guideline EPRI TR-108952 (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)
10.	Will there be any additional discharges into the environment?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	No additional discharges other than what is mentioned in the report are expected, e.g. waste ash (Refer to Section A (11)). The waste ash will be disposed of as per current waste management practices at the power station. (Response provided from: Savannah Environmental EIA team)
Supply and Transportation of Biomass			
11.	I am trading in the supply of timber raw material to sawmills, board producers & pole treaters. I have 42 years' experience in the timber business & have completed studies of the quantities of residual material available in the Lowveld & highveld areas. I also have contact with pellet manufacturers in the Lowveld area.	Paddy Illman, Response sent via email, 15 December 2011	Thank you for your correspondence. You have been registered on the project stakeholder database. (Response provided from: Savannah Environmental EIA Team) Currently there is no registered Biomass Supplier in the Eskom database as the Biomass project is still in an exploratory phase where tests need to be performed by burning it in one of our power station. After these tests have been concluded a decision needs to be taken on the future of biomass in Eskom. If a decision is made to continue with biomass co-firing and the type of biomass fuel to be applied concluded, then all potential suppliers will undergo a pre-

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	<p>Could you please register me on your stakeholder database?</p>		<p>qualification process by Primary Energy before they are registered in the Eskom database. Currently, all potential suppliers must be on the lookout for adverts of biomass fuel supply (RFI or RFP) in the media. (Response provided from: Thozama Gangi, Eskom Primary Energy Division)</p>
12.	<p>Where will you source biofuel from?</p>	<p>Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.</p>	<p>Biofuel will probably be sourced from Mpumalanga, as the logistics (cost) will be too high to source from KwaZulu-Natal or other places such as the Eastern Cape. The source should ideally be within 200 km of the Arnot Power Station. Eskom intends to develop biomass supply chains to supply their power stations around South Africa. This could lead to new employment opportunities (i.e. jobs will be created for the process of changing biomass into pellets). (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)</p> <p>It would be preferable to have the supplier of the biomass fuel as close to the power station as possible, however when/if the sources closer to the power station cannot meet the demand for the station, then other biomass fuel supply sources in other provinces will be looked at. (Response provided from: Thozama Gangi, Eskom Primary Energy Division)</p>
13.	<p>What are the expected impacts from the transportation of biomass?</p>	<p>Eric Ratshibvumo, Steve Tshwete Local Municipality, FGM, 23 January 2012.</p>	<p>There will be an increased number of trucks on the roads, but the significance of this impact could be limited if the distance of the transportation of the biofuel from the source to the Arnot Power station is shorter.</p>

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			<p>There might be an increase of between 7-10 % of trucks on the road as compared to number of coal carriers currently in and around the area.</p> <p>The air quality impact assessment did not note a significant impact as a result of the transportation of the biomass.</p> <p>(Response provided from: Tammy Kruger of Savannah Environmental)</p>
14.	What type of biomass will be used for the proposed project? E.g. Will sugarcane be used?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	Wood based material are planned to be used. (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)
15.	Wouldn't wood pellets require big plantations?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	<p>Eskom studies and other sources indicate that for biomass fuel a limited number of resources are required. Research has indicated thus far that for the type of facility proposed at Arnot- there is sufficient biomass available. But if Eskom want to expand, then they will have to increase the availability of biomass. Studies have been undertaken to look at sources of biomass fuel in Sub-Saharan Africa. Eskom are also looking at engaging some of the growers to engage them in long term contracts to produce for Eskom.</p> <p>(Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)</p>
16.	Is the manufacturing of wood pellets a listed activity according to the environmental regulations?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	<p>The supplier/manufacturer of the wood pellets will be responsible for undertaking any necessary processes required for the manufacture of the wood pellets. Saw dust is compressed through a dial to produce wood pellets. There are existing businesses that are currently doing this as their core line of work. The IDC is financing and supporting some of the manufacturers of the wood pellets. Some of the pellets used currently are being exported. Once the South African market grows then export of wood pellets will be limited.</p>

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			(Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)
Public Participation			
17.	Were people at Rietkuil consulted with?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	Yes, Newspaper adverts informing the public about the proposed project were published in newspapers that are distributed around Rietkuil. The ward councillor of ward 7, Johan Matshiane was also informed about the project, and was asked to spread the information. The farmers' representative has also been consulted with to spread the word to the farmers in the area. (Response provided from: Alicia Govender of Savannah Environmental (Public Participation officer))
Employment Opportunities			
18.	Will there be job opportunities resulting from this proposed project?	Solly Links, Steve Tshwete Local Municipality, FGM, 23 January 2012.	During construction job opportunities <i>may</i> be available to put up conveyor belts and storage facilities. Additional jobs <i>may</i> also be created as a result of the transportation of the biomass (i.e. limited to truck drivers and people loading and unloading the biomass). Once operational, Eskom plans to utilise existing staff members to operate the facility. (Response provided from: Theuns Blom, Arnot Power Station Biomass facility project manager)
Water Requirements			
19.	The proposed project will not even require additional water in comparison to what is used at Arnot.	Theuns Blom, Eskom, Tshwete Local Municipality- FGM, 23 January 2012.	Comment Noted