



# BIOMASS CO-FIRING DEMONSTRATION FACILITY AT ARNOT POWER STATION BASIC ASSESSMENT PROCESS

---

***Savannah Environmental (Pty) Ltd***

**Address:** PO Box 148, Sunninghill, 2157  
**Tel:** 011 234 6621  
**Fax:** 086 684 0547  
**E-mail:** alicia@savannahsa.com

---

## FOCUS GROUP MEETING

### NOTES OF STEVE TSHWETE LOCAL MUNICIPALITY MEETING

Conducted on  
Monday, 23 January 2012,

**Minutes prepared by:**

**Savannah Environmental**

Please address any comments to Alicia Govender at the above address.

**BASIC ASSESMENT PROCESS: BIOMASS CO-FIRING DEMONSTRATION  
FACILITY AT ARNOT POWER STATION  
MEETING MINUTES: FOCUS GROUP MEETING**

**Venue:** Steve Tshwete Local Municipality

**Date:** 23 January 2012

**Time:** 11h15 – 12h00

**MEETING ATTENDEES**

---

<b>Name</b>	<b>Organisation &amp; Position</b>
Alicia Govender (AG)	Savannah Environmental
Tammy Kruger (TK)	Savannah Environmental
GG Mokhabela (GM)	Steve Tshwete Local Municipality
Sibongile Mtsweni (SM)	Steve Tshwete Local Municipality
Solly Links (SL)	Steve Tshwete Local Municipality
Eric Ratshibvumo (ER)	Steve Tshwete Local Municipality
Theuns Bloom (TB)	Eskom

**WELCOME AND INTRODUCTION**

---

The project team introduced themselves and a description of the project and proposed activities was given (presentation attached).

Theuns Blom added that biofuel to be used for the proposed project will be sourced from the Mpumalanga area. The Biomass Co-Firing Demonstration Facility at Arnot Power Station is a pilot study. A pilot scale study was tested at a test site at the Rosherville MW facility in order for Eskom to get a feel of logistics involved. Eskom now want to try it on a full scale as part of their strategy to see how much biomass can be used to reduce the carbon footprint. Utilities in Europe are also undertaking similar studies. Pilot studies are already indicating reductions in the carbon footprint, and it is believed that this kind of project will assist in the Mpumalanga area which has several coal fired power stations.

**APOLOGIES**

---

Apologies on behalf of Tobile Bokwe and Belinda Roos from Eskom were received.

## DISCUSSION SESSION

---

Question / Comment	Response
SL: When do you intend to start the construction phase?	TB: The facility designs are still being finalised, and the fuel supply is still being negotiated. The projected timing to commence with construction is 2015.
SL: Would the facility not have an impact on the ash that is currently being produced at the power station?	<p>TB: 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.</p> <p>The quality of the biomass ash is close to that of coal, and would not degrade the ash produced from the coal.</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.</p>
SL: Where will you source biofuel from?	<p>TB: 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.</p> <p>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).</p>

Question / Comment	Response
<p>SL: Are you only considering establishing a biomass facility at Arnot?</p>	<p>TB: No, Eskom is also considering putting a biomass facility at the Kriel coal fired power station.</p> <p>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.</p>
<p>GM: What is likely to be released into the atmosphere after the burning of the biofuel?</p>	<p>TB: NO<sub>x</sub> and SO<sub>x</sub> will be released into the air. All particulates i.e. PM<sub>10</sub> will be caught by bag filters as is currently the case at Arnot. This is considered sufficient and no added measures to capture gases are deemed necessary. Biomass of such a nature reduces NO<sub>x</sub> and SO<sub>x</sub>.</p>
<p>SL: The Steve Tshwete Local Municipality acknowledge that impacts from the proposed project will be low.</p>	<p>Comment noted.</p>
<p>ER: What are the expected impacts from the transportation of biomass?</p>	<p>TK: 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> <p>TB: 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>TK: The air quality impact assessment did not note a significant impact as a result of the transportation of the biomass.</p>
<p>SL: What type of biomass will be used for the proposed project? E.g. Will sugarcane be used?</p>	<p>TB: Wood based material are planned to be used.</p>
<p>SL: Were people at Rietkuil consulted with?</p>	<p>AG: Yes, Newspaper adverts informing the public about the proposed project</p>

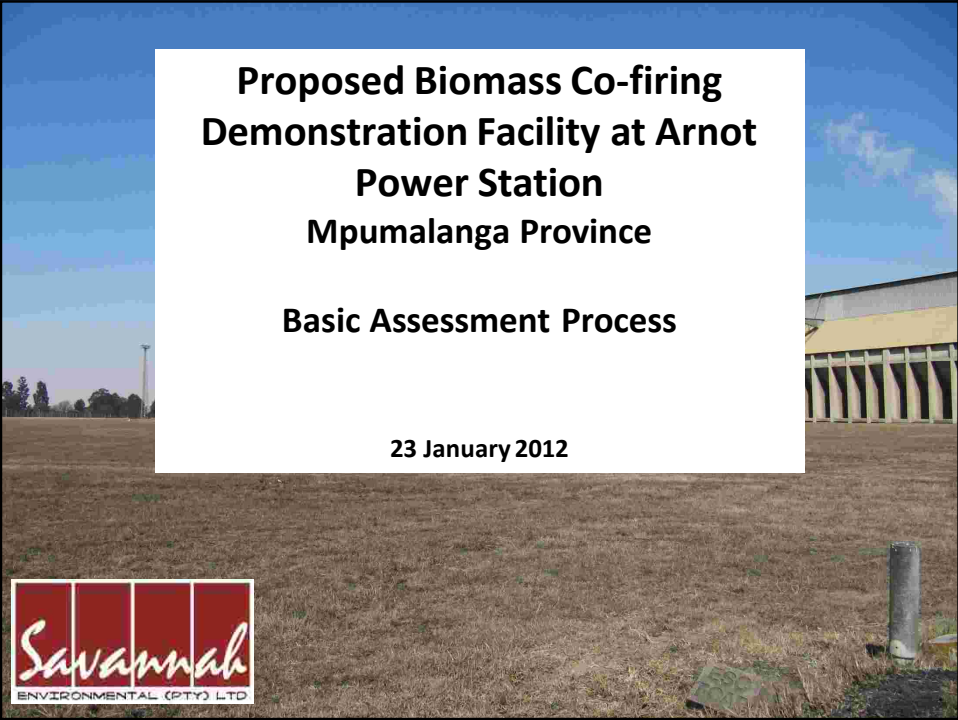
Question / Comment	Response
	<p>were published in newspapers that are distributed around Rietkuil. The ward councillor of ward 7, Mr Johan Matshiane was also informed about the project, and was asked to spread the information. The farmers' representative has also been consulted with to spread the word to the farmers in the area.</p>
<p>SL: Will there be job opportunities resulting from this proposed project?</p>	<p>TB: During construction job opportunities <i>may</i> be available to put up conveyor belts and storage facilities. Additional jobs may 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).</p> <p>Once operational, Eskom plans to utilise existing staff members to operate the facility.</p>
<p>SL: Do you have a flow diagram of what is actually going to happen throughout the process of operating the biomass facility.</p>	<p>TB: No flow diagram was available to present at the meeting.</p>
<p>SL: Will there be any additional discharges into the environment?</p>	<p>TK: No additional discharges other than what is mentioned in the report are expected, e.g. waste ash.</p>
<p>TB: The proposed project will not even require additional water in comparison to what is used at Arnot.</p>	<p>Comment noted.</p>
<p>SL: The municipality acknowledge that Eskom want to limit their carbon emissions.</p>	<p>Comment noted.</p>
<p>SL: Wouldn't wood pellets require big plantations?</p>	<p>TB: 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</p>

Question / Comment	Response
	<p>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>SL: Is the manufacturing of wood pellets a listed activity according to the environmental regulations?</p>	<p>TB: 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>
<p>SL: 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 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>	<p>Comment noted.</p>

## **WAY FORWARD AND CLOSURE**

---

The meeting closed at 12h00.




**Proposed Biomass Co-firing  
Demonstration Facility at Arnot  
Power Station  
Mpumalanga Province**

**Basic Assessment Process**

**23 January 2012**

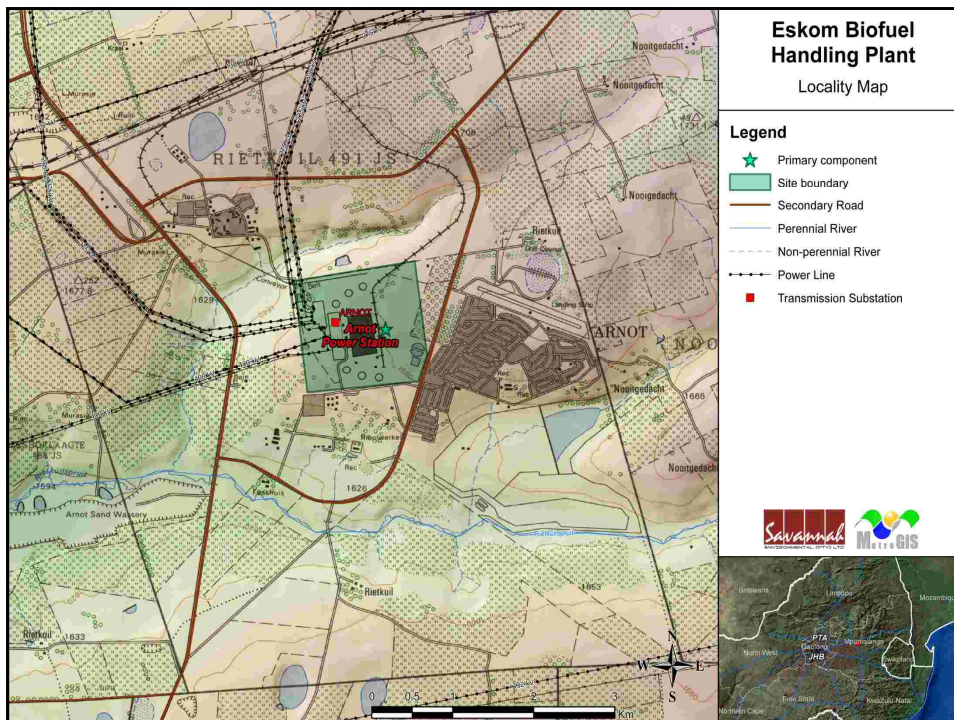


**MEETING AGENDA**

- Welcome and introduction
  - Project background
  - Basic assessment process
  - Feedback
  - Discussion session
  - Way forward and closure
- 

## PROJECT OVERVIEW

- Client - Eskom Holdings SOC Limited (Eskom)
- Project description - the substitution of a limited amount of coal with biomass as a co-firing fuel source
- Purpose - a pilot exercise to form part of Eskom's initiatives towards the reduction of their non-renewable carbon footprint
- Biomass source - wood pellets are proposed to be sourced from potential suppliers either in Mpumalanga, KwaZulu-Natal or the Eastern Cape
- Milling options - co-milling (replacement of 5% of coal at 3 units) or separate milling (replacement of 10% of coal at 1 unit)
- Facility infrastructure - access road, conveyors, biomass storage





## LEGAL CONTEXT

- Legislation - National Environmental Management Act (Act No. 107 of 1998) - listed activities
- Authorities – National Department of Environmental Affairs (competent authority); Mpumalanga Department of Economic Development, Environment, and Tourism (commenting authority)
- Reference number - 12/12/20/2380

## BASIC ASSESSMENT PROCESS



## IMPACTS DURING THE CONSTRUCTION PHASE

<b>Dust creation and noise</b>	<p><u>Nature</u> - dust/noise created during construction may affect surrounding landowners.</p> <p><u>Significance</u> - low (with/out mitigation)</p> <p>Dust emissions will most likely settle within 100m to 1km away. This may temporarily impact residents in Rietkuil</p>
<b>Job creation</b>	<p><u>Nature</u> – no new employment opportunities will be created. As such the potential significance rating is not assessed further.</p> <p><u>Significance</u> – N/A</p>

## IMPACTS DURING THE OPERATIONAL PHASE

<b>Air quality</b>	<p><u>Nature</u> - Direct impacts will result from the continued inhalation of NO<sub>2</sub>, SO<sub>2</sub> and particulates (PM<sub>10</sub>) emitted during the operational phase (i.e. as part of the combustion process) and from the trucks used to transport the biomass. Indirect impacts results from acidification, and those associated with CO and CO<sub>2</sub> relate to global warming</p> <p><u>Significance</u> - Moderate</p> <p>On a holistic basis, there will be a reduction (albeit marginal) in the non-renewable carbon footprint associated with power generation at the Arnot Power Station.</p>
<b>Waste creation</b>	<p><u>Nature</u> - no additional waste will be created.</p> <p><u>Significance</u> - N/A</p>
<b>Job creation</b>	<p><u>Nature</u> - no new employment opportunities will be created. As such the potential significance rating is not assessed further.</p> <p><u>Significance</u> - N/A</p>

## CONCLUSIONS

- The biomass co-firing option will reduce Arnot Power Station's reliance on fossil fuel (coal) by up to 10% as biomass is a renewable source of energy.
- On a holistic basis, there will be a reduction (*albeit marginal*) in the carbon footprint.
- The installation of the biomass co-firing plant is considered environmentally acceptable from a site perspective.

## RECOMMENDATIONS

- The mitigation measures as recommended in the air quality specialist report should be implemented, most importantly the implementation of a dust management plan.

## WAY FORWARD

- Draft Basic Assessment Report review period
  - 5 December 2011 – 23 January 2012
- I&APs invited to submit comments or questions
- Final Basic Assessment Report submitted to DEA for review
- Issuance of an Environmental Authorisation
- Appeals process

### Contact Details

**Alicia Govender**

**Tel:** 011 234 6621

**Email:** [alicia@savannahsa.com](mailto:alicia@savannahsa.com)

**Post:** PO Box 148, Sunninghill, 2157

**Fax:** 086 684 0547



