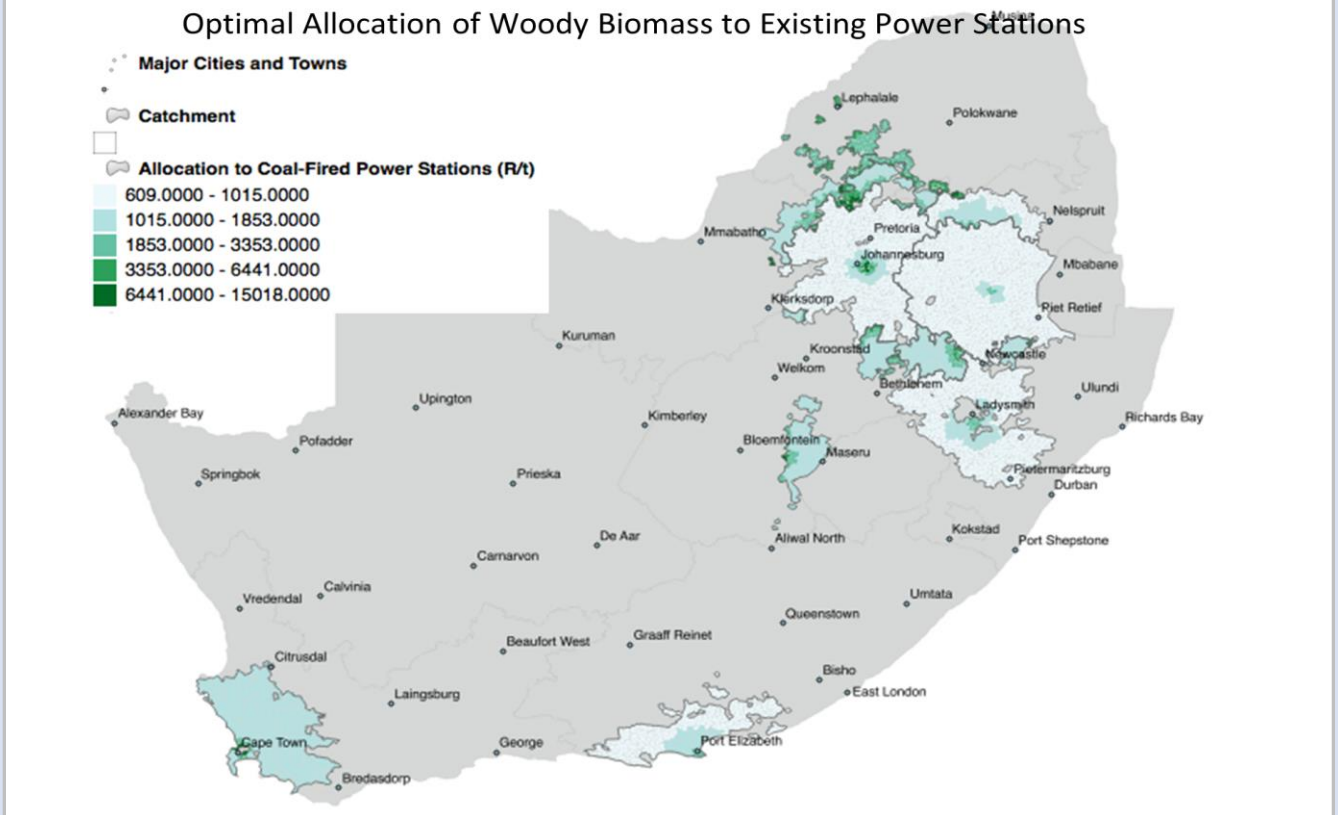
| THEME: FEASIBILITY | Prepared by: Wim Hugo, SAEON |
|---|---|

## *All Woody Biomass - Co-Generation*




*Author(s): Hugo, W*

*Date: 2015*

***Meta-Data***

| | |
|---|---|
| ***Title*** | *All Woody Biomass - Co-Generation* |
| ***File(s)*** | *WP10_07_AWB_COF_02.shp, WP10_07_AWB_COF_02_catch.shp* |
| ***Author(s)*** | *Hugo, W* |
| ***Publication Date*** | *2015* |
| ***Citation*** | *Hugo, W. 2014. Feasibility of BioEnergy production in South Africa, BioEnergy Atlas for South Africa, DST/ SAEON 2014, Section WP10_04* |
| ***License*** | *Creative Commons 4.0 BY SA (No restrictions on re-use, proper citation and attribution requ* |

| | |
|---|---|
| ***Abstract*** | ** Technical Challenges -*<br>*ESKOM may have some risks associated with introduction of co-firing at power stations, and may elect to do so only at selected sites. The most feasible location is in Mpumalanga Highveld, but the availability of biomass is somewhat dependent on maize residues which may be highly variable. Western Cape option may not be feasible since power stations have been decommissioned.*<br>** Cost Challenges -*<br>*Costs are acceptable comparable to current electricity from coal costs.*<br>** Policy Challenges -*<br>*The projects are feasible and well aligned with existing expertise and infrastructure in respect of 'Working for Water' programmes. Integration with DEA 'Working for Energy' required and incorporation into IPP programmes needed.*<br>** Environmental Challenges -*<br>*The net impact on greenhouse gas emissions is sizable, despite land use change effects, given the significant reduction in GHG as CO2 equivalents in comparison to coal. If natural vegetation replaces invasives at more or less the same annual increment, LUC effects are near zero.* |
| ***Keywords*** | *chipping, co-genaration, feasibility, model outputs, pelleting, steam turbine, woody biomass* |
| ***Caveats*** | http://bea.dirisa.org/resources/metadata-sheets/WP10_07_META_AWC.pdf |
| ***Web Meta-Data*** | |
| ***Web Resource*** | http://app01.saeon.ac.za:8086/geoserver/BEA/wms?service=WMS&version=1.1.0&request=GetMap&layers=BEA:WP10_07_AWB_COF_02&styles=&bbox=16.451920000028533,-34.83416989569374,32.892531746697685,-22.125030000001036&width=512&height=395&srs=EPSG:4326&format=application/ope |

***Methodology/ Protocol***

| | |
|---|---|
| Processing/ Provenance | *As described above* |

***Important Attributes***

| | |
|---|---|
| MESO_ID | Meso-zone ID |
| PRICOST | Optimal Allocation of Woody Biomass to Existing Power Stations, R/ton |
| ALLOC | Catchment ID |

***References and Sources***


| | |
|---|---|
| [1] | Croezen, H and van Valkengoed, M. GHG Emissions due to deforestation, Delft, 2009 - http%3A%2F%2Fwww.ce.nl%2F%3Fgo%3Dhome.downloadPub%26id%3D932%26file%3Dghg-emissions-due-to-deforesta.pdf |
| [2] | Von Maltitz, G. Estimates of Land Use Effects of Major Products and Feedstocks, Work Package 9, in BioEnergy Atlas for South Africa, W Hugo (ed), DST 2013 |
| [3] | Witi, J and Stevens, L- Greenhouse Gas Inventory for South Africa, 2000-2010, Department of Environmental Affairs, 2013 - https://www.environment.gov.za/sites/default/files/docs/greenhousegas_invetorysouthafrica.pdf |
| [4] | US Environmental Protection Agency, Emission Factors for Greenhouse Gas Inventories, EPA, 2014 - http://www.epa.gov/climateleadership/documents/emission-factors.pdf |
| [5] | All Woody Biomass - Co-Generation - Catchments: http://app01.saeon.ac.za:8085/geoserver/WP10/wms?service=WMS&version=1.1.0&request=GetMap&layers=WP10:WP10_07_AWB_COF_02_catch&styles=&bbox=17.84384018990175,-34.6343895339675,31.38441863502976,-23.460916381277315&width=512&height=422&srs=EPSG:4326&format=application/openlayers |