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PREFEASIBILITY STUDY FOR BIOMASS POWER PLANT, NAMIBIA ENERGY POLICY FRAMEWORK

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Signature				
Checked by	E. Theeboom			
Signature				
Authorised by	E. Theeboom			
Signature				
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PREFEASIBILITY STUDY FOR BIOMASS POWER PLANT, NAMIBIA

ENERGY POLICY FRAMEWORK

31/07/2012

Client

Mrs L Amaambo
Nampower Centre
15 Luther Street
Windhoek, Namibia

PO Box 2864
Windhoek, Namibia

(Tel) + 264 612052385

Consultant

Elan Theeboom
3rd Floor
35 Wale Street
Cape Town
8001
South Africa

Tel: +27 21 481 8646
Fax: +27 21 481 8799

www.wspenvironmental.co.za

Registered Address

WSP Environment & Energy South Africa
1995/008790/07
WSP House, Bryanston Place, 199 Bryanston Drive,
Bryanston, 2191, South Africa

WSP Contacts

Elan Theeboom: Associate
Elan.Theeboom@wspgroup.co.za

Table of Contents

Executive Summary.....	5
1 Structure of the Electricity Supply Industry in Namibia.....	6
2 Policy and developments with regards to IPPs and Renewable Energy	7
3 Licensing and Tariff Issues	8
4 Conclusions	9
Appendices.....	10
Generation License Application Form	10

Executive Summary

This section is based on information gathered from a literature survey as well as from a meeting that was held with the Electricity Control Board (ECB) of Namibia.

The Electricity Supply Industry (ESI) in Namibia is made-up of several players of which NamPower is most prominent due to its presence in Generation, Transmission, Distribution and Energy Trading. NamPower is currently the only Generator of electricity although several Independent Power Producers (IPPs) have been licensed, most notably in the Solar and Wind generation sector. In the Distribution sector there are three Regional Electricity Distributors (REDs) in which NamPower also has shareholding and several other players consisting of local authorities, regional councils and private companies.

An enabling legislative and regulatory environment exist for the introduction of IPPs into Namibia. Renewable or “green” energy is also being promoted in Namibia although there are no Renewable Feed-In Tariffs currently available. The licensing of an IPP that uses intruder bush to generate electricity will consequently depend on that IPP successfully negotiating a Power Purchase Agreement (PPA) with NamPower. Such a PPA should be acceptable from a customer and IPP standpoint by balancing the needs for affordable tariffs form a customer point of view and sufficient returns from the IPP investor point of view.

1 Structure of the Electricity Supply Industry in Namibia

The Electricity Supply Industry (ESI) in Namibia is governed by the Electricity Act No 4 of 2007. Although the Electricity Act No 2 of 2000 made provision for the establishment of the Electricity Control Board (ECB), which was tasked with licensing operators and setting of electricity tariffs, it “did not contain sufficient enabling provisions for the issuing of technical regulations”¹.

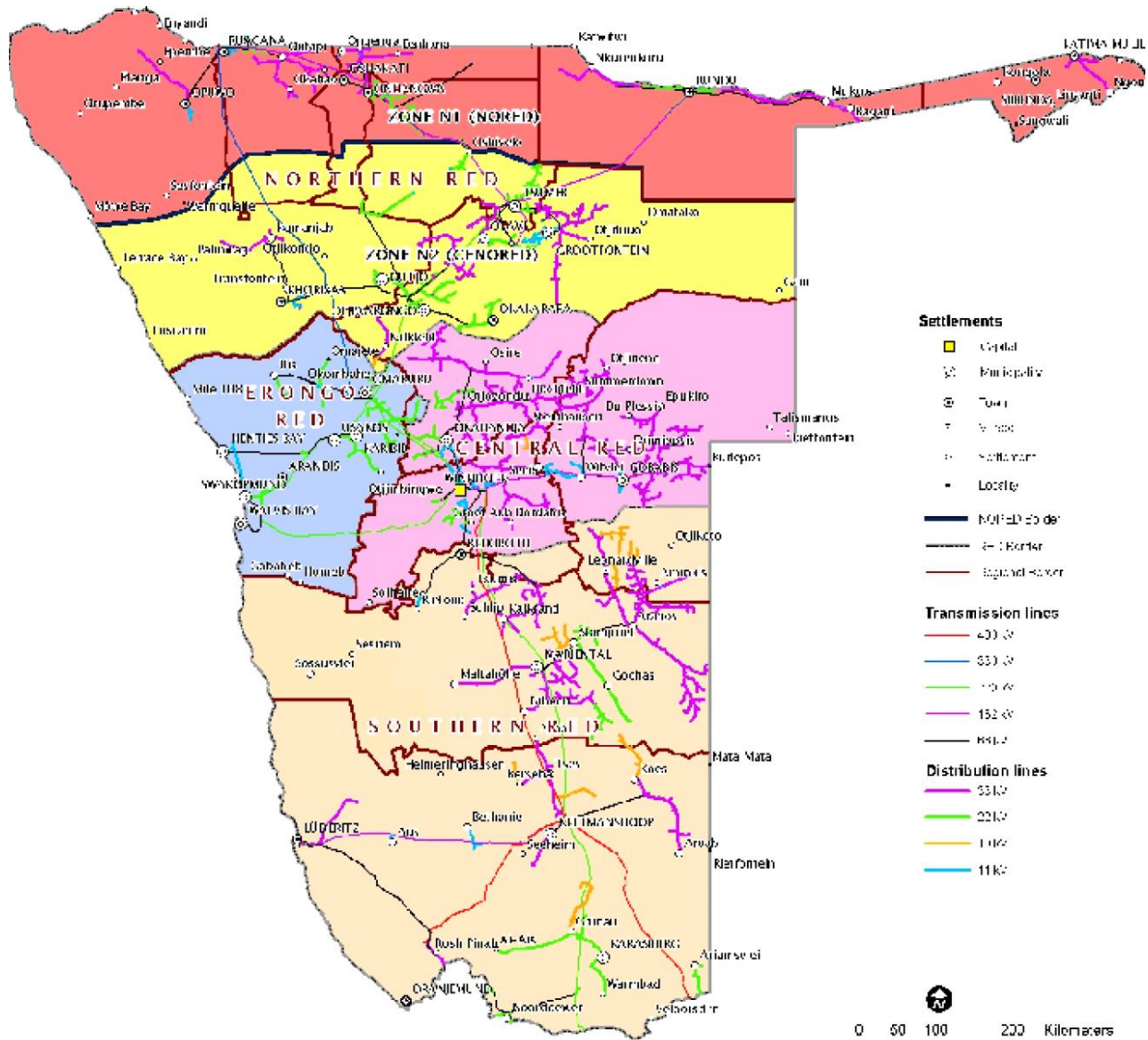


Figure 1 Map indicating the location of the REDs in Namibia²

Since the establishment of the ECB, licenses for the Generation, Transmission, Distribution, Supply, Import & Export and Trading of electricity have been issued to various entities. NamPower is the sole holder of Transmission, Import & Export and Trading licenses and consequently the Namibian ESI currently has a Single Buyer model in place which is still vertically integrated (although the Single Buyer is a separate entity within

¹ Information on the Namibian Electricity Industry; 6. The Electricity Bill, 2007 from www.ecb.org.na

² From www.ecb.org.na

NamPower). Although various licenses have been issued for the Generation of electricity, NamPower is the only entity currently generating electricity in Namibia at the following sites (installed capacities in brackets):

- Ruacana Hydro Power Station (341 MW)
- Van Eck Coal-fired Power Station (128 MW)
- Paratus and Anixas Diesel-fired Power Stations (24 & 22.5 MW respectively)

Various licenses have also been issued to Distributors of electricity. There are approximately 30 distributors of electricity licensed in Namibia currently. The licensed Distributors consist of Regional Electricity Distributors (REDs), Local authorities & Regional Councils and private entities. All Distribution in the Erongo Region is done by Erongo RED and most of the Distribution in the Central North and Northern Regions are done by CENORED and NORED respectively (see Figure 1). In the Central North and Northern Regions there are islands of supply like Oshakati Premier Electric (100% owned by Oshakati Town Council) and several privately-owned entities in the Central and Southern parts of the country. NamPower holds shares in all the REDs in varying degrees. Although a Central RED and Southern RED were envisaged originally, the Windhoek Municipality and other local authorities in the central, eastern and southern part of Namibia are individually licensed for Distribution of electricity.

It is generally accepted that NamPower is the supplier of last resort and therefore supplies all areas that do not fall within any of the previously-mentioned entities.

2 Policy and developments with regards to IPPs and Renewable Energy

The Electricity Act No 4 of 2007 “permits and encourages private sector investment” in Namibia’s power sector³. In that regard, several Independent Power Producers (IPPs) have been licensed by the ECB. To date six licenses have been granted for IPPs wishing to install Solar PV plants. Some licenses have also been issued for IPPs wishing to install Wind Power plants.

The government of Namibia in association with NamPower and the ECB has formed a Project Steering Committee that is currently preparing a Request for Proposals (RFP) for the provisioning of three 10 MW Solar PV plants for Namibia (three different sites). The IPPs that have already been licensed and others will have an opportunity to submit proposals for such plants as part of this RFP. It is envisaged that the power from all future renewable energy plants of more than 5 MW will be procured through the process described above⁴. Plants that are smaller than 5 MW will probably be subject to a Renewable Feed-In Tariff (REFIT) but this tariff has not been determined yet.

³ Namibia IPP and Investment Framework Technical Assistance – Final Report prepared for the ECB by Core International Inc. and EMCON Consulting Group, March 2009

⁴ From notes of meeting that was held with the ECB on 27 July 2012 at the ECB offices in Windhoek

3 Licensing and Tariff Issues

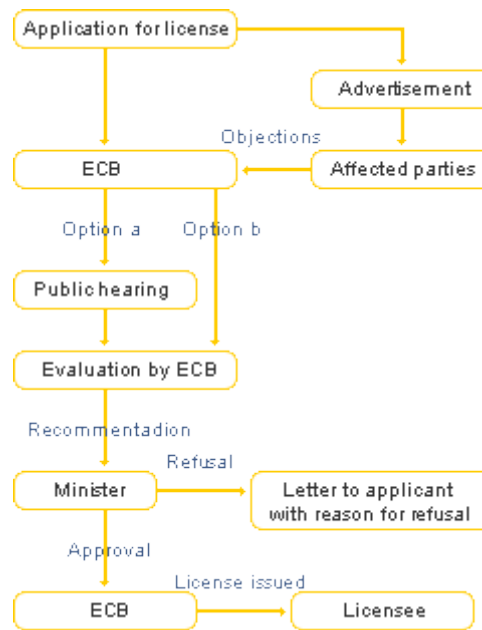


Figure 2 Licensing procedure⁵

Licenses for the Generation, Transmission, Distribution, Supply, Import & Export and Trading of electricity in Namibia are issued by the ECB. Figure 2 shows the licensing procedure of the ECB of Namibia. In the Appendices there is a copy of the Generation License Application Form that is also available on the ECB website (see <http://www.ecb.org.na/show.php?m=8&sm=12> for more information on the different application forms to be submitted for different types of licenses).

In discussions with the ECB they have indicated that the licensing procedure takes about 60 days to complete if no objections are received for the application after Advertisement. The period allowed for objections to be submitted is 30 days. If no objections are received the license is issued after approval is received from the Ministry of Mines and Energy. The cost of a license is in the order of N\$ 12 500 which consist of an application fee of N\$ 2 500 and an issuing fee of N\$ 10 000.

In discussions with the ECB, they also indicated that conditional licenses can be issued. Such licenses may be issued based on condition that the Power Purchase Agreement (PPA) is fair to the customer (does not lead to excessive electricity price adjustments) and to the IPP (based on acceptable return on investment for the shareholders). The PPA will include a tariff for the electricity to be produced. Once a PPA has been entered into between the IPP and NamPower, the ECB will evaluate the PPA based on the abovementioned criteria and issue a “unconditional” license. Tariffs are consequently determined by negotiations between NamPower and the IPP but approval for the PPA needs to be given by the ECB.

The ECB has also indicated that an agreement between an IPP and a third party may be considered for renewable or “green” energy. The power from the IPP could then be wheeled across the NamPower network if the IPP and the third party are geographically separated from one another. Transmission wheeling charges will be calculated on a similar basis than what is used currently by the Southern African Power Pool (SAPP)⁶.

⁵ From www.ecb.org.na

⁶ From notes of meeting that was held with the ECB on 27 July 2012 at the ECB offices in Windhoek

4 Conclusions

There are many different players in the ESI in Namibia but NamPower has a dominant role as it is licensed for Generation, Transmission, Distribution, Supply, Import & Export and Trading of electricity. The REDs dominate Distribution in the Northern and Western parts of country but many other Distributors are also present in Namibia. The Generation and Import & Export of Electricity is currently the sole domain of NamPower but an enabling legislative and regulatory environment exist for the introduction of IPPs into Namibia.

An IPP operating a power plant fuelled by Encroacher Bush would consequently not have any impediments to obtaining a license to generate and supply electricity into the Namibian grid or to a third party. The acquiring of an “unconditional” Generation license would, however, depend on the IPP negotiating a PPA which is acceptable in terms of the current tariff regime in Namibia. Selling of power to a third party by an IPP would probably only be allowed if the power generated can be termed as renewable or “green” energy.

Appendices

Generation License Application Form



REPUBLIC OF NAMIBIA

APPLICATION FOR A LICENCE TO **GENERATE**
ELECTRICITY IN TERMS OF THE
ELECTRICITY ACT (Act 4 of 2007)
Version 3, March 2008

Please return completed form to:

Electricity Control Board
8 Bismarck Street
P.O. Box 2923
Windhoek
Namibia

Tel: +264-61-374 300
Fax: +264-61-374 305
E-mail: info@ecb.org.na
Website: <http://www.ecb.org.na>

SECTION A

PARTICULARS OF LICENCE APPLICATION

A.1 State nature of application (mark which is applicable):

Issue of new Licence

Renewal of Licence

Amendment of Licence

Transfer of Licence⁷

A.2 Desired period of validity of Licence

Desired commencement date _____/_____/_____ Desired validity period: _____ years

A.3 Other permits, approvals and authorisations obtained/required, e. g environmental, safety and health, land, etc.

A.4 In terms of regulation 4 the applicant is obliged to advertise his licence application. Please attach a copy of the newspaper clipping attesting thereto.

⁷ The information required in this section must be provided with regard to both the licensee and the proposed transferee.

PARTICULARS OF APPLICANT

SECTION B

B.1 Full name of applicant

B.2⁸ Identity number of applicant, or in the case of a body corporate, registration number:

B.3⁹ Nationality of applicant, or in the case of a body corporate, country of registration:

B.4¹⁰ In the case of an authority created by law, the name of the law in terms of which that authority was established/created:

B.5 Physical and postal address of applicant:

B.6 Telephone number of applicant:

()

B.7 Fax number of applicant:

()

B.8 E-mail of applicant (if any):

⁸ Attach a copy of the registration papers.

⁹ Where the applicant is a company a board resolution authorising the applicant must be attached.

¹⁰ If the applicant is a local government body, attach a copy of the proclamation establishing such body.

B.9 Contact person at applicant:

Name: _____
Position: _____
Telephone No: (_____) _____
Fax No: (_____) _____
E-mail: _____

B.10 Signature of Applicant

Submitted at _____ on _____ 200____
11

Signature

Name

Witnesses:

Signature

Signature

Name

Name

GEOGRAPHICAL AREA TO WHICH THE APPLICATION RELATES

¹¹ The highest administrative authority of the applicant must sign.

SECTION C

In terms of regulation 3(2)(d) of the Electricity Regulations: Administrative, the following information is required:

- (i) a map showing the proposed location where the applicant intends to erect or alter plant, where applicable;
- (ii) a description of the technical design, including a one-line diagram of the proposed plant, and its surrounding electrical system, which the applicant intends to erect or alter, where applicable;
- (iii) a description, including a site layout, of the area within which the applicant intends to carry out the activities to be authorised under the licence;
- (iv) a calculation of the net present value of the proposed plant and any alternative plants, which calculation must be in accordance with the guidelines determined by the Board.

Additional requirements are:

- (i) Submit a map to readily identify the area to which the application relates. The map must be to scale 1:250000 where boundaries follow existing boundaries. Where boundaries do not follow existing boundaries the map should be to the scale 1:50000.
- (ii) Map must indicate local government boundaries within the area to which the application relates.
- (iii) Provide a site map for each generation facility for which a licence is applied.

PARTICULARS OF GENERATING STATION
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SECTION D

(To be provided for each generation station separately)

D.1 Name of generation station

D.2 Location of generation station

D.3 Address of generation station

D.4 Contact person at generation station

Name

Position

Telephone Number

Fax Number

E-mail (if any)

D.5 Type of generation station (i.e. thermal hydro, gas turbine, diesel generator)

D.6 Date on which the generation station was commissioned for an existing station or the expected commissioning date for a proposed station.

D.7 The installation capacity of each unit within the generating station (MVA)

D.8¹² Maximum generating capacity (MW) expected to be available from the generating station and energy to be produced (MWh) over the next / first 5 years of operation. These estimates should be based on modelling of how the power station will fit into the demand profile of its customers, taking into account the least cost energy purchase consideration and demand management options of customers.

YEAR	Nominal Capacity (MW)	Net Sent-out Capacity (MW)	Total Gross Production MWh	Own use MWh	Total Net Production – available for sale (MWh)
Year 1					
Year 2					
Year 3					
Year 4					
Year 5					

D.9 If applicable, estimate of the energy conversion efficiency of the generating station.

¹² In terms of Electricity Regulation: Administrative 3(2)(f) an Operational Plan must be attached.

D.10 Expected economic life of the generating station in years.

D.11 If the power station is not fully dispatchable (e.g. wind generators, co-generators, hydro generators, etc.) then provide a complete break down of when the station is likely to produce electricity. The breakdown should be specified per month, day of week and hour of day.

PARTICULARS OF ANY LONG TERM ARRANGEMENTS WITH PRIMARY ENERGY SUPPLIERS
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SECTION E

(To be provided for each generating station separately)

E.1 If applicable, name of primary energy supplier/s (mining house, colliery or other fuel suppliers)

E.2¹³ Particulars of the contractual arrangements with primary energy supplier

¹³ Attach copies of any signed agreements.

SECTION F

MAINTAINANCE PROGRAMS AND DECOMMISSIONING COSTS

(To be provided for each generating station separately)

F.1 Details of any proposed major maintenance programmes, including the expected cost and duration thereof, covering the next five years. Project proposal to state the expected availability, planned outage rate and forced outage rate over the first/ next five years of operation.

F.2 Details of any major decommissioning cost expected during the life of the power station and provided for in the project feasibility study.

F.3 Details of major generating station expansion and modification planned for in the feasibility study (Dates, cost in current (state year) N\$ and depreciation)

SECTION G

(i) *CUSTOMER PROFILE*

(To be provided for each generating station separately)

G.1¹⁴ Particulars of the person or persons to whom the applicant is providing or intends to provide electricity from the generating station and particulars of the distribution of that electricity

¹⁴ For example, supply to Nampower or supply to local government distribution system. Any power purchase agreements entered into and the price structure of the contract must be approved by the Electricity Control Board before signature thereof.

(a)
15

SECTION

4.1.1.1.2 FINANCIAL INFORMATION

H

16

(To be provided for each generating station separately)

- H.1 Submit statements of the accounts in respect of the undertaking carried out by the applicant, showing the financial state of affairs of the most recent period, together with copies of the latest audited annual accounts where such have been prepared. Cost data for each generating station is to be broken down into the following categories.
- 1.1 Primary Energy Cost (HFO, coal, gas, etc.)
 - 1.2 Operations
 - 1.3 Maintenance
 - 1.4 Administration
 - 1.5 Corporate overheads (specify method of allocating head office expenses)
 - 1.6 Depreciation (specify method and rates)
 - 1.7 Finance charges
 - 1.8 Taxes
 - 1.9 Capital expenses
 - 1.10 Other
- H.2 Submit annual financial and cost ratios with respect to the profitability, return on assets, cost per N\$ of revenue, cost per kilowatt-hour sold and employees per unit of the generating stations.
- H.3 Submit annual forecast for the next five years of cost, sales and revenue generated by the generating station(s), stating the assumptions underlying the figures.
- H.4 Submit a complete cash flow sheet per annum over the life of the project.
Submit a complete Income and Expenditure statement per annum over the life of the project.
Submit a detailed capital plan of all capital expenditure up to commissioning by month (including a breakdown of donor funded assets).
Provide information about operational expenditure up to commissioning by month divided between fixed and variable.
Submit a capital plan of all capital expenditure after commissioning on an annual basis together with ongoing and life extension capital.
Submit operational expenditure after commissioning annually divided between fixed and variable expenditures.
Submit the present value of the expected cost over the life of the generation plan.
Submit the present value of the energy of the life of the generation plant.

¹⁵ In terms of Electricity Regulation: Administrative 3(2)(f) a Business Plan must be attached.

¹⁶ The financial projections should be based on a production plan for the power station and the revenue generated by participating in the electricity market and by bilateral contracts (Power Purchase Agreements) with customers. An integrated resource plan is required to demonstrate that the proposed power purchase agreement is the least cost solution available to the electricity purchaser.

H.5 Project Financing: Provide a detailed description of the funding structure of the project. The description should contain the following:

- Submit a detailed funding plan including a list of investors, lenders and donor agencies.
- Provide the interest rates of all loans. If the project has debt to be redeemed in foreign currency, clearly indicate if a fixed rate would be negotiated. If not, indicate how the forex exposure would be mitigated to not adversely effect end consumers.
- Submit detailed information about the seniority of loans and clear agreed repayment plan.
- Submit a complete and detailed production plan.
- Submit a profile of energy production for a period of one year.
- Submit the possible assumptions about expected returns. Does the investor expect their returns in foreign currency? What, if any, instruments will be seen to mitigated the foreign currency exposure.
- Submit the tax implications on an annual basis.

SECTION I

(i) ADDITIONAL INFORMATION

Please provide any other relevant information, which the applicant wishes to include with this application

WSP Environment & Energy South Africa

3rd Floor

35 Wale Street

Cape Town

8001

South Africa

Tel: +27 21 481 8646

Fax: +27 21 481 8799

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