

# RENEWABLE ENERGY FRAMEWORK

## AIM OF THE FRAMEWORK

The aim of this Framework is to enable the establishment of new renewable energy generating projects in order to meet South Africa's 2013 Renewable Energy target. As such it has a short term focus and only applies to projects that use renewable energy sources as identified in this document, for power generation within the borders of South Africa.

## FRAMEWORK SUMMARY

- The Renewable Energy target of 10,000GWh is to be met by 60% electric and 40% non-electric sources
- The 6000GWh electric target will be divided between Eskom and Independent Power Producers (IPPs)
- IPPs are expected to supply 60% of the 6000GWh electric target
- Eskom to supply 40% of the 6000GWh; however the 40% is not set as a limit and Eskom is encouraged to exceed this percentage
- Eskom's contribution is to be delivered as per Eskom's Renewable Energy Strategy
- IPP portfolio is to be achieved on a competitive bidding basis and to consist of biomass (> 1MW), small scale hydro (1MW < project ≤10MW) and large wind projects (>20MW )
- The selected IPP projects to receive a production tariff (premium) that will ensure commercial feasibility. The determination of this tariff will be unique to each project type (i.e. technology)
- Eskom and municipalities to be the buyers of the power generated where practically possible
- Power purchasers to recover the production tariff (premium) paid to the IPPs on a pass through basis

- Bilateral agreements between generators and customers (including municipal driven initiatives aimed at their direct customers) to be excluded from the framework
- Cogen projects are also excluded in this Framework
- The Department of Minerals and Energy to be the primary administrator of this process.

## **1. BACKGROUND**

- The target set in the Department of Minerals and Energy's 2003 White Paper on Renewable Energy created significant interest in the South African market and has prompted several potential IPPs to propose renewable power generation projects.
- These projects have largely not been realised due to the lack of financial enabling mechanisms, aside from isolated bilateral agreements where customers have been willing to pay a premium on energy.
- However, the IPPs continue to harbour the expectation of premium tariffs becoming available for electricity generated using renewable energy.
- Significant uncertainty exists regarding the price at which green power could potentially be bought. This aspect impacts both the potential consumers and generators of green power.
- The danger exists that any isolated agreements may set precedents that can have significant impact on the industry.
- It is critical that the current Electricity Supply Industry (ESI) environment and processes also be applied when considering the development of this new supply sector.
- Projects cannot be allowed to be developed in isolation and outside a nationally defined framework that will allow for the optimal development of a supply portfolio.
- A significant current concern is that individual developers are proposing a number of power generation projects, without national coordination or direction.
- The development of sub-standard or very costly projects may damage this budding renewable energy industry.

## **2. FRAMEWORK**

This framework addresses the creation of a mechanism for the development of a renewable energy electricity generation industry in the short term, with the specific objective of satisfying the 10,000GWh target of cumulative energy delivered by the end of 2013. A decision on extending and/or modifying the framework to address a longer term scenario will be taken based on the success of the current initiative.

### **2.1 Electric versus Non-Electric**

According to the White Paper on Renewable Energy, the target could be met from sources such as biomass, wind, solar and small-scale hydro and non-electric technologies such as solar water heating and biofuels. Non-electric technologies are expected to contribute 4000GWh towards the target. For now, the biofuels programme is expected to contribute at least 35% towards this non-electric target.

A significant contribution to the target from non-electric sources is possible, subject to the implementation of the Biofuels Industrial Strategy and roll-out of SWH systems. However, given the magnitude and complexity of these programmes, delays are also very probable, which could negatively impact the contribution of these options to the 2013 target. This, coupled with the urgent need for electric generation in the short term, has led to the decision that the electric to non-electric allocation of the target is taken as 60% to 40%. This translates to 6000GWh being supplied by electric and 4000GWh supplied by non-electric renewable energy sources.

## 2.2 Electric Target Division

Currently Eskom is mandated to supply 70% of new generation while 30% has to be obtained from IPPs.

Given the Renewable Energy White Paper's objectives of stimulating industry and encouraging smaller players in this area, it was decided that for the current framework, the contribution from Eskom and that of IPPs should be allocated on a 40:60 division. However, the 40% is not to be seen as a limit to Eskom, instead the national utility is encouraged to exceed this value.

In terms of the current division Eskom will be responsible for supplying 2400GWh and IPPs 3600GWh of electricity from renewable energy sources by 2013.

## 2.3 Eskom Supply

Eskom has an active programme to develop renewable energy and has set an aspirational internal target of 1600MW installed by 2025.

Taking its current and planned activities into account, Eskom's contribution to the target will most likely be made up from wind and concentrating solar power.

## 2.4 IPP Supply

### 2.4.1 Eligible Resources

The "Economic and Financial Calculations and Modelling for the Renewable Energy Strategy Formulation" report from the DME formed the basis for deciding on how an IPP portfolio should be structured, together with inputs from the study team.

The following was decided, broken down in project/technology areas that will and will not be considered in terms of this framework.

#### ***To be considered under the IPP portfolio:***

- As per the mentioned report, biomass should significantly contribute through three main areas, namely from bagasse, wood-based wastes and landfill gas. The biomass projects should be stand alone biomass initiatives and not linked to cogeneration. The framework aims to enable stand alone biomass projects where power generation using the biomass feedstock is the only activity. Cogen projects are not supported

under this framework because a separate process exists for these types of projects. The NERSA document “*Development of regulatory guidelines and qualifying principles for co-generation projects*” defines cogen projects stating that in order for a project to qualify for the cogenerator status the electricity produced by the project will need to be a co-product, by-product, waste product or residual product of an underlying industrial process.

- Apart from the main areas mentioned above, other biomass waste streams above the 1MW size stipulated will also be considered.
- Small scale hydro, with individual projects sized at less than or equal to 10MW.
- Large-scale wind, preferably these must be larger than 20MW.
- Concentrating solar power larger than or equal to 20MW

***Technologies that will not be considered under this framework are:***

- Solar Photovoltaic (PV), given its high cost, small unit scale and suitability to mainly off-grid installations. The department has a programme that promotes Solar Home Systems for remote rural areas which has been running since 2001.
- Small wind turbine applications.
- Ocean energy, given that this technology is still in the validation stage.
- Other solar thermal electric options, such as the solar chimney due to their lack of maturity.

#### 2.4.2 Volumes

Estimating the volumes that can be supplied from the various resources that should be supported is complex, given unknown variables such as the size of projects that could be proposed and commissioning time, which significantly affects the cumulative contribution. A decision on the volumes to be supported in each category will be taken following an analysis of the proposals received.

#### 2.4.3 Tariffs

Production tariffs will have to be set to enable the selected projects to achieve financial and commercial feasibility. These production tariffs should, amongst other issues be unique to each resource type and available over a reasonable period to ensure the bankability of the project.

The Renewable Energy Feed in Tariff study undertaken by the National Energy Regulator of South Africa will be used as a guideline for setting appropriate tariffs.

#### 2.4.4 Process Description

- An Expression of Interest (EOI) will be issued in order to pre-qualify potential IPPs.
- The EOI will be followed by a Request for Proposal (RFP) according to the Framework and guidelines.

- Proposals received will be evaluated by a DME led Evaluation Team on a competitive and least-cost basis within each of the resource groups using a pre-defined criteria.
- The production tariff to be received by each successful project will be determined by evaluating the project capital cost estimate and levelised electricity cost (LEC) calculation together with the tariff outcomes determined by the NERSA.
- Contracts, including a PPA will be concluded with the selected projects, following which the licensing process should be initiated by the IPP.
- Eskom and municipalities will buy the renewable energy at the agreed production tariff and recover the costs on a pass through basis.
- Existing and future projects that have or will be developed as bilateral initiatives between a willing IPP and a willing customer paying an agreed premium on the generation will continue. In these cases, the power uptake is by a specific entity and the electricity is not available to the national grid. This includes power schemes developed independently by municipalities.
- This framework is seen as a short term measure to catalyse the establishment of the renewable energy market.

## 2.5 Institutional Requirements

The institutional resource requirements will be modified based on need. Initially, the DME, through REFSO, will administer the process. The required governance and support committees will be constituted by the DME as and when required, and will be as inclusive as possible. In other words, national key stakeholders will be invited to participate.

All selected projects will be submitted to the Designated National Authority for review for CDM qualification. It is the intention of this framework that, should projects qualify for CDM benefits, then the income realised should be used to reduce the premium paid to the generator in order to limit the financial impact on the electricity consumer.

All selected projects will have to engage NERSA and other relevant institutions directly for required authorisation e.g. generating license.

## 3. BENEFITS OF THIS APPROACH

- Government objectives will drive the market
- Suppliers will get certainty regarding how they can participate in the market
- Supplier will have to provide competitive bids for the green power category allocations and thus maximise efficiency and minimise cost per category
- Consumers will get access to green power at a least cost