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Dear Mr Matshediso

### **ESKOM'S COMMENTS ON THE DRAFT AMENDMENT TO THE LISTED ACTIVITIES AND ASSOCIATED MINIMUM EMISSION STANDARDS IDENTIFIED IN TERMS OF SECTION 21 OF THE AIR QUALITY ACT**

Eskom would like to submit the following comment on the draft amendments to the Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the National Environmental Management: Air Quality Act (Act No 39 of 2004), as sent to Eskom on 16 August 2011.

In general, Eskom supports the amendments. However, we would like to submit the following comment:

- The amendment of **sub-category 1.1** to exclude any solid material that is regarded as waste in terms of the Waste Act, 2008, may well exclude the use of biomass as a fuel source, and in particular biomass co-firing. However, the use of biomass should be encouraged as it is a renewable fuel.  
The EU Directive for Large Combustion Plants defines biomass as: 'products consisting of any whole or part of a vegetable matter from agriculture or forestry which can be used as a fuel for the purpose of recovering its energy content and the following waste used as a fuel:
  - (a) vegetable waste from agriculture and forestry;
  - (b) vegetable waste from the food processing industry, if the heat generated is recovered;
  - (c) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered;
  - (d) cork waste;
  - (e) wood waste **with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating**, and which includes in particular such wood waste originating from construction and demolition waste;

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It is recommended that the following statement be added: *'Biomass or vegetable waste which does not contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating is not excluded.'*

- **Sub-category 1 (a) (ii):** Similarly, it is recommended that this statement be amended to: *'The use of waste, excluding biomass or vegetable waste which does not contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, for the purpose of energy production shall be subject to compliance with Category 8.1 Disposal of General and Hazardous Waste.'*
- **Sub-category 1.4:** In cases where gas generated by Underground Coal Gasification (UCG) is used to generate electricity, it is recommended that the emission limits for solid fuel combustion installations apply (since coal is the ultimate source of the fuel). As such, sub-category 1.4 does not apply to UCG gas.
- **Sub-category 1.4:** It is recommended that a new sub-category for reciprocating engines be created, and that the emission limits be aligned with those for non-degraded airsheds in the International Finance Corporation's Environmental, Health, and Safety Guidelines for Thermal Power Plants. Limits which are too stringent to be reasonably achieved with reciprocating engine technology may inhibit the employment of this technology, which is internationally accepted.

| Fuel   | Emission limits (mg/Nm <sup>3</sup> ) at 101.3 kPa and 173 K |                                   |   |
|--|--|-----------------------------------|---|
|  | PM   | SO <sub>2</sub>                   | NO <sub>x</sub>   |
| Natural gas                                    | -  | -                                 | 200 (spark ignition)<br>400 (dual fuel / CI)  |
| Liquid fuel (plant 50-300 MWth)                | 50   | 1 170 or use of 2% or less S fuel | 1 460 (Compression Ignition, bore size diameter < 400 mm)<br>1 850 (Compression Ignition, bore size diameter > 400 mm)<br>2 000 (Dual Fuel) |
| Liquid fuel (plant >300 MWth)                  | 50   | 585 or use of 1% or less S fuel   | 740 (contingent on water availability for injection)  |
| Biofuel / Gaseous fuels other than natural gas | 50   | -                                 | 30% higher limits than those provided above for Natural Gas and Liquid Fuels  |

- The emission limits are at 15% O<sub>2</sub>.
- MWth = Megawatt thermal input on HHV basis.
- S = Sulphur content expressed as a percent by mass
- Limits apply to facilities operating more than 1200 hours per year.
- Emission levels should be evaluated on a one hour average basis and be achieved 95% of annual operating hours.
- **Sub-category 3.4:** We recommend that test and experimental systems be excluded from sub-category 3.4. Underground coal gasification is being explored as a way of using unmineable coal reserves in a way that is more efficient than conventional pulverized fuel technology. Rather than stipulating overly stringent emission limits at this stage, which would inhibit the development of the technology, emission limits should be developed when it is seen what is achievable for the technology.
- **Co-firing:** It is not clear at present which category applies in the event of co-firing (for example, if biomass is co-fired with coal). It is suggested that:
  - When a cleaner fuel is co-fired with a dirtier fuel and the cleaner fuel constitutes less than 15% of the total thermal input, then the emission limits of the dirtier fuel apply (for example, if a small amount of gas is co-fired with coal, the emission limits applicable to coal apply). This will encourage co-firing with cleaner fuels.
  - When the cleaner fuel constitutes more than 15% of the total thermal input, it is recommended that the method for calculating the emission limits in the event of the simultaneous use of two or more fuels given in Article 8 of the EU Directive for Large Combustion Plants is adopted:

For each pollutant, calculate the fuel-weighted emission limit by multiplying the individual emission limit values by the thermal input delivered by the corresponding fuel, and then dividing the product by the sum of the thermal inputs delivered by all fuels.

- An exception to this is that when co-firing with UCG gas is conducted, the emission limits for solid fuel combustion installations will be applicable, until such time as the UCG technology has matured.

We appreciate the opportunity to comment on the proposed changes to the Minimum Emission Standards. You are welcome to contact us if you wish to discuss this further.

Yours sincerely

A handwritten signature in black ink, appearing to read 'KRoss', written in a cursive style.

Kristy Ross  
**ACTING GENERATION ENVIRONMENTAL MANAGER**