

# Katestone Environmental

**A.B.N. 92 097 270 276**

18 April 2008

Mr Praveen Mahto  
WA Biomass Pty Ltd  
Level 25, Waterfront Place,  
1 Eagle Street  
Brisbane QLD 4000

Dear Mr Mahto,

**Re: BIOMASS POWER STATION, MANJIMUP, WESTERN AUSTRALIA**

Katestone Environmental has conducted a review of the air quality impact assessment study that was prepared by Connell Wagner on behalf of WA Biomass Pty Ltd titled: "Air Quality Assessment, Biomass Power Station, Manjimup", Connell Wagner, 18 April 2008. This letter provides a summary of the findings of Katestone Environmental's review.

Katestone Environmental previously conducted a review of the air quality impact assessment study that was reported in the document "Public Environmental Review (PER), Proposed Biomass Power Plant, Palings Road, Diamond Tree, Manjimup", Connell Wagner, January 2008. Katestone Environmental identified a number of aspects of the study that needed to be reconsidered and revised. These included:

- The modelling of ground-level concentrations of nitrogen dioxide was based on assumptions and input data that in our opinion could not be justified as representative of actual conditions in the region. The outcomes of the assessment were likely to be sensitive to these assumptions and consequently, it was recommended that other recognised standard approaches be adopted that are less contentious and potentially more conservative.
- The modelling simulations did not cover a full year of atmospheric conditions as is recommended by DEC guidelines.
- The modelling of ground-level concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> represented background levels in an unconventional way that is inconsistent with normal industry practice.

Katestone Environmental understands that the most recent report has been prepared to address the issues arising out of technical peer reviews that were conducted by Katestone Environmental, Sinclair Knight Merz (on behalf of the local council), the Department of Environment and Conservation and the Environmental Protection Authority.

**Katestone  
Environmental**

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**Letter from Katestone Environmental to WA Biomass Pty Ltd  
Review of Air Quality Assessment, Biomass Power Station, Connell Wagner, 18 April  
2008**

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In conducting this review we have been provided with and have considered the following information:

- The report and associated Appendices (dated 18 April 2008, Ref 25642 Revision 0).
- TAPM configuration files for various scenarios.
- The output files generated by TAPM for various scenarios.

In our review of the proposed biomass power plant, we have considered the following key aspects of the study in general and as they relate to the issues raised in Katestone Environmental's previous review:

- Meteorological assessment.
- Emissions estimation.
- Characterisation of existing air quality.
- Pollution modelling methodology.
- Analysis and presentation of results with respect to issues of human health and amenity impacts.
- Reporting.

This review considers specifically whether the air quality assessment report provides a suitable basis for clearly communicating the potential impacts of the project and the technical suitability of the study for submission to the regulator in support of the proposal.

This review has found that:

- The key issues that are identified above have been addressed. Overall, the dispersion modelling has been conducted in a competent manner and the results should provide a reasonable basis for decision making.
- The conclusions of the study are reasonable and consistent with the results of monitoring and dispersion modelling.
- An evaluation of the meteorological data that has been developed for the project has been presented in the report. This evaluation indicates that the meteorological model captures some conditions reasonably well (for example, modelled and measured summer and winter distributions of wind directions are quite similar), whilst other conditions are not represented as well (eg. overall the model over estimates wind speeds).

Katestone Environmental has found that in some circumstances meteorological data from monitoring stations in surrounding areas can be assimilated into the model to improve its performance. This has not been done in the case of the Biomass Power Station. However, given that the air quality assessment relies principally on the maximum ground-level concentration across the modelling domain as its benchmark for acceptability, the opportunity for inadequacies in the meteorological data to translate into under predictions of air pollutant concentrations is minimised.

- The key air pollutants that are associated with the Biomass Power Station are nitrogen dioxide and particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>). The air quality assessment commits the proponent to implementing emission controls for these air pollutants with manufacturer's performance guarantees that are consistent with best practice in this country.

- Ground-level concentrations of nitrogen dioxide have been modelled using three different schemes for representing the transformation of nitric oxide to nitrogen dioxide in the atmosphere. Whilst the methodology and data utilised in the GRS scheme may be arguable, the two other approaches that have been reported use very conservative assumptions with respect to chemical transformations and background concentrations and conclusively demonstrates that ground-level concentrations of nitrogen dioxide are unlikely to exceed ambient air quality standards.
- Ground-level concentrations of particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>) have been modelled accounting explicitly for deposition and chemistry. Again the methodology and data utilised in this scheme may be arguable. However, compared with a simple tracer approach, the approach that has been adopted provides only a minor reduction in the cumulative 24-hour average concentration of PM<sub>10</sub> and PM<sub>2.5</sub>. Conversely, the adopted approach provides a minor enhancement in annual average predictions. The results of both the simple tracer approach and the more detailed deposition and chemistry approach demonstrate that ground-level concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> are unlikely to exceed ambient air quality standards.

Please call me if you would like to discuss.

Yours sincerely,  
Simon Welchman - Director