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organica engineering
creating a sustainable future

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Re: Submission on how cogeneration and trigeneration systems are dealt with in the NABERS Energy rating - Simple Cogeneration electricity greenhouse factor calculator

To whom it may concern,

1. Off-site Cogeneration and Trigeneration in NABERS

It is our view that it is straight forward to calculate emissions factors for off-ste cogeneration plant. It would also be simple for the NABERS Calculator to have a line in the energy details section called “Cogeneration” or “other” where the calculator asks “What fuel type/s do you use for your energy?”.

The NABERS assessor could then enter the amount of electricity, and also enter the greenhouse coefficient for the cogeneration electricity. As evidence, the bill from the cogeneration plant, and a letter from a third party engineer stating the greenhouse coefficients from the off-site cogeneration plant would also have to be provided.

Imported steam, hot and even cold water should also be included (in MJ / GJ) as energy details, also allowing the specific greenhouse coefficients for the supply to be entered, once again verified on a facility level by a third party engineer.

As discussed, most engineers that have done an industrial energy audit would be comfortable signing off the greenhouse coefficients of cogeneration facilities when given a simple methodology like the one attached.

These sorts of calculations are straight forward for engineers and are regularly required by NGER, Energy Efficiency Opportunities program, or Victorian EREP type industrial greenhouse programs.

2. Calculating Cogeneration greenhouse factors

We have attached a cogeneration (and trigen) electricity greenhouse gas factor calculator. It uses a simple but robust methodology.

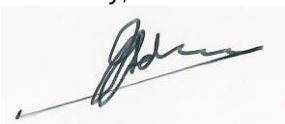
Calculator Algorithm:

"This calculator is a simple but robust methodology for apportioning greenhouse gas emissions to cogeneration electricity. It assumes that the electricity greenhouse coefficient is from the additional gas needed to produce power over and above what a normal boiler would use.

This spreadsheet has as its main input the total fuel combusted in the cogeneration plant. The fuel for the largest energy output (hot water or steam) is deducted from the total emissions to allow calculation of the remaining fuel required for the secondary output (electricity).

In other words the amount of fuel is calculated that would have been needed to be consumed to generate the same quantum of energy output using benchmark (boiler) efficiencies. This constitutes the emissions that are apportioned to the primary (hot water or steam) output. The remaining fuel is then attributed to the secondary output (the electricity) giving us the emissions factor for the cogeneration electricity."

Yours truly,



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About Us:

Ian is a Sustainability and Environmental Engineer with over 10 years experience in all aspects of sustainability in building and planning. Ian is a leading Green Star certified assessor and trainer for the Green Building Council of Australia (GBCA), and is also an accredited Environmental Management systems auditor.

Ian has worked extensively with construction companies and all levels of government in tackling a range of sustainability issues. His experience includes working with Sustainability Victoria and Places Victoria, organisations such as the Department of Defence, the Department of Human Services, RMIT University, and Australand Holdings Limited on implementing and reporting on their Sustainability Strategies. Ian's focus is on developing strategies, toolkits and solutions to allow organisations to achieve robust sustainability outcomes.