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To: Bio Energy
Subject: Notes re: Bioenergy Vision for Tasmania

Notes re: Bioenergy Vision for Tasmania

I would like to start by responding directly to 2 of the paragraphs in the draft document, which I've highlighted in blue below.

Bioenergy facilities are long term investments that require long term energy offtake and feedstock supply agreements and confidence that facilities can operate for long time horizons to achieve a return on investment. In addition, they are often more complicated and expensive to install and maintain, require a larger footprint and specialised knowledge of the technology and its benefits to enable successful deployment.
These assumptions are based on the way the industry has developed in Europe and the USA, often backed by large government subsidies. Bioenergy facilities can be built at many different scales, right down to about $20,000 worth of equipment to set up, and even smaller in the future. The obsession with the idea of economies of scale has led to large facilities being built, on the order of $100 million, and then trucking the waste long distances. The subsidies tend to hide the fact that the transport of the waste uses more energy, in some cases than what is produced.
Biogas and biochar can be built at a smaller scale, locally, and then scaled up to suit the local sources of organic residues.

Biomass feedstocks used in the production of bioenergy are often bulkier more dispersed and variable in quality than alternative fuels necessitating more complex supply chains to gather, transport, store and deliver the feedstock to bioenergy facilities. Consequently, bioenergy feedstock supply agreements and supply chains can be complex and difficult to establish. While feedstock supply chains exist in Tasmania, the lack of specifications for the feedstock quality, and variability in the quality of the fuel currently delivered has potentially deterred investment in bioenergy facilities.
This 'problem' only exists as a consequence of the assumption that bigger must be better. Locally owned and operated facilities can easily be scaled to suit the local situation, and avoid complex logistics chains, which defeat the whole purpose of the exercise.

A key aspect of this vision is education. I would be happy to develop lessons and teach about anaerobic digestion and biochar, in particular, to high school and college students. The fundamentals can be understood just fine at that level of education.

And now to the specific questions at the end of the document.

- What changes, if any, would you suggest to the draft Bioenergy Vision?

I would like it to be noted that among the byproducts of some of these processes are materials that can regenerate our soils, and go beyond reducing greenhouse gas emissions to sequester carbon in the soil for thousands of years. Projects which can do this provide significant long-term benefits, not only for the global greenhouse situation but also to the long-term wealth of the state, in the form of richer, more productive soils.

- What are the key roles for the Tasmanian government to support bioenergy?

One thing that comes to mind is some sort of publicly available list of local suppliers of relevant knowledge and parts suitable for developing these products. For example, while I can design and advise on an anaerobic digester system built to suit local circumstances, at present many of the auxiliary components would have to be imported from China, India, or Europe. But all of these things could be manufactured within the state, even the really smart electronic systems.
Also, grants and loan schemes sized between $20,000 and $500,000 which is the scope of what may well suit many of the smaller primary producers in the state. Agencies like ARENA are only really available for multi-million dollar projects. Now, many dairy farms and other producers could probably make good use of a multi-million dollar setup, that's a lot to ask on technologies that are considered untested and fringey, no matter what the data says.
But for less than $500,000 I could develop an anaerobic digester for a dairy farmer which provides real-world benefits while gaining the data needed to justify a much larger system.

- What are the key roles for households, industry, and other levels of government to support bioenergy?

Anaerobic digesters could be developed locally that work at the household scale. And by that, I mean processing all of a household's grey and black wastewater. New homes could be built with these instead of septic tanks. That takes a bit of development. Local engineering firms could develop all of the auxiliary systems for small scale digester systems, including the electronics for really smart systems. UTas could have on campus digester and biochar facilities for handling all onsite organic waste.
I would love to develop a research facility to develop local bioenergy solutions right here in the Tamar Valley. I could see the government working with TIA and other industry bodies, maybe through the NTDC, to bring all of the local strands together with the international research on the subject. Something like what Frank Strie has started with the Biochar Initiative of Tasmania, but across the whole arena of circular economy, bioenergy, and regenerative farming.

- What are the key challenges for bioenergy in Tasmania? What solutions do you see for these challenges?

The key challenges I've seen are largely lack of knowledge. Very few people are aware that these technological solutions are available. And many also believe that they can't be made to work here. I've heard the same from people on the mainland. People in Victoria simply won't believe that something built in Queensland can be built there, or vice versa. People need to see these systems working, locally, and at a scale, that they can understand. Every single transfer station in the state could have a small scale anaerobic digester and biochar kiln, producing electricity and fertiliser and biochar that they can use in their gardens and the local community gardens.
In addition, I would be happy to develop a high school level short course on anaerobic digestion and biochar. High school students could build anaerobic digester systems, and feed them with organic waste produced by the school, and see the effect of applying the digestate fertiliser to a school garden. Parents could see the system working, and their kids could explain how it works.

Thanks,
Mark Love
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