



Waste to Energy

Victorian Farmers Federation Submission

The Victorian Farmers Federation

The Victorian Farmers Federation (VFF) is the only recognised consistent voice on issues affecting rural Victoria and we welcome the opportunity to comment on the Waste to Energy Discussion Paper.

Victoria is home to 25 per cent of the nation's farms. They attract neither government export subsidies nor tariff support. Despite farming on only three per cent of Australia's available agricultural land, Victorians produce 30 per cent of the nation's agricultural product. The VFF represents the interests of our state's dairy, livestock, grains, horticulture, flowers, chicken meat, pigs and egg producers.

The VFF consists of a nine person Board of Directors, with seven elected members and two appointed directors, a member representative General Council to set policy and eight commodity groups representing dairy, grains, livestock, horticulture, chicken meat, pigs, flowers and egg industries.

Farmers are elected by their peers to direct each of the commodity groups and are supported by Melbourne-based and regionally located staff.

Each VFF member is represented locally by one of the 200 VFF branches across the state and through their commodity representatives at local, district, state and national levels. The VFF also represents farmers' views on hundreds of industry and government forums.



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Foreword

The Victorian Farmers Federation welcomes the opportunity to comment on the government's Waste to Energy discussion paper. Energy is a significant input cost on most farms, meaning the recent increase in prices has a significant impact on the viability of farms in Victoria. Although energy in general is used on most farms the source of energy differs by industry.

Horticulture and chicken meat farms both use significant amounts of gas and electricity. Broadacre cropping farms use significant amounts of diesel, of which Victoria has approximately 30 days in reserve at this time, significantly less than the 90 days recommended as the international standard. Dairy is a large electricity user and livestock has variable but generally low electricity use depending on the operation.

Due to changes in the electricity and gas markets, energy has become an increasing concern for Victorian farmers. In particular, the price and availability of adequate, reliable energy sources is causing input costs to rise on farms and creating uncertainty for the future. In response, many farmers are now looking for alternative sources of energy, including converting farm waste to energy.

Introductory comments

Agriculture is an opportunity for waste to energy technology. With these technologies farmers can more efficiently manage their waste, produce fertiliser by-products and create new income streams for farms. New income streams include the expansion of agricultural production and the sale of gas, energy or by-products produced on farm.

Unlike municipal waste, waste from agriculture, food processing and sewage are ideal inputs into waste to energy facilities. These wastes tend to be homogenous and are ideal candidates for waste to energy technology.

As well as the incentives for investment there are also challenges which need to be investigated before a large number of facilities gain approval. These include: the biosecurity implications, the current cost of disposal and the effect an increase in diffuse renewable energy generation will have on the electricity network.

Currently, the largest barrier to implementation is the high capital cost of these projects. For this reason, we believe government grants are the most effective government incentive to encourage waste to energy project implementation.

Waste to energy technologies can achieve waste management, greenhouse gas emission reductions and renewable energy generation. In order to shape the growth of the waste to energy industry and minimise perverse incentives, the government needs to clearly state which of these outcomes their top priority for waste to energy projects is.

The purpose and opportunities of waste to energy

Government strategy

Waste to energy has the potential to achieve many distinct government objectives; waste management, greenhouse gas emission reduction and renewable energy production. Waste to energy technologies can often provide these benefits simultaneously. However, if the government prioritises one of these objectives above others, it will change the focus and development of the waste to energy industry.

In the Waste to Energy discussion paper, the focus was primarily on waste minimisation. Alternatively, Sustainability Victoria's Waste to Energy Infrastructure Fund focused on the government's goal of "net zero emissions reduction target by 2050."

Recommendation: The State Government to clarify for all levels of government, proponents and responsible authorities, what is more important when evaluating a waste to energy scheme or facility; waste management, emissions reduction or renewable energy generation.

Landfill

Agricultural waste is rarely sent to landfill. Therefore, while reducing landfill is a worthy goal we are concerned with the significant focus on reducing landfill in the discussion paper.

We want to ensure that waste not destined for landfill, is valued equally for use in waste for energy generation.

Defining agriculture for the purpose of waste to energy projects

We were disappointed to see the lack of agricultural waste data being included in the Turning Waste into Energy discussion paper.

The data cited does not include measures of agricultural waste. For example, the Australian National Waste Report 2016 (Pickin & Randell, 2017) "excludes waste from primary production activities (agriculture, mining and forestry)" (p.1). Therefore, while 'organic waste' was discussed in general terms, our understanding is that this does not include agricultural organic waste.

We believe that agricultural waste needs to be well-defined and measured. We consider 'agricultural waste' to only include waste produced on the farm. Waste produced through food processing, retailing and domestic consumption should be defined and measured separately.

Within agricultural waste, the type of waste also needs to be clearly defined and measured separately. Animal effluent and plastic silage wrap are both agricultural wastes, but their sources, impacts and management options are entirely different. To be able to effectively capture and convert agricultural waste, there needs to be a clear understanding of the sources and volumes of different agricultural wastes.

Recommendation: The State Government to work with industry to better quantify waste to energy opportunities on farm.

Renewable focus

The State Government's renewable energy target for 2020 is fast approaching. We see a significant opportunity for renewable energy production using waste to energy technology in the agricultural, food processing and sewage sectors.

All the grants given out in the last round of the Waste to Energy Infrastructure Fund were to businesses in these sectors. All three sectors produce fairly homogenous organic waste, which is well suited to waste to energy technologies such as anaerobic digestion, fermentation, and pyrolysis.

While we are encouraged to see that an agriculture project, in the Diamond Valley Pork anaerobic digester, was funded, we have also received feedback from our members that funding for energy projects in general are not well suited to agriculture. We are encouraged to see the recent announcement of the Agriculture Energy Investment Plan, and would want to see agriculture continued to be considered both in energy policy and for any energy grants.

- Western Region Water Corporation will receive \$802,784 to collect organic waste material and generate energy
- **Diamond Valley Pork will receive \$284,929 to install an anaerobic digester to improve waste management and generate energy and nutrient rich digestate**
- East Gippsland Region Water Corporation will receive \$209,765 to enhance an existing bio-digester to process septic tank waste, food waste, fats, oils and greases
- Nestle Australia will receive \$182,510 to create a system where organic waste from starch based soft confectionery is used for bioenergy
- Resource Resolution will receive \$900,000 to help it build an anaerobic digester to divert local commercial food waste and other organics from landfill

Due to the significant opportunity for energy production, we believe the government should commit resources to investigating and supporting specialised waste to energy systems in the agricultural and food processing sectors.

Recommendation: The State Government should commit resources to gaining more knowledge about how these technologies can be applied to agriculture and in the food processing sectors.

Opportunities in agriculture

The following agricultural industries produce a concentrated and easily containable source of homogenous animal effluent:

- Dairy
- Pigs
- Chicken meat
- Eggs
- Feedlots

Farmers in these industries tend to have facilities on farm to continuously collect this waste at a central point or collect waste at discrete times throughout the year. These industries also tend to be energy intensive. Therefore, creating a closed loop system of waste to energy for on farm use or to export excess to the grid would be highly suitable.

The following agricultural industries produce a homogenous source of plant matter:

- Horticulture
- Grains

Collection of plant waste on these farms is not necessarily undertaken and the logistics of converting this plant matter to energy would need to be investigated further.

What economic incentives would a farmer consider when looking at a waste to energy project?

In general the positive economic incentives for agriculture to invest in waste to energy technology include the energy and digestate by-products, which can be sold for profit or used on farm. Those farms that are large users of energy, are finding increasingly that alternative technologies are attractive and that waste to energy technology might be a good fit for their business.

Additionally for a number of animal industries, the amount of effluent produced on a property can constraint the number of animals on that farm. This is due to planning restrictions which look at the

risk of pollution from effluent. However if effluent is processed in a waste to energy facility rather than through traditional means there is an opportunity to expand the farm operation. Expanding farm operations makes the farm more profitable and efficient, creating a great incentive for investment in waste to energy technology.

For agriculture there is more than one way for a waste to energy facility to increase income and reduce costs. Overall, the agriculture sector has several avenues of opportunity for renewable on farm energy generation through conversion of waste.

Barriers to implementation for agriculture

Cost of technology

The uptake of waste to energy technologies by farmers will depend upon the economic incentives. The Australian Government's 2006 Waste Management Productivity Commission Inquiry Report found "people can be expected to deal with waste in the way that imposes the lowest net costs on them" (p.62).

The biggest barrier currently facing farmers is the high capital cost of the technologies currently available. For example, Dairy Australia highlighted in their report "Is Biogas Technology right for Australian Dairy Farms?" that in Germany, a world leader in farm-scale biogas, a 75kW plants ranges from €350,000 to €900,000 (p.5)

The high capital cost makes waste to energy technology less attractive to farmers than other renewable energy technologies. In the few examples of uptake we have seen in agriculture, the farmer could use the technology to expand their farm business, making the project more financially viable.

Central collection

For agriculture, a central collection facility is unlikely to be viable under the user pays model for disposal. Very few farm industries send organic material to landfill, and there are already well developed reuse markets in which often farmers are paid for their organic waste. Even if farmers do not sell their waste, they can use that waste on farm to improve soils.

If central collection facilities were to pay for agricultural waste, the 15 to 20 year contracts cited as necessary to create a viable facility, would be unattractive for many agricultural industries. For example in the chicken meat industry farmers only receive 5 to 10 year contracts with a processor, making them unlikely to sign any contracts with waste companies for longer than that period.

For most animal industries, but particularly chicken meat, eggs and pigs, a central collection point poses a significant biosecurity risk as trucks travel back and forth between farms and the facility. This biosecurity risk would have to be neutralised for farmers to be able to safely use the facilities.

Biosecurity

It was good to see that biosecurity was considered as part of the discussion paper however we are concerned that the EPA is looking at the biosecurity implications of these technologies and not the dedicated biosecurity policy or operational staff in the Department of Economic Development, Jobs, Transport and Resources.

Biosecurity is an important factor to consider however it does not have a clear place in the development process for waste to energy projects.

Recommendation: The State Government investigate how biosecurity can be considered, where necessary and appropriate, for the development of waste to energy facilities.

Perverse incentives

The potential for perverse incentives is significant. With the high capital cost of waste to energy technology, perverse incentives cannot be entirely avoided, due to the requirement for high prices of by-products needed to attract investment into this technology. Ensuring clear government priorities, as indicated in our first recommendation, will assist in minimising these incentives by making the objective of these facilities clear.

Other than animals or crops grown specifically to produce waste material, the largest potentially perverse incentive is the breakdown of existing waste management systems. For example, food processing waste can be given or sold to pig farmers at a reduced rate.

We are hearing from our members that those who are interested in investing in this technology are also interested in expanding their farm operation. Where this expansion is for the purpose of producing additional food on the same amount of land, this expansion should not be considered a perverse outcome of waste to energy technology but rather a more efficient use of land, Victoria's scarcest resource. As long as the additional products grown have a market then the use of waste to energy facilities to intensify or expand farm operations should be encouraged.

Effect of diffuse sources of energy on the electricity network

More broadly than waste to energy technologies, we have seen an increase in interest from farmers and renewable energy companies to invest into a variety of renewable energy technologies on farms.

How these projects, as diffuse source of energy, effect the operation of the grid is a concern for the VFF. Our electrical grid network was designed for a different operating environment. Different

technologies, producing different amounts of energy continue to be added to the grid and as some farms are disconnecting from the grid. More investigation on how the grid will cope with these new technologies and the shift of energy generation from the Latrobe Valley to diffuse sources across the state needs to be undertaken.

Recommendation: The State Government undertake a study into the future operation of the electricity network, given predictions regarding future generation.

Government settings for investment

Regulatory settings

The regulatory settings for waste to energy facilities have largely been untested. We do not want to see regulatory burden hindering the installation of waste to energy facilities on farms. Therefore, issues arising from current developments should inform improvements in the regulatory system.

Community role in waste to energy projects

We see the communities' role in waste to energy projects as two fold; to contribute waste to facilities as projects make this form of disposal possible for communities, and to feed into the approvals process where developing a site for a waste to energy facility has a direct material impact on that community member.

Most effective government incentives

Our feedback has been that direct grants to assist with the high capital cost of projects have been the most effective incentive from government for the agriculture sector. Grants that either specifically target agriculture or allow agriculture to apply are likely to be the most effective method for the government to encourage waste to energy power generation.

In addition, supporting farmers to gain access to commercial finances would also assist with the high cost of building these facilities.

Summary of Recommendations

1. The State Government to clarify for all levels of government, proponents and responsible authorities, what is more important when evaluating a waste to energy scheme or facility; waste management, emission reduction or generating renewable energy.
2. The State Government to work with industry to better quantify waste to energy opportunities on farm.
3. The State Government should commit resources to gaining more knowledge about how these technologies can be applied to agriculture and in the food processing sectors.
4. The State Government should investigate how biosecurity can be considered, where necessary and appropriate, for the development of waste to energy facilities.
5. The State Government undertake a study into the future operation of the electricity network, given predictions regarding future generation.



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