



Ag Energy Taskforce

Submission to Technology Roadmap process

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Contents

Introduction 1

Response to discussion paper questions 2

Challenges, global trends and competitive advantages that should be considered in setting Australia’s technology priorities. 2

The shortlist of technologies that Australia could prioritise for achieving scale in deployment through its technology investments. 2

Goals for leveraging private investment...... 5

What broader issues, including infrastructure, skills, regulation or planning, need to be worked through to enable priority technologies to be adopted at scale in Australia while maintaining the support of local communities...... 5

Where Australia, including its regional communities, is well placed to take advantage of future demand for low emissions technologies, and support global emissions reductions by helping to deepen trade, markets and global supply chains...... 6

Works Cited 6

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Introduction

The Ag Energy Taskforce* (the Taskforce) appreciates the opportunity to comment on the Technology Roadmap discussion paper. Some Taskforce members will also make individual submissions.

Rapidly rising energy costs have had serious impact on the ability for Australian farmers to produce food, fibre and renewable fuel for Australians. They impact costs via the operation of pumps for irrigation, cooling for storage and processing and packaging.

Australia went from having the fourth cheapest electricity cost in the OECD in 2004 to being the fourth highest in 2018 (ACCC, 2018, p. 23). We are losing our ability to compete globally, seeing significant job losses and loss of income.

This is a serious issue for a sector that is expected to boost its contribution to the Australian economy from the current \$60 billion per annum to \$100 billion in less than a decade.

Australian producers are being forced off the grid or out of business. Export competitiveness is disappearing and, as price takers, Australian farmers are seeing their viability dashed.

That's despite the agricultural sector having a bigger take up of solar power projects than any other sector.

In the last three years, farmers have taken up loan incentives offered by the Clean Energy Finance Corporation (CEFC), spending over \$100 million on 417 on grid and 20 off grid solar power projects, more than any other single sector. These projects were also, on average larger than other sectors, with loans almost seven times the average at over \$250,000. Moreover, farmers took additional loans with the CEFC to the value of \$100 million during this time, to improve the energy efficiency of farm buildings and production systems.

The true picture of agricultural investment will be many times higher as these figures do not include the projects where farmers have purchased renewable or energy efficiency technologies outright or sought funding elsewhere.

Australian farmers are the potential early adopters of appropriately scaled technology coming out of the Technology Roadmap process.

The agriculture sector's role in any national policy framework and the technology roadmap process is important because the sector can be an adopter of energy technologies for on-farm use. This is both in generating energy and reducing demand; as potential exporters of energy and feed stocks; and in sequestration through land management.

Agriculture should be considered in this process **with specific targeting and programs.**

Key points:

- Ensure technologies can be rolled out on a scale which will make their use viable on farms and in agricultural processing.
- Ensure that excessive network costs and regulation do not hamper take up of new technologies e.g. make grid connection and microgrids practical and affordable.
- Put rural industries at the forefront in planning, including planning and financing for demonstration projects and extension services to promote take-up.
- Ensure there is an overarching national energy and emissions policy that provides policy certainty for investors, which includes rules around carbon farming.

Response to discussion paper questions

Challenges, global trends and competitive advantages that should be considered in setting Australia's technology priorities.

Australian agriculture is well placed to play a strong role in early adoption of new technologies, particularly technologies that build on our competitive advantages, availability of land, sunlight, wind and capacity to provide feedstocks and sequestration.

Agriculture recognises the global challenge of emissions reduction and is well placed, and willing, to play a constructive role.

The shortlist of technologies that Australia could prioritise for achieving scale in deployment through its technology investments.

In general, the Taskforce is neutral about the source of power. **Our concern is in ensuring that we make the transition to a zero net emission world - while also reducing the cost of production.** In terms of technologies supplying grid power to agriculture we have no preferences except that the power, when it gets to the consumer, needs to bring Australia back to having a competitive advantage in energy cost.

Agriculture has direct interest in technologies that can generate energy or reduce demand on-farm or in agricultural business; on fuel sources for transport on and off farm and on potential for agriculture to expand its revenue streams and reduce emissions through supply of feed matter or carbon sequestration.

To ensure accurate comparison is made, the roadmap should consider technologies' life-cycle emissions as a first step towards understanding their true costs and benefits of technologies. For example, the emissions from manufacturing technologies, transport of fuels and long-term storage of waste should be considered. In addition, as a large proportion of Australia remains in drought, the assessment should consider the impact of life-cycle water use.

We recognise that in selecting the technologies that have the greatest potential the aim is to promote technologies that have the 'scale' to deliver large benefit overall.

While large scale is important in terms of overall contribution, we need technologies that achieve their large overall contribution via significant take up of **small-scale cost-effective projects on individual properties**.

We note the absence of reference to storage as a stand-alone technology in the discussion paper. While storage is becoming more accessible and used in household situations and grid scale installations, it is still not generally cost effective for agricultural users. Storage is a critical component; more affordable storage would enable many more farming and related industries to use renewables as it would help produce power for time constrained uses. Notably for those with seasonal fluctuations in use, such as irrigation pumping, affordable storage means they can spread out the months they pump to fill a storage, rather than concentrating it into a smaller window running 24/7.

Demand-side technologies - to reduce the energy consumption of farms, households, and businesses, thereby reducing the overall generation and storage task.

Distributed energy resources integration; remote area power systems/micro-grids – very supportive of work to remove regulatory and cost barriers to integration of distributed energy sources and for sharing of power via micro-grids. It is recognised that there are network issues that may require new infrastructure. Agriculture would want to ensure that any investment in this area is reasonable, cost effective and with returns to investors that reflect a realistic rate of return not the current inflated returns. As taxpayers/energy consumers there are also concerns about stranded assets.

Biofuels – agriculture generally is very strongly supportive of the potential for biofuels to be a source of energy for the sector as well as a source of income from sale of energy and feedstock. There are a range of biofuels that could be useful to agriculture for electricity generation, transport and machinery etc. Some may need initial assistance for developing viable models and need long term regulatory certainty.

Hydrogen – for transport and energy storage. Discussion about the potential for hydrogen as a transport fuel, for machinery and for energy storage, rightly elicits interest and excitement from many farmers. It is important that the technology is developed to the point where small-scale electrolyzers are viable for on-farm use; this could well be a medium-term focus of the hydrogen strategies.

It is noted that in assessing the price at which hydrogen becomes an economical alternative to diesel, the work so far has assumed on-road use in transport. It would be useful if the same analysis was undertaken for off-road use (ie use that does not pay the road tax by getting the diesel rebate). The potential for use in on-farm machinery is very interesting for agriculture.

The potential use of hydrogen as a storage option for farms generating renewable energy is also important.

The Taskforce is supportive of a hydrogen strategy intended to give Australia an energy export opportunity, as well as for domestic use. This is with the proviso that **where hydrogen is generated and transported out of area, the extraction of water must fit within existing water use regulation.**

Carbon storage in soil and vegetation – Agriculture is enthusiastic about the potential environmental and business benefits of carbon storage. Soil quality is vital and improved carbon builds quality, similarly the use of vegetation through certificates or stewardship could be valuable. The key, in both cases, is to have clear, simple long-term rules around administration, measurement and ‘payment’.

A complete regulatory framework is required that prioritises the importance of our soil health and the relationship not only to reduce carbon emissions but also to store water. A soil framework is required to that integrates the value of soil carbon storage in the soil in agricultural systems. The current system does not have a well-developed framework and requires a simple management system for farmers to enable a clear structure for measurement and payment.

It is imperative that farmers are provided with economic incentives for their stewardship on protecting ecosystems and improving agricultural practices that reduce carbon emissions. Carbon sequestration is a positive step towards protecting soil health, increasing agricultural production from the improvement of soil fertility and thus increasing food security.

The Taskforce notes the current proposal in Queensland to inject carbon dioxide from coal fired power stations in liquid form into the Great Artesian Basin (GAB). We understand further scientific reviews are underway but note caution regarding this technology option, particularly around landholder concerns about future impacts to GAB water sources as well as natural spring ecosystems.

Livestock productivity – the Taskforce is aware that Government is working with the red meat sector to develop a livestock emissions reduction roadmap that is looking a series of feed supplements and management options to reduce emissions, including methane emissions from enteric fermentation. This should be considered as part of the Technology Investment Roadmap.

Anerobic digestion – this technology is already being used in agricultural operations, providing energy for the business and export to the grid. While it is known technology, there is more work to do to encourage wider take-up. This should be a high priority for the roadmap.

Goals for leveraging private investment.

Our investment focus is at the stage where the sector is able to take up commercially viable technology. This could be on-farm, in processing packaging, transport and storage.

Ultimately the technologies need to have sound business case. Where that business case uses credits, certificates or other forms of transfer or payment then the rules surrounding those need to be simple and stable.

Government direct support or subsidy in the short-term for technologies will assist in removing those initial cost barriers either to encourage production and development at scale and/or to provide on the ground demonstration projects.

“Extension” is vital for uptake by rural industries, this means a program of on ground demonstration projects with opportunities for field visits and information sharing.

What broader issues, including infrastructure, skills, regulation or planning, need to be worked through to enable priority technologies to be adopted at scale in Australia while maintaining the support of local communities.

Policy certainty is important around energy and climate, with a framework providing certainty for investment. Other regulatory issues include the need for simple workable and stable rules around carbon sequestration in soil and vegetation; consideration also needs to be given to the interaction between planning and environment laws as they may impact feed materials for bioenergy.

We have seen minor opposition in some communities to installation of renewables. Consultation, engagement with communities and benefit sharing will be important in progressing these issues.

Infrastructure challenges include addressing the limitations of the grid for distributed generation but doing so without exacerbating the existing excessive cost for consumers. As identified by the ACCC, transmission costs are the biggest single component of cost to consumers. Profit margins to infrastructure owners are excessive. [Research conducted for the Taskforce by Sapere Research](#) looking specifically at Rate of Return data published by AER indicated that networks are making ‘super’ profits i.e. well above a rate of return justified by the risk and cost of their investment (Orme & Swansson, 2018).

This issue is critical and must be considered to facilitate participation in technology rollout.

Where Australia, including its regional communities, is well placed to take advantage of future demand for low emissions technologies, and support global emissions reductions by helping to deepen trade, markets and global supply chains.

Rural and regional communities are well positioned to play a key role in our energy future. Low emissions technologies provide opportunity for growth in jobs and income in regions.

The development of the roadmap and subsequent policy should incorporate specific rural and regional goals, including the potential harmonisation of other rural and regional policy priorities. These goals must relate to removing the current disadvantage rural communities face with the cost of energy. They must actively seek to generate jobs and economic activity in regional areas through technology uptake and build on rural industries and their potential contribution to future energy solutions.

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