National Farmers Federation

24 June 2020

Department of Industry, Science, Energy and Resources

Via email: technologyroadmap@industry.gov.au

Dear Secretariat

Re: Technology Investment Roadmap consultation paper

The National Farmers' Federation (NFF) welcomes the opportunity to provide a submission to the Technology Investment Roadmap consultation paper.

There is a significant opportunity for Australian agriculture to contribute to the nation's emissions reduction goals under the Paris Agreement. The National Farmers' Federation (NFF) has the twin objectives of promoting the long-term prosperity of Australian agriculture as well as environmental sustainability.

Improvements in technology and investment are an important step to addressing difficult-to-abate sectors like agriculture. The NFF recognises the Technology Investment Roadmap is part of the Government's suite of Roadmaps and strategies from different Departments to lower emissions, and notes that there needs to be better communication with industry on these processes. We understand that the Low emission technology statement will seek to bring together these currently somewhat disparate pieces of work and look forward to engaging in a review of that outcome.

The submission attached seeks to address the questions in the consultation paper.

Should you require any further information, please contact Warwick Ragg, General Manager Natural Resource Management, on 02 6269 5666 or wragg@nff.org.au.

Yours sincerely

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National Farmers' Federation

Submission to the

Technology Investment Roadmap consultation paper

21 June 2020

NFF Member Organisations

National Farmers Federation

The National Farmers' Federation (NFF) is the voice of Australian farmers.

The NFF was established in 1979 as the national peak body representing farmers and more broadly, agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities across the breadth and the length of the supply chain.

Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations form the NFF.

The NFF represents Australian agriculture on national and foreign policy issues including workplace relations, trade and natural resource management. Our members complement this work through the delivery of direct 'grass roots' member services as well as state-based policy and commodity-specific interests.

Statistics on Australian Agriculture

Australian agriculture makes an important contribution to Australia's social, economic and environmental fabric.

Social >

There are approximately 88,000 farm businesses in Australia, 99 per cent of which are wholly Australian owned and operated.

Economic >

In 2018-19, the agricultural sector, at farm-gate, contributed 1.9 per cent to Australia's total Gross Domestic Product (GDP). The gross value of Australian farm production in 2018-19 is estimated to have reached $62.2 billion.

Workplace >

The agriculture, forestry and fishing sector employs approximately 318,600 people, including full time (239,100) and part time employees (79,500).

Seasonal conditions affect the sector's capacity to employ. Permanent employment is the main form of employment in the sector, but more than 26 per cent of the employed workforce is casual.

Environmental >

Australian farmers are environmental stewards, owning, managing and caring for 51 per cent of Australia's land mass. Farmers are at the frontline of delivering environmental outcomes on behalf of the Australian community, with 7.4 million hectares of agricultural land set aside by Australian farmers purely for conservation/protection purposes.

In 1989, the National Farmers' Federation together with the Australian Conservation Foundation was pivotal in ensuring that the emerging Landcare movement became a national programme with bipartisan support.

Response to discussion paper questions

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

There is a significant opportunity for Australian agriculture to contribute to the nation's emissions reduction goals under the Paris Agreement. The National Farmers' Federation (NFF) has the twin objectives of promoting the long-term prosperity of Australian agriculture as well as environmental sustainability.

As a predominantly export focused sector, Australian agriculture has experienced significant growth over the past decade, which has boosted farm gate returns to $60 billion in 2018-19 despite drought conditions[1]. This growth is in part due to continued and extended access to international export markets, but also due to our world class production systems underpinned by cutting edge research and development and a reputation for clean and green products.

To maintain this competitive advantage, the Australian agriculture industry developed its 2030 Roadmap[2] with the goal of exceeding $100 billion by 2030. The roadmap has been developed in conjunction with its members and other industry stakeholders to provide the strategic thinking, and articulate the steps required to reach our objectives.

Some global trends to consider:

- **Unprecedented demand** - Burgeoning global populations and incomes – particularly on our Asian doorstep – will fuel demand for food and fibre in years to come. Improved market access will position Australia to service that demand, amplifying our geographic advantage.
- **Heightened expectations** - Environmental, health, and welfare considerations will increasingly sway purchasing decisions. Meeting these expectations presents opportunities to build on our competitive advantage. It also increases reputational risks if expectations are not met.
- **Disruptive Technology** - Digital and genetic technologies promise to unlock new waves of productivity growth across the sector. Automation will continue to improve quality of life for farmers, while reshaping the sector's skills needs.
- **Climate change** - Climate change will play a major role in Australian agriculture's next decade, exacerbating climate risk while creating diverse new income opportunities. Australia's policy response can position us as a global leader in low emissions agriculture. Done poorly, our policy response could saddle farm businesses with additional costs

These trends should be considered when refining its approach to the Low-emissions technology roadmap.

Emissions reduction is a key component of the NFF's broader economic strategy. While agriculture contributes approximately 13 per cent of Australia's total emissions, mostly from enteric fermentation in livestock, the sector is uniquely

[1] https://www.abs.gov.au/ausstats/abs@.nsf/mf/7503.0
[2] https://nff.org.au/wp-content/uploads/2020/02/NFF_Roadmap_2030_FINAL.pdf

placed as it can both emit and sequester carbon emissions. The nature of Australian agriculture, however, confers an inherent difficulty in accurately and practically measuring and abating emissions as a significant portion of emissions sources are derived from animals and soil. This presents a challenge for the capacity for the industry to reduce emissions. As such, agriculture's emissions reduction trajectory will be necessarily medium- and long-term, and different foreach commodity.

The NFF also notes that production and productivity is a key consideration for Australian agriculture as there is an imperative to meet increasing global demand for food and fibre, and therefore principally adopts the metric of emissions intensity rather than absolute emissions. The NFF cannot support policies that would place an arbitrary limitation on the size of the national herd.

The NFF agrees with the Roadmap that, over the long term, Australia's technology investments should build new export-facing industries in the global low emissions economy. The NFF believes that technologies that align with Australia's comparative advantage of 'clean and green' products are one criterion relevant to the Roadmap.

Some challenges facing Australian agriculture include:

- Decline in public spending on R&D;
- Increased international competition;
- Lack of development in northern Australia;
- Critical shortage of skills and labour;
- Cost-effective finance for business; and
- Ongoing risks of climate change.

One advantage the sector has is its reputation of being among the least subsidised in the OECD (second only to New Zealand). This has allowed agricultural industries to become highly competitive and innovative.

We have a number of other advantages including:

- we are already well-positioned through the many free-trade agreements and positive relationships with other countries.
- Australia is an established player than can meet local and global demand.
- Australian farmers have been highly productive, driven by R&D
- Australia has a natural advantage through our diverse land resources and ecological zones that supports a range of agricultural products.
- Australia has a strong reputation for being relatively disease and pest free while producing quality produce.
- our proximity to a growing Asian market.

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

The NFF refers to respective Research & Development corporations to determine technologies that could be prioritised.

For Australian agriculture, there has been a significant interest in technologies that: generate or improve energy efficiency, fuel sources for transport and off-farm use, sequester carbon through soils or reduce emissions produced through feed or other innovative solutions.

While scale in deployment is important, the ability to export technologies as well as the ability for small-scale technologies to be taken up is equally important.

Last year, the Clean Energy Finance Corporation and the NFF jointly released a practical guide to lowering on-farm energy use and carbon emissions[3]. The NFF believes this should provide some technologies that could be considered in the roadmap.

The NFF understands that the Department is working with the red meat sector to develop a livestock emissions reduction roadmap that is looking at a series of feed supplements and management options to reduce emissions. The NFF refers the Department to consider the outcomes of that roadmap.

Some technologies include:

- **Distributed energy sources including stand-alone power systems (SAPS) and microgrids** – as the electricity market across Australia continues to decentralise and renewable sources of energy are taken up, some communities are advantaged by abundant solar and wind sources and a move to SAPS are logical and likely to become more cost effective than poles and wires. Western Australia provides some notable examples of the potential for SAPS to replace poles and wires. For SAPS to become cost-effective, investment in technologies including batteries, inverters are worthwhile.

- **soil carbon sequestration** – while there is potential to improve soil carbon capture, the NFF understands the difficulty and uncertainty associated with measuring soil carbon, especially in heterogeneous landscapes like Australia. Technologies that can improve the cost-effectiveness of measuring soil carbon would be helpful.

Goals for leveraging private investment.

The NFF does not have a specific figure. However, the Government should look to the success of other programs to leverage private investment, including the Clean Energy Finance Corporation. Their most recent annual report which captures 2018-19 found a ratio $3:1 private to public investment, relative to a lifetime ratio of 2:1. Their Clean Energy Innovation Fund, in particular, achieved leverage ratio of $8:1. ARENA has yielded similar results.

The NFF supports the King review recommendation to develop a goal-oriented co-investment program that would drive down the cost of transformative technologies and help facilitate their deployment and commercialisation. The Department could also look to existing state programs that have sought to increase pilot or demonstration scale projects as well as commercialisation. The

[3] https://www.cefc.com.au/media/402212/cefc_transform_aust_agriculture_w_clean_energy.pdf

Queensland Government's Biofutures Commercialisation Program and Biofutures Acceleration Program.

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.

Research, Development & Extension (RD&E) underpins agriculture's ability to innovate and develop technologies that can be adopted. As such, the agriculture Research Development Corporations (RDCs) play an important role driving this research. In December 2019, the NFF made a submission to the Government's *Modernising the Research and Development Corporation System* consultation paper that listed 10 recommendations to improve the RDC system and thus, research outcomes. The submission is available on the NFF website for consideration.

Policy frameworks that enable the development of infrastructure in rural and regional communities in tandem with the outcomes of the Roadmap are critical to ensure agricultural supply chains operate efficiently and that projects can quickly become operational. These include the development of roads, ports, the knowledge infrastructure through education, and health which are important for both industry and the attractiveness of rural communities as a work destination.

The NFF believes that policy certainty will be vital to adoption of technologies at scale. In the past 10 years, policy uncertainty has been a significant barrier to investment or has constrained potential for greater investment. In principle, the NFF believes that policies which align with and can complement state policies, and vice versa, will provide greater certainty for potential participants and investors and contribute to economic recovery.

The NFF also supports the King review recommendation to commit further funding to ARENA as well as expand its remit of ARENA to support Australia's long-term economic interests and emissions reduction goals. The NFF has separately written to the Minister in support of extended ARENA funding in collaboration with Ai Group, Energy Efficiency Council and the Property Council. Retaining this would put a refreshed entity in a better position to deliver on refined innovation objectives immediately, compared to establishing an entirely new successor. The NFF believes an expanded remit should consider the evolving challenges faced by industry including:

- **renewable energy, and enabling or complementary technologies** – they include technologies complementary to renewables like hydrogen and other forms of storage, thermal storage, batteries and pumped hydro.
- **grid stabilisation and integration of distributed energy sources** – including integration of electric vehicles, orchestration of distributed energy sources, and smart management platforms.
- **improved business energy and emissions management** – this looks at the role of demand-side technologies — energy efficiency, demand management and demand response.

For regional communities, ‘extension’ will be vital for uptake by rural industries. A program that involves on-ground demonstration projects and opportunities for field visits and information sharing is vital.

There has been a slow rate of uptake of more innovative energy technologies in the agriculture sector due to the large number of businesses in the sector, the relatively small size of many businesses and limited availability of sector relevant advice and expertise in energy management. Low energy productivity due to existing equipment or processes is often exacerbated by a lack of local, trusted maintenance providers. A grant program focused on deployment of well understood technologies with low uptake in the agricultural sector would help address these barriers.

Where Australia 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.

The NFF believes that Australia is well-placed to take advantage of bioenergy, which should be informed by the Government’s bioenergy roadmap. There are also areas of undeveloped low-cost, marginal land that could be used. Australia also has a relatively robust regulatory systems and political stability to attract international capital. However, the NFF notes that agricultural land availability must not be compromised, which is further outlined in our prime agricultural land policy.