

19 June 2020

Department of Industry, Science, Energy and Resources
Technology Investment Roadmap Discussion Paper
GPO 2013
Canberra ACT 2601

Technology Investment Roadmap Discussion Paper

The South Australian Chamber of Mines and Energy (SACOME) welcomes the opportunity to make this submission to the Department of Industry, Science, Energy and Resources *Technology Investment Roadmap Discussion Paper* (the Roadmap).

SACOME is the peak industry body representing companies with interests in the South Australian minerals, energy, extractive, oil and gas sectors and associated service providers.

SACOME notes the Roadmap aims to develop an economy-wide framework to accelerate low-emissions technologies; and approaches the prioritisation of technology investment in eight stages. SACOME submits the following comments regarding each stage.

Setting a Clear Vision (Stage 1)

SACOME supports the aims of the Roadmap in developing a 'clear vision' for accelerating development and deployment of low-emissions technologies, recognising the key role the resources and energy sector can play in implementing these objectives.

In particular, SACOME welcomes the Roadmap's emphasis on the development and deployment of technologies that will reduce operating costs; improve productivity; and support economic growth while also reducing emissions.

Energy affordability and reliability are of paramount importance to resources sector operators and have a direct impact on business viability, new project development and investment decisions.

While the need for affordable and reliable energy is common to all users, the energy needs of the resources sector are distinct given the scale of operations; the quantity of energy required to power them; the consequences of an interruption to supply; and access to energy as a pre-requisite to project development.

As large energy consumers, resources sector operators can support the delivery of affordable and reliable power for the whole community through major energy investments and energy infrastructure.

Recent changes to the National Energy Market rules to commence in October 2021 also presents resources sector operators with the opportunity to provide grid stability through demand side responses that save energy use at critical peak times.

SACOME's *Energy Policy 2019*¹ articulates the importance of strategic investment in energy affordability and reliability.

In addition, the *Energy Policy 2019* calls attention to the historic inconsistency on energy and emissions policies that has hampered investment in energy generation and the deployment of low-emissions technologies.

The Discussion Paper outlines that the Roadmap will complement the Government's broader energy and emissions reduction policies. Recognition of the need for clear and consistent policy to facilitate investment in this space is welcomed.

SACOME takes a technology neutral position with regard to energy generation and emissions reduction, similarly, taking this position with respect to how the Roadmap achieves its objectives. We reiterate the importance of energy affordability and reliability to the sector alongside improving productivity and supporting economic growth.

Survey of new and emerging technologies (Stage 2)

SACOME notes the 140 new and emerging technologies identified in the Roadmap's survey with potential to contribute to its overarching goal of securing more affordable energy and lower emissions.

Given the importance of energy affordability and reliability to the resources sector, SACOME submits commercial readiness and cost effectiveness should be the key criteria in establishing technology priorities for the Government's annual Low Emissions Technology Statements.

South Australian context

The State's high penetration of wind power and rapidly growing connection of solar photovoltaic (PV) generation has resulted in the deployment of storage option

¹ SACOME Energy Policy 2019

https://www.sacome.org.au/uploads/1/1/3/2/113283509/sacome_energy_policy_2019_final.pdf

technologies such as the Hornsdale Power Reserve to support the asynchronous nature of renewable energy generation.

The State's current energy mix means the continued development of storage options will be critical in maintaining adequate frequency control and system reliability.

While recognising the ongoing role gas will play in the South Australian energy market to support renewable generation and lower emissions, SACOME broadly supports the following technologies as future opportunities to deliver affordable and reliable energy:

Hydrogen

SACOME recognises that the strategic development of hydrogen through the National Hydrogen Strategy can create significant commercial opportunities for our State, especially when combined with our renewable energy generation to produce hydrogen from water.

Domestic hydrogen use could accelerate the development of large-scale energy storage in South Australia and offers a potentially valuable fuel source for remote operations.

The technology also has significant potential benefit to a range of South Australian industries through improved fuel security and low-emissions.

However, some member companies have suggested the price of hydrogen needs to be \$1/kg or less for it to be considered a competitive option. This position is somewhat supported by discussion at the Technology Investment Roadmap Webinar that indicated that hydrogen at \$2/kg is the equivalent to a gas price of \$15/Gj.

SACOME submits that further analysis of the Government's stretch goal of \$2/kg is required to determine the price at which the commercial deployment of hydrogen becomes viable and the potential opportunities presented by hydrogen can be practically realised.

Nuclear

The Roadmap highlights environmental and social acceptability as some of the detriments to the deployment of nuclear power in Australia. Notwithstanding, SACOME submits that nuclear energy should be given genuine consideration in the development of the Technology Investment Roadmap.

South Australia possesses large quantities of uranium and stable geology conducive to making nuclear energy a viable low-cost, low-emissions option.

Despite its export value to the State and its use in energy generation elsewhere in the world, uranium remains unavailable for domestic use in Australia.

The accelerated commercialisation of Small Modular Reactor technology as a reliable, low-emissions power source is supported by SACOME.

Carbon, Capture and Storage (CCS)

SACOME notes the development of commercial CCS may provide a viable pathway to reducing emissions; position Australia to continue as a leading energy exporter and manufacturer of energy-intensive materials; and enable new industries such as hydrogen.

SACOME member company Santos' Moomba CCS project has the potential to be a large-scale carbon sink for power generators and other industries in eastern and southern Australia.

Australia's technological needs and comparative advantage (Stage 3)

The Roadmap identifies the role the Australian resources sector can play in reducing both national and international emissions through trade in feedstock and technologies.

South Australia has abundant future resources opportunities, including:

- 80% of Australia's uranium resources;
- 80% of Australia's battery grade graphite resources;
- 68% of Australia's economic demonstrated resources of copper;
- 14 billion tonnes of identified iron ore resources;
- Australia's largest onshore oil and gas province; and
- Significant undeveloped offshore petroleum opportunities.

To build on this comparative advantage, SACOME submits the Roadmap should prioritise the strategic development of low-emissions technologies that improve energy affordability and reliability to support the expansion of resources sector operations and facilitate project development.

Further, the South Australian resources sector also produces many of the resources required to develop and deploy the emerging technologies, products and systems identified in the Roadmap. This presents South Australia with a significant opportunity to commercialise and manufacture these technologies and to develop a low-emissions technology industry in the State.

SACOME has long advocated for the development of “value-adding” activities and emerging industries to move South Australian commodities to a higher price point for interstate and international export.

SACOME member companies have also identified that improved supply chain technology presents opportunities for reducing resources sector operators’ emissions.

For example, SACOME member company PREDICT can detect early deterioration and inefficiencies in process heating equipment and systems through predictive maintenance technologies. This enables resources sector operators to deploy solutions that will improve the overall energy efficiency of their operations and reduce emissions.

Likewise, SACOME member company the Australian Rail Track Corporation has developed the Advanced Train Management System program which integrates four key components of train management into one operating system providing significant safety, productivity and capacity benefits and lower emissions for operators.

Identifying Priority Technologies (Stage 4)

SACOME broadly supports the indicative shortlist of priority technologies listed in Figure 7 of the Roadmap for consideration in the Low Emissions Technology Statement.

SACOME reiterates its position that the final priority technologies included in the Low Emissions Technology Statement should reduce operating costs, improve productivity and support economic growth as well as lower emissions.

Identifying most efficient deployment pathways and setting economic goals for key technologies (Stage 5)

Australia trails other developed countries in relation to R&D investment, with industry led investment lagging behind.

The OECD Science, Technology and Industry Scorecard 2017² places Australia last out of 28 nations on the measure of business and research collaboration behind countries like Greece, Estonia and Chile.

As a result, public funding for innovation, alongside measured policy settings, will assist in addressing Australia’s market failure in this area. SACOME has previously advocated

² <https://www.oecd-ilibrary.org/sites/9789264268821-en/index.html?itemId=/content/publication/9789264268821-en>

for the importance of bi-partisan support in ensuring the continuity of research funding in innovation and commercialisation over time.

SACOME agrees that development and implementation of new technologies should be given government support by way of direct financial commitment or underwriting. This support enables institutions like the University of Adelaide's Institute for Mineral and Energy Resources, for example, to pursue high-risk projects such as low carbon – heavy industry applications that they otherwise would not receive funding to pursue.

In terms of the barriers to deployment of priority technologies raised in the Roadmap, SACOME submits that rigid regulatory settings operate against new technologies reaching commercialisation.

SACOME submits that the Government should pursue facilitative regulatory settings to encourage the deployment of priority technologies, particularly where this investment can enable project development, ensure energy security and reliability, provide competitive advantage, and contribute to lower emissions.

Balancing overall investment portfolio/implementing investments/assessing the impact of technology investments (Stage 6 to 8)

SACOME supports an investment portfolio and technology development and implementation strategy that is flexible; and guided by the principles of energy affordability and reliability in moving to low emissions energy sources.

Institutions such as ARENA and CEFC should be focused on delivering highest value outcomes with assistance prioritised on the basis of need, and in the interests of securing affordable energy, improving productivity and supporting economic growth.

SACOME also supports the use of the CSIRO's *Impact Evaluation Guide* as a means of evaluating the impact of technology investment in achieving the Roadmap's objectives.

Conclusion

Energy and emissions policies are areas of vital policy importance to the resources sector and SACOME's member companies.

Energy and emissions policy is interlinked and must be given reciprocal consideration in the Roadmap development process to ensure clear and consistent regulatory settings not only for resources sector operators but all industries.

SACOME thanks the Department of Industry, Science, Energy and Resources for the opportunity to provide feedback and suggestions to the *Technology Investment Roadmap Discussion Paper* and remains committed to ongoing dialogue with the Commonwealth Government in relation to these matters.

Kind regards

A handwritten signature in black ink, appearing to read 'Rebecca Knol', written in a cursive style.

Rebecca Knol
Chief Executive Officer