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Ministry of Business, Innovation and Employment (MBIE)  
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## Submission on the draft Advanced Manufacturing Industry Transformation Plan

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### Introduction

1. Energy Resources Aotearoa represents energy intensive businesses, from explorers and producers to distributors, sellers, and users, of energy resources like oil, LPG, natural gas, refined products, and hydrogen.
2. This document constitutes our submission on the draft Advanced Manufacturing Industry Transformation Plan (**ITP**). We applaud the initiative and efforts to date of the steering and working groups in developing the draft ITP, and we appreciate the opportunity to offer our thoughts on the document.

### Executive Summary

3. The advanced manufacturing sector includes a range of energy-intensive businesses that are closely tied to the natural gas sector, given their use of natural gas as both a fuel and as a feedstock. Stable and predictable policy settings are essential to underpin investment confidence and ensure longevity of affordable, reliable energy supply. Such settings will enable these businesses to continue to contribute to economic growth; encourage business investment, facilitate the migration of skilled individuals; and support the ongoing training of our domestic workforce.
4. Developing the pipeline of the skills that these sectors need now and in future is a key priority of Energy Resources Aotearoa through our Energy Skills programme. We will soon publish an Energy Skills Action Plan that will set out a range of actions to ensure we have the skills we need through the low emissions transition. We would welcome the opportunity to collaborate and contribute to the proposed suite of initiatives to attract and develop a diverse high-skilled workforce.
5. Low emissions advanced manufacturing is clearly a priority, but we should pursue this in the context of a national net zero emissions target that provides flexibility between reductions, removals, and offsets. Many advanced manufacturing businesses are energy intensive and so we should ensure we keep all options



open, including carbon capture, utilisation, and storage (**CCUS**). The ITP should include a specific reference to exploring and addressing the regulatory barriers to CCUS in order to facilitate emissions reductions.

### **Scene-setting comments on the advanced manufacturing sector**

#### ***We support the growth of the advanced manufacturing sector and a stable, enabling policy environment is the best way to support this***

6. Energy Resources Aotearoa has a keen interest in the draft ITP because we represent key players in the energy value chain, which is intrinsically linked with the advanced manufacturing ecosystem. This includes:
  - a. producers of natural gas, which is both a fuel and a feedstock for many advanced manufacturing firms; and
  - b. several advanced manufacturers, including Methanex (chemicals) and Oji Fibre Solutions (paper).
7. We agree that New Zealand needs to dramatically increase its skills and productivity to unlock more high-wage jobs. The ITP does a good job of articulating the problem (low productivity compared to our international peers) and the opportunity (building on sectors in which we have comparative advantage to maximise the benefits of advanced manufacturing).
8. Stable and predictable policy settings will support these sectors to build on the significant benefit that they already provide to the New Zealand economy and to the wellbeing of New Zealanders. Our general view is that rather than subsidies and grants, advanced manufacturing needs a 'clear runway', an enabling policy framework, and access to international capital markets and expertise.

#### ***Advanced manufacturing supports a wider energy ecosystem, and vice versa***

9. A thriving advanced manufacturing sector directly benefits New Zealand by way of increased productivity, regional employment, and higher wages. But it is also important to recognise the role that (particularly energy-intensive) advanced manufacturing plays in the wider energy ecosystem, and the corresponding indirect benefits of its growth.
10. Natural gas is a cost-effective fuel that meets the process heat needs of sectors including wood and paper, chemicals, metals, food and beverage, and plastics. It is also a feedstock for chemical manufacturing (such as fertiliser and methanol production). The availability of gas has supported the growth of co-located advanced manufacturing activity in the regions, including Ballance Agri-Nutrients and Methanex New Zealand (both in Taranaki).

11. Natural gas also supports electricity generation by filling the renewables 'gap' at peak times in winter and in dry years. This role is critical as the electricity system becomes increasingly renewable, with the associated variability in generation. The Climate Change Commission sees this role for natural gas sustained through 2050 and it will support rapid electrification of the economy by ensuring electricity remains reliable and affordable.
12. Demand for natural gas from the advanced manufacturing sectors underpins investment confidence for upstream producers of natural gas (by providing large scale demand for the product). In this way it ensures continued general availability of natural gas as a backstop for renewables in an increasingly electrified economy.
13. Advanced manufacturing also supports the adaptive capacity of the energy system. The social and technical skills of individuals and firms within these sectors that can be directed toward responding to environmental, technological, and socio-economic changes as they arise. Put another way, the specialised capabilities and capacity of the advanced manufacturing firms are assets that can be deployed to help New Zealand solve the challenges it will face in the future (including decarbonisation). This includes not just the domestic capabilities of these firms, but their ability to access global expertise.
14. For example:
  - a. operators experienced with working in the offshore environment (e.g., oil and gas operators and associated services industry) may be able to apply that experience to offshore wind;
  - b. chemical engineers in the oil and gas sector will likely have transferable skills into hydrogen, chemicals manufacturing and emerging industries; and
  - c. geological and drilling expertise in the oil and gas sector is applicable in development of geothermal resources.

### ***Our approach to the net zero emissions transition***

15. We support the legislated domestic target of net zero emissions (excluding biogenic methane) by 2050 as set out in the Climate Change Response Act. This target strikes a balance between playing our part in the global effort to reduce net emissions, while also preserving maximum flexibility to respond to technological and economic developments. They strike this balance in that they are net – not gross – targets, and they are national – not sector-specific – targets.
16. Preserving optionality in terms of how we achieve net zero is our central concern. New Zealand could achieve any number of combinations of reductions, removals, and offsets of emissions that are consistent with our 2050 target. This means that not every sector will necessarily be net zero, i.e. there may be “unders and overs”. This is particularly relevant for advanced manufacturing, which includes many

energy-intensive and hard-to-abate firms that produce critical goods for New Zealand and the world.

17. Our thoughts on this are elaborated further in our response to 'Priority 5: Creating a leading sustainable circular net zero emissions sector'.

## **Responses to priority initiatives in the Industry Transformation Plan**

### ***Priority 1: Improving the understanding and perceptions of advanced manufacturing***

*We agree with the intent and are keen to engage in this cross-sector effort*

18. We agree with the general intent here. Improving perception of the advanced manufacturing sector will ensure it is seen as a vibrant and attractive sector for investment and (particularly) jobseekers. We are keen to be a part of this cross-sector effort.
19. Energy Resources Aotearoa has experience in seeking to modernise perceptions of our sector, having built the Energy Voices platform to tell a positive story about the role of natural gas in New Zealand.<sup>1</sup> We also see some potential for Energy Voices to complement and amplify the efforts to improve understanding and perceptions of the advanced manufacturing sectors, particularly given the relationship between natural gas and these sectors.

*We don't see a compelling case for a Minister for Manufacturing*

20. We note the draft ITP indicated feedback from some stakeholders that a dedicated Minister for Manufacturing might help in elevating the importance of the sector. We doubt this would achieve any material benefit and it would create unnecessary confusion and overlaps with the existing Economic Development portfolio (which does cover manufacturing).

### ***Priority 2: Increasing investment in advanced technologies and processes to lift productivity and wages***

*We agree that New Zealand suffers low capital intensity and that this undermines our overall productivity*

21. The draft ITP does a good job of diagnosing the problem: New Zealand is a small and isolated market, with weak international connectedness; its businesses are typically capital-shallow; it makes insufficient investment in knowledge capital; and it has high costs of capital.

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1 [www.energyvoices.nz/](http://www.energyvoices.nz/)

22. Generally, the initiatives proposed to address these barriers appear sound and reflect a right-sized role for government. Many of these involve increasing visibility of, and access to, existing efforts to demonstrate the value and benefits of advanced technologies and processes and increase knowledge.

*We caution that further analysis of the options to address the cost of capital is required*

23. While we acknowledge New Zealand is an outlier in not offering accelerated depreciation incentives for new plant, machinery, and equipment, we caution any such proposal should be assessed in detail. It should include a clear intervention logic, analysis of costs and benefits, and consider alternatives.
24. By the same token, subsidies, grants, and concessionary loans might well warrant exploration, but these should be tightly scoped and linked to a demonstrable market failure. Further analysis would be required before action is taken.

*Our preferred solution is a stable, predictable investment environment*

25. These capital access barriers highlight the importance for New Zealand of having a stable, predictable investment environment that supports investment confidence. The energy sector – including energy-intensive advanced manufacturing firms – is currently grappling with a series of negative policy signals that undermine this confidence. These signals include (but are not limited to):
  - a. the 2018 decision to ban new offshore oil and gas exploration;
  - b. the 100% renewable electricity by 2030 target (previously with the caveat of ‘in a normal hydrological year’ by 2035; then brought forward to 2030; then described merely as ‘aspirational’, but nonetheless still in place);
  - c. the New Zealand Battery Project, which could result in the construction of the \$4 billion Onslow pumped hydro scheme, significantly disrupting the energy market; and
  - d. a forthcoming gas transition plan to identify a pathway(s) for the ‘phase out’ of natural gas.
26. This affects the advanced manufacturing sector directly, given its demand for natural gas as a fuel and feedstock, and its reliance on energy generally. It also has indirect impacts, as this policy uncertainty undermines investor confidence across all sectors.
27. The document doesn’t directly address foreign direct investment (FDI). We generally support liberalisation of New Zealand’s FDI regime (i.e., the Overseas Investment Act) as this will maximise firms’ ability to access global capital markets. We suggest the final ITP could emphasise the importance of a liberalised and

enabling FDI regime to ensure advanced manufacturing firms have access to capital for growth.

**Priority 3: Making innovation, R&D, and science work for advanced manufacturing**

28. We support better alignment and coordination of existing R&D incentives and initiatives, to ensure government is maximising their value and coherence, before additional measures are added to this ecosystem. Mapping the existing advanced manufacturing ecosystem is a good first step. Energy Resources is happy to assist by coordinating engagement with its members.
29. The proposal to establish a Centre for Advanced Manufacturing Excellence needs further analysis. The policy case for this needs to be detailed and policymakers should consider the risk of duplication and/or overlap with existing entities in this space, including Callaghan Innovation and Ara Ake (to name only a few).

**Priority 4: Attracting and developing a diverse high-skilled high-wage workforce**

*Energy Resources Aotearoa shares a sharp focus on building a pipeline of talent for the energy intensive sectors (including advanced manufacturing)*

30. We strongly agree with the draft ITP's focus on the skills needs of a growing advanced manufacturing sector. This is a key focus for our organisation in the context of the energy transition.
31. Our members are large energy-intensive firms requiring high-skilled, high-paid employees across a wide range of functions. Our Energy Skills programme promotes, attracts, and develops talent for the energy sector, and we see opportunities for this work to complement the efforts signalled in the draft ITP. We already collaborate closely with the Regional Skills Leadership Group and Te Pukenga as part of the review of vocational education.<sup>2</sup>
32. Energy Skills delivers a range of initiatives, including:
  - a. development of energy-related curriculum for schools;
  - b. public introductory courses to the energy industry;
  - c. secondary and university student interactive days; and
  - d. an annual Taranaki science and engineering fair.
33. In July 2022 we will publish our Energy Skills Action Plan, which sets out the findings of our work to understand the skills needs of the energy sector now and in the future, and the range of activities required to meet those needs. We see

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<sup>2</sup> <https://www.energyskills.co.nz/>

parallels between the evolving skills needs of the energy sector and the advanced manufacturing sector. Both are technically complex and will require ongoing innovation in process, technology, and materials.

34. New energy skills have significant overlap with skills in the incumbent energy sector. Emerging fuels will use technology and automation to a higher degree than older energy assets, and therefore require careful planning to ensure skill transition and workforce upskilling occurs as asset lifecycles mature. Many existing energy companies are already diversifying into new energy and/or other sectors to manage the impact of transition. This will likely have a direct flow-on effect into the advanced manufacturing sector with both current and new energies competing for highly skilled technical staff.
35. We are keen to collaborate on the advanced manufacturing workforce work programme, including the proposed Attraction Strategy. We see several opportunities:
  - a. our expertise and experience could assist in standing up a workforce plan and strategy; and
  - b. our suite of existing initiatives could amplify, complement, or even deliver elements of this plan.

*Energy-intensive sectors, including advanced manufacturing, need access to global talent*

36. Notwithstanding our ongoing focus on building domestic talent to support these sectors, the reality is that they still require access to global expertise.
37. We note the draft ITP refers to the Immigration Rebalance as an opportunity to ensure immigration settings incentivise high-skilled immigration. We support this and highlight the critical importance of enabling our sectors to access global expertise when they need it. This was a significant challenge through the COVID-19 response.

**Priority 5: Creating a leading sustainable circular net-zero emissions sector**

*We need to preserve optionality within the net zero 2050 target, and this is particularly important for advanced manufacturing*

38. It bears emphasising that New Zealand's legislated domestic target is net zero emissions (excluding biogenic methane) by 2050 as set out in the Climate Change Response Act. This is critically important in the context of the draft ITP, because:
  - a. the target is national, not sectoral, and net, not gross – meaning there can be “unders and overs” between sectors and advanced manufacturing does not necessarily need to be net or gross zero-emissions;

- b. the target enables a mix of emissions reductions, removals, and offsets; and
- c. advanced manufacturing includes a range of energy-intensive firms, some of which are 'hard to abate' (e.g., industrial processing). This means complete elimination of these gross emissions, even by 2050, is likely impracticable or prohibitively expensive.

*The draft ITP should identify the key opportunity of carbon capture, utilisation, and storage (CCUS) for a net zero emissions advanced manufacturing sector*

- 39. The draft ITP lays out a range of potential measures to support the industry to become a testbed for net zero emissions advanced manufacturing, referring to greater energy efficiency and reliance on renewable energy.
- 40. However, the draft misses a key opportunity here to signal the importance of carbon capture, utilisation, and storage (**CCUS**) technology. Those gross emissions that cannot be avoided will either need to be captured through CCUS or offset through purchase of international credits or planting.
- 41. We welcomed a recent report from Ara Ake ([see here](#)) identifying the potentially significant emissions removal opportunity presented by CCUS in New Zealand and calling for Government to consider establishing an enabling regulatory regime for its development. Ara Ake's report adds to a growing chorus of calls to enable CCUS to help New Zealand reach its net zero goals, including:
  - a. calls from the BusinessNZ Energy Council;
  - b. the Productivity Commission's 2018 *Low-Emission Economy* report;
  - c. the Infrastructure Commission's 30-year Strategy;
  - d. the Aotearoa Circle's *Low Carbon Energy Roadmap*; and
  - e. the New Zealand Initiative's *Pretence of Necessity*.
- 42. We strongly recommend that Initiative 17 ('net-zero emissions advanced manufacturing') be amended to include a dedicated work programme to identify and address regulatory barriers to the establishment of CCUS in New Zealand.

**Priority 6: Enhancing global connectivity and opportunities**

- 43. We support the proposed efforts to enhance global connections through trade missions, strategic relationships, and global insights research.
- 44. Many of our members are global companies. We suggest first considering establishing formal strategic relationships via global firms already operating in New Zealand and we are happy to help explore this.



## Summary and next steps

45. The advanced manufacturing sector is closely tied to the energy and natural gas sectors given its use of natural gas as a fuel and as a feedstock. Stable and predictable policy settings are essential to underpin investment confidence and ensure longevity of affordable, reliable energy supply.
46. Developing the pipeline of the skills that these sectors need now and in future is a key priority of Energy Resources Aotearoa through our Energy Skills programme. We will soon publish an Energy Skills Action Plan that will set out a range of actions to ensure we have the skills we need through the low emissions transition. We would welcome the opportunity to collaborate and contribute to the proposed suite of initiatives to attract and develop a diverse high-skilled workforce.
47. Low emissions advanced manufacturing is clearly a priority, but we should pursue this in the context of a national net zero target that provides flexibility between reductions, removals, and offsets. Many advanced manufacturing businesses are energy intensive and so we should ensure we keep all options open, including CCUS. The ITP should include a specific reference to exploring and addressing the regulatory barriers to CCUS.
48. We appreciate the opportunity to provide feedback on the draft ITP, and we welcome the opportunity to remain engaged in its development and implementation.