

Industrial Symbiosis Kawerau (ISK) Submission on He Pou A Rangī Climate Change Commission 2021 Draft Advice for Consultation

1. Introduction

The following is Industrial Symbiosis Kawerau's (ISK) submission on the *He Pou A Rangī Climate Change Commission (CCC) 2021 Draft Advice For Consultation* (referred to as the "Advice" in our submission).

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2. Background to ISK

ISK is a collaboration between different enterprises for which the geographic proximity of each allows for the sharing of resources, increasing the viability and competitive advantage of the other.

ISK involves the exchange of materials, energy, water, by-products, services, knowledge, intellectual property, social capital and networks to reduce resource costs, increase revenues and create new business opportunities. It is a smarter way of companies utilising their resources, residues and by-products to eliminate waste. This leads to new commercial opportunities, job creation and better environmental outcomes.

Kawerau has the unique advantages of being a well-established wood processing centre and home to the world's largest application of geothermal energy for direct industrial use. Further, it is strategically located having proximity to well-established road and rail transport infrastructure and the Port of Tauranga. ISK aims to capitalise on this unique combination of factors by adopting progressive practices that embrace change, leading to a new industrial evolution of smarter, cleaner business.

Members of ISK are varied and include wood/fibre processing; geothermal energy, industrial engineering, service businesses, Maori business groups and the Kawerau District Council.

Kawerau is on the cusp of significant economic growth along with the rest of the Eastern Bay of Plenty. Kawerau's main growth project - the Kawerau Putauaki Industrial Development (KPID) - is one of the four key "catalytic" Eastern Bay of Plenty infrastructure projects identified in the *Eastern Bay of Plenty Regional Development Project* report completed in 2018. These four projects are viewed as being "... critical to unlocking other transformative projects" across the region. Specifically, KPID is expected to unlock significant benefits including generating an estimated 1,460 jobs and \$183m in local GDP by 2030.

3. Submission Points

Our submission primarily focuses on the following points (in no particular order of priority):

- Appropriate Central Govt policies and support
- Biofuels
- Building construction materials' carbon footprint (noticeably lacking in Advice)
- Energy – Geothermal and electricity
- Electric Vehicles (EV's)
- Green Hydrogen
- Meaningful and enduring stakeholder engagement
- Opportunities for technology development and circular, “green” economy initiatives
- Transport - particularly heavy/commercial
- The transition from the current situation to the proposed low-emissions environment

4. Our Submission

1. Overall, the report is to be commended for its scope and ‘readability’ and ISK is supportive of the Draft Advice in principal – particularly, the set of key principles advocated on pages 29 & 30.
2. The changes required to deliver on the objectives recommended in the Advice will be felt across all communities. For the proposed approach to be sustainable, it needs to be transparent so that all parts of Aotearoa share the impacts and not just certain sectors. Accordingly, we support the Advice’s recommend principles relating to transition, particularly as is summarised on page 11: *“The speed of this transition needs to be steady – fast enough to make a difference and build momentum but considered, with room to support people through the change. An equitable transition means making sure the benefits of climate action are shared across society, and that the costs of the climate transition do not fall unfairly on certain groups of people”*. Further, of particular relevance for industry, we fully support the *Heat, industry and power* statement (pg. 15) that *“Emissions must be reduced at pace while allowing the country to continue to grow. Planning ahead so that technologies, assets and infrastructure can be replaced with low emissions choices on as natural a cycle as possible will help business and industry keep pace with the transition.”*
3. Enduring, cross-party support; co-ordinated efforts across Government and genuine partnerships with Maori and Local Government will all be critical to the success of transitioning to a low-emissions environment as will be the consultation with and participation of the general public. Therefore, we particularly support the following enabling recommendations:
 - *Enabling recommendation 1 - Cross-party support for emissions budgets* (pg. 38).
 - *Enabling recommendation 3 - Genuine, active and enduring partnership with iwi/Māori* (pg. 41)
 - *Enabling recommendation 4 - Central and local government working in partnership* (pg. 42)
 - *Enabling recommendation 5 - Establish processes for incorporating the views of all New Zealanders* (pg. 44).

Without this support, we suggest it would be futile embarking on the transformation proposed in the Advice.

4. In association with our submission point 2, we strongly support the recommendations in *Necessary action 1- An equitable, inclusive and well-planned climate transition* (pg. 103). We suggest it would be useful to include some selected communities as “real-life” examples of how they are positively adapting/contributing to a low-emissions environment – we believe that Kawerau could be one such exemplar community.
5. The Advice places heavy reliance on the benefits of Electric Vehicles (EVs) and in increasing their use as a key mechanism for reducing emissions. The impression imparted in the Advice is that EVs are “carbon-sound”. However, several international reports conclude there are potentially significant negative effects concerning the carbon footprint associated with the construction and end-of-life stages of EVs and their batteries. Also, there are documented environmental impacts associated with the mining of raw lithium and other “rare earth” metals used in the manufacture of EV batteries. We recognise that technology has the potential to eventually address these issues but that may not happen in the relatively short-term envisaged in the Advice. We believe that New Zealand is well-placed to help reduce the carbon footprint connected with the manufacturing of EVs through producing biofibre (particularly wood fibre) panels and parts for use in the assembly of EVs. This could provide a potentially significant economic opportunity for Aotearoa – we submit that this approach should be included as a recommendation in the Advice.
6. We submit that the purchase costs of EVs will be a significant barrier to their uptake and subsequently, the successful delivery of the relevant initiatives proposed in the Advice. We further submit that EV’s are unaffordable for many New Zealanders at current purchase prices, particularly for socio-economically deprived communities such as those in the Eastern Bay of Plenty. We note that Advice is uncertain on this issue i.e. *“Many of the uncertainties in meeting emissions budgets can still be factored into our analysis. For example, we cannot be certain about how much electric vehicles will cost over time and what this will do to demand”* (pg. 36). Consequently, we support recommendation b. of *Time-critical necessary action 2 - accelerate light electric vehicle uptake* (pg. 108): *“Introduce a package of measures to ensure there are enough EVs entering Aotearoa, and to reduce the upfront cost of purchasing light electric vehicles until such time as they are cost competitive with the equivalent ICE vehicle.”*
7. Transport is identified as one of the biggest contributors of long-lived gas (38.3% - pg. 28) and heavy vehicles contribute 26%+ of these emissions but comprise only 6% of the fleet. EV or biofuels do not have the capability to run these vehicles – hydrogen does. Similarly, there is an emphasis on the electrification of rail. We agree that while this is appropriate for urban situations, a priority should be the conversion of long-distance rail to hydrogen fuel, which we believe will provide greater benefits. We note that the Advice recognises that other nations realise the importance of hydrogen as a transportation fuel source: *“However, Japan is prioritising investing in hydrogen and conventional hybrids and has limited EV supply”* (page 107). We submit that Aotearoa should adopt a similar approach and that **funding hydrogen generation at scale should be a priority** and are pleased to see some recognition of this in the Advice: *“Other actions to increase resilience of the electricity grid and the system include ... diversifying into new fuels such as biofuels and hydrogen that boost energy security”* (pg. 90).

8. We support the Transport recommendation (pg. 15) that *“Use of low carbon fuels, such as biofuels and hydrogen, needs to increase, particularly in heavy trucks, trains, planes, and ships.”* We submit that biofuels will be important as low-emissions replacements for fossil fuels particularly, for use as fuel sources for light, internal-combustion engines commonly used in and important for both domestic and commercial activities e.g chainsaws, lawnmowers, water pumps and generators. Some of these tools/machines can be powered electrically; however, have inherent practical limitations such as relatively low power and limited operating time before requiring recharging.
9. We note on page 15 that *“In 2018, heat, industry and power emissions made up 41% of total long-lived gases. This is 18.8 Mt CO₂-e”* and that *“Heat, industry and power emissions come from using fossil fuels, such as coal and gas, to generate electricity (22%); producing heat and chemical reactions to manufacture products (47%); fossil fuels used in our buildings and homes (7%); oil refining, oil and natural gas production and the operation of coal mines (12%); and the use of off-road vehicles and machinery (11%)”*. Concerning industry, we suggest that stationary engines/boilers/machinery can be converted to low emission fuels and could be co-fired by wood products and hydrogen as a practical means of lowering emissions. However, it is particularly important for industry continuance that existing energy sources, such as natural gas, are not suddenly “turned off”. There needs to be a transitional period that will enable industry to uptake new, appropriate, low-emissions energy sources without stymying productivity. Consequently, we strongly support the Advice’s recognition that *“Some activities, such as industrial processes that use high-temperature heat, will be hard to electrify. Aotearoa will need a range of energy sources to support decarbonisation. Diverse energy sources will also be needed to maintain energy security”* (pg. 114).
10. We are very supportive of the recognition given to the importance of geothermal energy in the new low-emissions environment, i.e. *“Aotearoa will need to maximise the use of electricity. This means generating and using more low emissions electricity for vehicles and process heat. Building more renewable generation such as wind, solar and geothermal will be required”* (pg. 15). However, this recognition is countered by other statements that *“Some geothermal fields have high emissions from their geothermal fluid, with an equivalent emissions intensity as gas generation. In our path these high emitting geothermal fields would close before 2030 reducing geothermal emissions by around 25% while only reducing generation by 6%”* (pg. 61). We submit that these proposed fields closures are an unnecessary/severe step. Instead, we suggest a technological approach (such as carbon capture) should be provided to enable the reduction of emissions to acceptable levels in the same vein that the Advice is proposing for the farming sector to help reduce livestock methane emissions.
11. We support the proposed increased use of sustainable electricity, nationally, as articulated in *Necessary action 5 - Maximise the use of electricity as a low emissions fuel* (pg. 113). From our local experience, we suggest that a barrier to increased electricity uptake is the existing situation whereby industries and businesses have to access their electricity supply via the national grid. We suggest they should be able to access that supply directly from a provider, which will help promote the desired increased uptake.
12. We support the importance the Advice places on infrastructure for a low-emissions environment—particularly appropriate planning, investment and enablement. We submit that the Advice could expand its discussion on the subject such as utilising existing infrastructure, where practicable, for a use change, e.g. repurposing existing gas pipelines to convey hydrogen (we note on page 111 the question of whether Aotearoa should keep its gas pipeline infrastructure long term).

13. We agree with the rationale in 3.8.2 *Buildings* (pg. 59) that “*Under our approach to meeting the 2050 targets, Aotearoa would need to improve the energy efficiency of buildings, alongside decarbonising the energy used for heating, hot water and cooking.*” However, we suggest that the Advice does not adequately address an important issue regarding the carbon footprint of buildings and that is the type of materials used in construction, e.g. wood vs concrete vs steel. There are only two particular references to construction materials in the Advice and both concern wood, i.e. (i) “*Where our plantation forests support a flourishing bio economy, enabling low emissions construction, materials and energy*” (pg. 9) and (ii) “*Production forests could play multiple roles in the transition to low emissions. This includes as a carbon sink in the short to medium term, by providing low emissions wood products to replace higher emissions alternatives (for example, in construction*” (pg. 121). We submit that the Advice needs to specifically address this issue and suggest the inclusion of a recommendation to adopt a “Wood First” policy across Aotearoa, which would be led/supported by Central and Local Government.
14. We support the principle that the focus should be decarbonising industries rather than Aotearoa’s current approach of relying heavily on forest sequestration to remove carbon emissions - forest sequestration should not displace making gross emissions reductions. We support the recognition that forestry still has an important role in the proposed low-emissions environment, e.g. “*Forests will play an important role in meeting the country’s emissions budgets and targets*” and “*Production forests could play multiple roles in the transition to low emissions*” (pg. 121).
15. We support *Necessary action 13 - Reduce emissions from waste* (pg. 125), particularly recommendation b. “*Investing the waste levy revenue in reducing waste emissions through resource recovery, promotion of reuse and recycling, and research and development on waste reduction.*” The benefits resulting from waste minimisation/recycling are considerably wider than the reduction of carbon and greenhouse gas emissions. Consequently, there are potentially significant (environmental and economic) gains to be realised through adopting the package of recommendations and actions proposed in the Advice. We suggest that these could be bolstered through a recommendation for Government to invest (in addition to the waste levy revenue) in research and implementation of new waste minimisation/recycling initiatives, including start-up funding where it is likely such measures are feasible and effective. We believe that such an approach would help give effect to the Advice’s Vision concerning waste: “*In our vision of the future, Aotearoa has a circular economy and generates very little waste. The waste that we do generate is recovered, reused where possible, and otherwise used to generate energy*” (pg. 9).



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