

EMSOL UPDATE JULY 2021



Emsol's July 2021 Update:

1. **Proper Crisps Cuts Process Heat Energy by 11%**
2. **South Island Boiler Replacement Study**
3. **Hydrogen and Other CEP Conference Highlights**
4. **NZ's Carbon Emissions Reduction Plan 2022-2025**

1. Proper Crisps Cuts Process Heat Energy by 11%

Proper Crisps is making significant gains reducing the energy used for its process heat. Emsol completed an energy audit in 2020 with funding support from EECA. Andy Leonard (Team Captain) and Aaron Grooby (Operations Manager) have been adopting several recommendations from the audit.

This included installing baffles in one of its kettles (cooker) to transfer more heat into the process. The energy audit identified excessive heat from LPG was being lost up the kettle flue. Installing baffles has saved 250,000 kWh of LPG in the past six months. Proper Crisps has cut its LPG use by 11%.



They have also been focussing on other areas such as compressed air and energy monitoring. With control improvements, Proper Crisps switched off one of its air compressors. Andy knows there are many other recommendations and ideas to adopt. Proper Crisps is now focusing on measuring and reducing carbon emissions, as well as energy use.

2. South Island Boiler Replacement Study

Emsol is assisting in a survey of larger boilers, more than 500 kW, used throughout the South Island. The aim is to understand what would be required in each region to transition away from fossil fuels to decarbonisation alternatives.

The study has identified 437 boilers with a collective heating capacity of 1,800,000 kW. Of these, 69 use bioenergy or are electric boilers with a total capacity of 343,000 kW.



The other 368 boilers use fossil fuels and have a total heating capacity of 1,458,000 kW. Energy efficiency can reduce this heating demand to 1,350,000 kW. Of this, 350,000 kW is low-temperature heat and can be replaced with heat pump (or solar water heating) technology. The remaining 1,000,000 kW of heat would need to be replaced with a mix of technologies to meet New Zealand's 2035 carbon reduction goal. Technologies would include electrode boilers or bioenergy heating plants.

This study is helping companies understand what resiliency work is needed to meet future demand for our electricity networks and how much additional bioenergy resources would be needed to meet this transition.

3. Hydrogen and Other CEP Conference Highlights

Carbon and Energy Professional New Zealand (CEP) held its annual conference in Christchurch on 26-27 May 2021. The theme was Regenerating New Zealand and included ministerial addresses from Hon Megan Woods and Hon James Shaw. There was a big focus on decarbonisation policies, programmes, and technologies. There were a few speakers based overseas and a reoccurring theme is, “there is no time to wait” to transition away from fossil fuels.

Hydrogen continued to polarise speakers and attendees. One speaker advised producing hydrogen from electricity is a poor use of energy, being less than 20% efficient. Another speaker proposed our natural gas pipe network could be used to distribute hydrogen instead of natural gas. There were a few case studies presented including practical examples from Fonterra and Danone on replacing large coal and natural gas boilers with biomass alternatives. New Zealand’s Carbon Emission’s Reduction plan was also discussed.

4. Carbon Emissions Reduction Plan 2022-2025

The Government released in June 2021 the Climate Change Commission’s report, Ināia tonu nei: a low emissions future for Aotearoa. This is advice on New Zealand’s achievable emissions reduction plan for 2022-2025.

New Zealand has committed to reaching net-zero greenhouse gas emissions by 2050. The plan proposes a three-tier ‘budget emissions’ reduction target through to 2035, which sets us on a path to achieve our 2050 goal.

Under the reduction plan, our emissions of 78.0 MtCO₂e in 2019 reduce to an average of 50.6 MtCO₂e per year in the period 2031-2035. (excludes methane in the agriculture and waste sectors)

For energy reduction, the plan focuses heavily on transport, industry, and buildings. For transportation the plan uses a multifaceted approach; as well as electrifying our transport fleet and using low carbon-emitting transport fuels, the plan sees people travelling less, using public transport, and walking or cycling more.

Coal boilers will be replaced by 2037 and industrial energy efficiency continues to improve. Many fossil fuel heat plant will change to electric and bioenergy solutions for process heat.

Additional renewable electricity generators will be commissioned between 2021 and 2024 that equates to 9% of New Zealand’s electricity use, which will continue to increase beyond 2024. For more detail of this plan (418 pages) refer to

<https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/>

Find Out More

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