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**EMANZ Submission on:**

**Process Heat in New Zealand:**

**Opportunities and barriers to lowering emissions,  
Technical Paper, January 2019**

## **1. Introduction**

EMANZ welcomes the publication of the Process Heat in New Zealand: Opportunities and barriers to lowering emissions technical paper and the opportunity to submit comments on it. Addressing carbon emissions is a critical success factor for New Zealand's global profile and, increasingly, for individual companies as expectations on climate change action flow through the supply chain. As the paper highlights, process heat is, and should remain, a key target area for lowering national emissions. EMANZ welcomes this awareness and intent being demonstrated by MBIE and EECA.

EMANZ is a not-for-profit association representing the energy managers of New Zealand. We enjoy a strong membership and a key role in delivering energy management training and accreditation. EMANZ has a very strong working relationship with EECA and it is pleasing to see MBIE and EECA inviting comment on this critical issue for New Zealand's future.

EMANZ members are at the forefront of delivering energy efficiency and emissions improvements across New Zealand businesses. It is through EMANZ members that New Zealand will make significant progress on the essential, international issue of reducing carbon emissions.

The paper invites comments to specific questions. This approach is a useful device in many cases, however, in the case of the EMANZ submission, many of these questions lack relevance as they relate to specific actions or inactions that may be undertaken by a large emitter. Similarly, the scope of questions is limited around the areas raised and, because of this, miss material opportunities for improvement. Therefore, to provide a more strategic and holistic overview on the barriers to lowering emissions and the opportunities available to address them, we have elected not to respond directly to the questions posed. Rather, we shall comment on the paper's content from a position of expert witness.

## 2. General Comments and Observations

The paper is well researched and prepared and presents a fair overview of the current situation on the use of process heat in New Zealand.

It is refreshing to see that improving energy efficiency and productivity are identified up front as critical to lowering emissions. Of course, fuel switching plays a complementary role. However, while replacing a high emitting fuel with a modest emitting fuel will improve a company's emissions profile, understanding a company's true energy needs, as opposed to its current energy use and profile, provides a much stronger basis for determining fuel requirements. Fuel switching, in and of itself, may not lead to optimum results if efficiency and productivity improvements are undervalued. This point should not be overlooked or understated and the starting point for improvement of any organisation's emissions should always be understanding energy needs.

We note MBIE/EECA's acknowledgement that carbon pricing will play only a marginal role in addressing process heat emissions<sup>1</sup>. To tackle emissions from the process heat sector will require positive actions and interventions.

The paper reads as focused on identifying barriers to efficiency improvements that require major capital investment. The contribution of potential efficiency improvements with limited investment are undervalued. There appears a presumption that much has already been achieved in energy efficiency among more intensive users. Point 45 states: "Operational efficiencies offer significant scope to reduce emissions associated with process heat, although the largest potential gains especially for large energy users, have likely already occurred."<sup>2</sup> EMANZ disagrees with this presumption and believes there remains enormous potential for improvement, including among substantial emitters.

While the paper describes well the barriers to improving emissions, there is only limited discussion of opportunities for emissions reductions. Specifically, there is no mention of the critical role education needs to play in understanding how emissions arise. This leads to understanding of how they can be reduced and, consequently, actions to enact reductions. Understanding an organisation's carbon footprint is the first step to improving it.

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<sup>1</sup> MBIE/EECA (2019), Process Heat in New Zealand: Opportunities and Barriers to lowering emissions, Item 32, p 12.

<sup>2</sup> MBIE/EECA (2019), Process Heat in New Zealand: Opportunities and Barriers to lowering emissions, p 15

The document is also underpinned by an implied assumption that improvements will require significant interventions and investments. EMANZ believes there is significant benefit in transforming the mindset of employees towards processes of continuous improvement and transforming employees to think sustainably. That is, continuous improvement is a tool in its own right and will complement less regular process interventions such as new equipment or fuel switching.

Another general comment around the stated barriers is that several would be addressed and would fall away if more robust financial decision making was widely adopted. Barriers such as short termism, over weighting of poor decision making techniques and incorporation of carbon pricing all relate to a lack of sophistication in investment decision making, something that will require education to overcome.

The remainder of this submission focuses on opportunities to break down the barriers identified in the paper and drive improved performance in emissions reduction.

### **3. Opportunities Through Education**

Education will play a vital role in transforming New Zealand to become a low emissions economy. There are two specific areas of education through which the barriers identified in the paper can be targeted, namely education on how emissions are created and in how investments to reduce emissions are assessed.

#### **3.1 Energy & Carbon Education**

Understanding how an emissions profile emerges is the first step to tackling it. For New Zealand to address emissions from heat intensive processes it needs a cohort of knowledgeable, skilled and qualified experts in the areas of energy auditing, carbon auditing, energy efficiency and strong understanding of how energy is converted, transported/transmitted and stored. This knowledge needs to extend beyond simple carbon auditing. It needs to include understanding of how carbon is converted from one form to another, the conditions around that transformation, the resulting outputs and how these can best be exploited, e.g. heat recovery technologies.

EMANZ already has training and accreditation programmes in these areas, notably a programme to educate on energy and carbon management to international standards (ISO50001 and ISO14064) and one targeted specifically at industrial processes. However, there is substantial opportunity to improve emissions performance by driving uptake of these programmes and developing a knowledge base that extends across New Zealand businesses. EECA already works with EMANZ to promote educational opportunities although more could be done to make programmes more accessible to businesses and, critically, the individuals who work in, or advise, them.

**EMANZ recommends MBIE, through EECA, supports improving the accessibility of energy efficiency and carbon management training to a wider market, including the ability to deliver programmes through digital media.**

### **3.2 Education in Financial Decision Making**

Anecdotal evidence from the EMANZ membership, substantiated by the recent, EECA commissioned PwC research<sup>3</sup> and commentary in this MBIE/EECA paper confirms financial decision making in New Zealand businesses is retarded. Point 49 of the paper states: “payback periods of 12 to 18 months are typically required to meet investment thresholds.”<sup>4</sup>

While having modest merit as an aide to risk assessment, even elementary finance courses teach that simple payback is a blunt, clumsy instrument in assisting investment decision making, commonly leading to sub-optimal and sometimes plain bad decisions, and yet it appears to be the dominant technique used in assessing efficiency investments in New Zealand. This is clearly a problem of education and reinforces the importance of addressing educational failings in NZ business education.

Another aspect of unsophisticated financial decision making arises around the inclusion, or otherwise, of emissions pricing in investment decision making. Point 50 states:

“Most organisations do not explicitly incorporate the price of carbon, and the risk of price hikes, in their analysis.”<sup>5</sup>

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<sup>3</sup> PwC (2018), Business Investment Decision Making: Large Process Heat Users and Energy Efficiency in New Zealand

<sup>4</sup> MBIE/EECA (2019), Process Heat in New Zealand: Opportunities and Barriers to lowering emissions, p16.

<sup>5</sup> MBIE/EECA (2019), Process Heat in New Zealand: Opportunities and Barriers to lowering emissions, p16.

Internationally, among more progressive organisations emissions pricing is being factored into investment decision making. This is also emerging in government decision making with countries such as Sweden and Switzerland factoring future carbon prices into government investment decisions at rates substantially higher than current market rates<sup>6</sup>. New Zealand businesses need to be encouraged to include carbon pricing into investment decisions, and at a rate that includes expectations around predicted future increases.

#### **4. Regulation**

While regulation is often seen as something to be avoided, there can be no question it can also be effective in influencing behaviours and delivering results that otherwise would not have been achieved or for accelerating material results.

Take, for example, the case of NABERS in Australia and New Zealand. In Australia, NABERS is mandated<sup>7</sup>. Its uptake is consequently substantial and resulting energy efficiencies and energy and carbon savings major. In Australia, NABERS covers 81% of office spaces, is credited with saving AU\$400m of energy costs since 2010 and has saved 827,000 tonnes of CO<sub>2</sub> emissions<sup>8</sup>. In New Zealand, uptake is limited and the resulting efficiency and emissions reduction gains are paltry by comparison, even allowing for the differences in market size. There is no material difference in the NABERS programme across the countries, the only material difference between the countries is that NABERS is mandatory in Australia for qualifying buildings.

Successful regulation has also proved effective in the area of industrial emissions. The Australian Energy Efficiencies Opportunity Programme ran from 2006 to 2014. Participation in the programme was mandatory for corporations that individually, or as part of a corporate group, used more than 0.5 PJ of energy per financial year. Coverage of the programme included mining, manufacturing, commercial, services, transport and (from 2011) electricity generation. At June 2013, these corporations accounted for 56% of Australia's total energy use. The programme was discontinued in 2014 under the Australian Government's deregulation agenda. Nevertheless, from an energy efficiency and decarbonisation perspective, the programme was unquestionably successful. In its first five years, the scheme identified savings equivalent to 164PJ, or 2.7% of Australia's total energy use.

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<sup>6</sup> World Bank, State and Trends of Carbon Pricing 2018, May 2018

<sup>7</sup> NABERS website, <https://www.nabers.gov.au/about/what-nabers/why-nabers>, sourced 18/02/2019

<sup>8</sup> NABERS website, <https://www.nabers.gov.au/>, sourced 18/02/2019.

Adopted project savings totalled 89PJ, delivering an annual net financial benefit of AU\$808m and annual savings of 8.2MtCO<sub>2</sub>e, approximately 1.5% of Australia's total greenhouse gas emissions. An independent, full cycle evaluation of the programme concluded: "Significant improvements were made in organisational capability and the uptake of good energy management practices by EEO program (sic) corporations between 2005 and 2012 particularly in the areas of data analysis, opportunity identification and decision making. The program (sic) was appropriate, as it targeted an information failure not adequately addressed by a carbon price, and had delivered significant additional benefit to participating corporations"<sup>9</sup>

It is clear then, that regulation can play a major role in reducing emissions and will do so if appropriately applied.

While many regulatory interventions, for example, mandatory carbon reporting, will improve performance across industrial sectors there are possible actions that directly target process heat. To be most effective, these will require regulation to enact.

The first would be to mandate that qualifying companies are required to obtain ISO50001. ISO50001 is the international standard for energy management. It involves comprehensive planning on energy management which, through its nature, delivers efficiency improvements and, consequently, emissions reductions. Cases of achieving the standard not being cost effective are extremely rare, i.e. the savings from achieving and operating to the standard invariably cover the costs associated with attaining it. That is, attaining and maintaining the standard is financially beneficial in most cases. Nevertheless, achieving the standard would involve up-front costs and the imposition of the standard by regulation may meet resistance from some businesses. Mandating specific actions, such as ISO50001 compliance, in New Zealand in the industrial sector may, in the short term, lead to a modest increase in costs for companies although many will already be undertaking these efficiencies as part of their own attempts to reduce emissions. The net effect of imposing such a regulation then, would be an increase in up-front and ongoing compliance costs which are more than likely outweighed by enduring efficiency savings.

**EMANZ recommends mandating ISO50001 compliance for qualifying organisations.**

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<sup>9</sup> Energy Exchange website, <https://www.eex.gov.au/large-energy-users/energy-management/energy-efficiency-opportunities>, sourced 21/02/2019

An alternative, or complementary, approach would be to regulate that qualifying organisations have to undertake, and report, regular energy assessments. This approach has been adopted in the UK in response to Article 8 of the EU Energy Efficiency Directive. The UK, Energy Savings Opportunity Scheme (ESOS) involves mandatory reporting of 4-yearly energy assessments. While this mandated reporting is not as powerful as the mandating of ISO50001 compliance, it could realistically be applied more widely and would nevertheless be a useful efficiency driver which would deliver emissions reduction benefits.

**EMANZ recommends the introduction of mandatory energy auditing and reporting for qualifying businesses.**

## **5. Financial Incentives**

As the paper highlighted, financial decision making in New Zealand is often short term. With this in mind, a potentially effective means of driving the uptake of more efficient technologies would be to offer accelerated depreciation on qualifying investments. While this would defer tax take, it would provide added incentives for businesses to pursue energy and carbon efficient strategies.

**EMANZ recommends the introduction of accelerated depreciation on qualifying investments.**

## **6. Summary**

This MBIE/EECA paper has reiterated the importance of addressing process heat emissions to New Zealand's future. It has also served to highlight barriers to improvements in process heat emissions, many of which are commonly substantial.

We have highlighted above several opportunities that will materially improve the emissions performance of process heat intensive organisations. A holistic approach is required to maximise the opportunities that exist. The combination of improved carbon education to increase awareness and opportunity identification, regulation to drive opportunity identification, education around correct decision making and modest financial incentives to encourage timely action will, when applied together, improve energy efficiency and productivity and reduce carbon emissions.



EMANZ looks forward to working with MBIE and EECA in breaking down the barriers identified in the paper and transforming New Zealand into a low emissions economy.

A handwritten signature in black ink, appearing to read "Mike Hopkins". The signature is fluid and cursive, with a prominent flourish at the end.

Dr M Hopkins  
CEO, EMANZ  
21<sup>st</sup> February 2019