SUBMISSION

Consultation on Process Heat in New Zealand: Opportunities and barriers to lowering emissions

Fletcher Building Submission to MBIE

18 February 2019

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About Fletcher Building

Fletcher Building is one of New Zealand's largest listed companies with a market capitalisation of over $5 billion. We are a significant employer, manufacturer, home builder and partner on major construction and infrastructure projects in New Zealand.

Our roots go back to 1909, when James Fletcher built his first house with Albert Morris in Dunedin. From those humble beginnings we today employ over 10,000 people across almost every region of New Zealand and make a significant contribution to both the national economy, and many regional economies.

The value we add to the New Zealand economy has been calculated at $1.3 billion and our contribution to GDP is $1.5 billion[1].

Fletcher Building is dual listed on the NZX and ASX and operates through seven divisions – Building Products, Distribution, Concrete, Steel, Construction and Residential and Land Development and Australia.

Introduction

Fletcher Building supports the Government's objective of transitioning to a low emissions economy and net zero emissions by 2050. We recognise that adapting to climate change presents both risks and opportunities for our business.

Major users of process heat in the Fletcher Building Group are:

1. Golden Bay Cement (GBC) – manufacture of cement
2. Winstone Wallboards – manufacture of plasterboard
3. Tasman Insulation (Pink® Batts®) – manufacture of glasswool insulation
4. Pacific Coilcoaters – manufacture of steel roofing
5. Higgins – bituminous roading products
6. Laminex – manufacture of particleboard and MDF products

GBC has provided their own individual submission on Process Heat in New Zealand: Opportunities and barriers to lowering emissions, in addition to this group submission.

Key considerations

Consultation

Provided on the following pages is Fletcher Building's responses to the specific questions put forward in the discussion paper.

We would welcome the opportunity to discuss our submission further.

[1] NZIER, Building New Zealand, Fletcher Building's economic contribution, June 2018

Opportunities and barriers to lowering emissions from process heat

Q1: To what extent has the NZ ETS influenced process heat investments in your business?

Fletcher Building businesses that participate directly in the NZ ETS are GBC, Tasman Insulation and Laminex. All businesses that use other fossil fuels to generate process heat participate indirectly.

Investment in process heat needs to meet the same criteria as for other capital investment projects. Current uncertainty around future NZU impacts our ability to strategically plan for the future. We would like to see more certainty around this to help inform future investment in fuel switching and other low-emissions technologies especially as these typically have significant capital costs and long payback periods.

Q2: To what extent do you agree that businesses are accounting for the price (and future price) of emissions, but face other barriers to reducing process heat related emissions?

All investment at Fletcher Building is assessed in light of its return on investment (ROI). ROI is not regarded solely in terms of financial return but also in benefits such as reduced emissions and improved environmental protection. Switching to lower emissions fuels and technologies in its business activities where possible is a core part of Fletcher Building's environmental strategy.

Fletcher Building accounts for emissions pricing in process heat decisions for direct participants in the ETS. As outlined in the answer to Q1, the uncertainty around future emissions pricing makes strategic planning challenging. While current emissions pricing is established, the uncertainties involved with predicting long-range future emissions pricing introduce complexity to the process.

Q3: To what extent do you agree that businesses are accounting for emissions prices but are unresponsive to changes in the emissions price?

Current uncertainty around future expenses associated with the ETS is a barrier to investment in that it contributes uncertainty to business cases and sensitivity analyses.

A higher emissions price will often result in a shorter financial ROI for sustainability investment. Understanding of long-term pricing is key to enable confident investment decisions to be made in the short term.

Q4: Does the NZ ETS provide an incentive to significantly reduce emissions beyond current levels for business who receive industrial allocation?

Currently the NZ ETS does not provide a significant incentive to reduce emissions below current levels.

However, industrial allocation of NZU to EITE businesses allows them to remain competitive with imported products which may not be subject to an ETS in their jurisdiction. Without this provision, New Zealand manufacturers would not be cost-competitive and would result in closure of businesses and carbon leakage.

Projected reduction in free allocation of NZU's will impact on direct NZ ETS participants and may provide a motivation to reduce emissions where businesses do not have strategic sustainability objectives. However, this is particularly challenging in the manufacture of cement, where opportunities to reduce emissions from thermal fuels exist but the vast majority from production of clinker are difficult to reduce in the short term.

Barriers to improving energy efficiency and the uptake of renewables in process heat systems

Q5: To what extent does your business ring-fence capital for energy related projects?
There is no allocation of capital specifically for energy-related projects.

Reducing carbon emissions is a strategic priority for Fletcher Building. All capital projects are prioritised based on their merits, with specific attention given to strategic focus areas including the environment and sustainability. As previously stated, it is recognised that not all projects will have a financial ROI.

sustainability life cycles do not always fit well within this period.

Q6: To what extent are objectives such as sustainability incorporated into your organisation's investments, i.e. is sustainability included in your KPIs?
A number of Fletcher Building businesses track sustainability in their Opex and Capex KPIs. Carbon emissions have been recorded at a corporate level for over a decade and we expect to set and track individual BU emissions reduction targets across the business in the near future. A number of business units have published Life Cycle Assessments and/or Environmental Product Declaration studies, with this number expected to increase as focus increases on sustainability throughout the business.

Q7: Are these objectives considered secondary to risk and return?
No. Traditionally, it is probably fair to say that most businesses in in New Zealand have considered sustainability objectives secondary to risk and return.

At Fletcher Building we consider the environment as critical to our organisation and of equal importance with other business priorities. We recognise that sustainable practices need to be embedded in the way we work, and we believe that this will contribute to long term business success.

Q8: Do you agree that energy efficiency or renewable projects are often not implemented as they are not core business investments?
We disagree with this statement.

For process heat users, improved energy efficiency is core business and usually results in lower operational expenses. However, as previously stated – the major barriers to implementation of efficiency or renewable energy projects are high capital or on-going costs (e.g. higher cost of electricity compared to other fuels) and availability of suitable technology.

Q9: Is your business limited by access to capital for energy related investments? Is this due to lender appetite or are these limits self-imposed?
At Fletcher Building these limits are self-imposed (capital procurement processes).

Q10: To what extent do hidden costs or co-benefits (as described above) hinder or progress process heat investments?
Sustainability investment is a holistic process. Business cases are aided by co-benefits, principally safety or efficiency improvements. Investments that include process safety improvements are beneficial, e.g. electrification of a process that removes hazardous substances (e.g. explosive or flammable fuels or dusts).

Q11: Does your organisation actively monitor its energy use and/or its emissions?
Yes. Each business unit within Fletcher Building is required to record the quantities of energy it uses each month. These values are able to be converted into CO_2e using published emissions factors. Some businesses

use real-time energy monitoring tools and/or have dedicated staff and external resources to help drive efficiency projects.

Q12: Do you think that there would be benefits from publishing individual emissions data reported by NZ ETS participants and/or large process heat users?
Fletcher Building reports carbon emissions through CDP and in the Fletcher Building annual sustainability report, which is publicly available. The most recent report identifies the major emitters in the group.

We question what the purpose publishing ETS emissions data would be other than singling out individual emitters. Large process heat users in New Zealand are already aware of their obligations under the ETS. This also puts local manufacturers at a disadvantage as imported products, which may have higher embedded carbon and a greater carbon footprint are exempt from the NZ ETS.

If emissions were to be published then sectors that do not participate in the ETS such as agriculture which make up the bulk of New Zealand's emissions should also be obliged to report to ensure a complete picture is presented to the public of New Zealand's emissions.

Q13: Do any of the informational barriers described above have an impact on your organisation's decision to invest in process heat technologies, and if so, to what extent?
No. Fletcher Building has good awareness of where process heat is used in the group.

Q14: Could you please rank the three informational barriers as listed directly above this box in order of impact on your organisation?
H, G, F

Barrier H: Lack of information or aversion to new technologies – Unproven technologies carry significant business risk. Best practice is to identify low-emissions technology used in the industry rather than to invest large amounts of capital in plant that carries a risk of business interruption or other unidentified consequences on the process. Where appropriate, small pilots may be carried out subject to a cost/benefit analysis and availability of capital. If external funding is available for these it can incentivise uptake as it reduces the risk of sunken costs and can accelerate adoption and scaling up of a successful trial.

Barrier G: Some firms have poor information on their own energy use – Not all businesses have dedicated focus on energy efficiency, although all process heat users within Fletcher Building have knowledge of their energy consumption and systems.

Barrier F: Inadequate information on the emissions profiles of products or firms – Fletcher Building reports on carbon emissions in its annual sustainability report, which is publicly available for investors.

Barriers to the electrification of production

Q15: Has your organisation considered electrifying part or all of a given site's heating process?
Yes. In 2008 Tasman Insulation converted a natural gas-fired furnace to a fully electric "cold-top" melter. This reduced the carbon footprint of the business by around 50%. There are additional parts of the insulation process that can be electrified with existing technology but at significant cost and comparatively low impact on carbon reduction.

High-level scoping has been carried out in several business units to determine the feasibility of converting existing gas-fired processes to electrical. This presents a number of challenges as to whether:

- Curing/drying processes can be altered sufficiently to run at lower temperatures. Often key technology steps need to be developed in chemical processes to enable this. Not all of these technologies exist yet.

- If drop-in electrical solutions exist (e.g. suitable electrical ovens), or if the technology needs to be developed.
- The cost of building new electric-powered plants can be prohibitive due to the current price of electricity.

Q16: If so, to what extent do you agree with the barriers I to K listed on the following pages?

Barrier I: High cost of electrical energy relative to other high carbon fuels – Agree strongly. The high cost of electricity compared to other fuels is a significant barrier to electrification, where this is a possibility.

Barrier J: Electricity supply is fundamentally more complex than other fuels – Not a significant barrier, provided electrical infrastructure exists in the area where the plant operates.

Barrier J1: Connection costs and the Transmission Pricing Methodology – No comment

Barrier J2: Time and costs associated with developing electricity connections and new generation plants – If a new electrically-powered plant with significant power demand were to be built, availability of electrical infrastructure would be critical to the planning process. Significant delays or unavailability would be likely to mean that the plant would be located elsewhere or use an alternative fuel source for process heat.

Barrier J3: Perceived risk of electricity supply disruptions – Security of electricity supply is a problem for cement manufacture where interruptions can result in significant costs to the business.

Barrier J4: Variable and uncertain emissions intensity of electricity use – Variability in electricity emissions is not a perceived issue. In general, the emissions factor of electricity is lower than most other sources in New Zealand.

Q17: What does your organisation consider are the largest barriers to the electrification of its production?

The primary barriers are (in no particular order)

- Cost of electricity compared to other fuels
- Suitability of the process for electrification
- Whether proven electrical technology exists
- Availability of sufficient electrical grid power supply

Q18: Are there any costs or co-benefits of electrification that we have not included that your organisation has identified?

Benefits to process safety from removal or reduction in use of explosive substances such as natural gas or coal dust.

Barriers to the use of woody biomass

Q19: Has your organisation considered biomass as a fuel source? If so, what did you conclude and why?

Yes. Biomass is used at GBC and Laminex plants. It is an attractive option because of its sustainable nature and lower carbon footprint. Where cost-effective, timber offcuts, recycled sander dust, particle board and green biomass are used as an alternative to fossil fuels. Fletcher Building has agreements with waste management contractors to supply waste wood from its operations to be used at GBC.

Q20: To what extent do you agree with the barriers L to M listed on the following pages?

Barrier L: The economics of biomass fuels is situationally dependent and complicated – Competition for supply is becoming more intense as more sectors convert or substitute coal for biomass. This is leading to

scarcity and price increases to the point where substitution becomes limited. Additionally, transportation costs decrease the cost-effectiveness of biomass as a fuel source if it is sourced from a distance.

Barrier M: Biomass supply chains are undeveloped and face development difficulties – as for barrier L, increased competition for biomass has resulted in difficulties with security of supply and cost variability.

Q21: What does your organisation consider to be the largest barrier(s) to the use of biomass for supplying heat?
Moisture content of biomass is a factor in consideration of its use. Higher water content results in additional weight for transport and lower calorific value (i.e. a poorer fuel), limiting its utility in certain processes. Investing in drying equipment typically has a long return on investment.

Q22: Has your organisation identified any costs or co-benefits of using biomass that we have not included above?
Drying wet wood results in a better fuel with greater calorific value and broader application. However as previously outlined, the capital cost of investing in drying equipment is significant with a long ROI, even when factoring in use of waste heat from other processes as part of the drying process.

Self-generation from renewable sources - wind or solar

Q23: Has your organisation considered building onsite generation? If so, why did the project go ahead or not go ahead?
Organisations within Fletcher Building have explored installation of photovoltaics (to supplement minor electricity use rather than process heat) or reuse of waste heat. In most instances the technical challenges and high capital cost of installation result in an unfavourable business case.

Q24: Are there any barriers to, or co-benefits from, the use of onsite generation that we have not included that your organisation has encountered?
In Australia, the high cost and large carbon footprint of coal-generated electricity makes cogeneration plants a more attractive option than in New Zealand.

The use of direct heat from geothermal

Q25: Does your organisation have the potential to use direct heat from geothermal?
Yes. Some manufacturing facilities are located in geothermally active regions, but at present there is no use of geothermal heat.

Q26: If so, what are the key barriers that hinder your organisation from using direct heat from geothermal?
At present, heating needs in these areas are met by biomass. There has not been a need to investigate use of geothermal energy to date.

Q27: Has your organisation identified any other barriers to, or co-benefits from, the direct use of geothermal heat that we have not included above?
No.