

Consultation: Advancing New Zealand's energy transition
Energy and Resources Markets
Ministry of Business, Innovation and Employment
PO Box 1473
Wellington 6140

2 November 2023

Re: New Zealand Steel submission on the *Gas Transition Plant Issues Paper*

This is a submission from New Zealand Steel on the Ministry of Business, Innovation and Employment's (MBIE) consultation package – Advancing New Zealand's energy transition. Separate submissions have been provided for each paper; this submission acts as the overarching key messages summary including the separate submission on the Gas Transition Issues Plan.

New Zealand Steel - contributing to the productivity and resilience of New Zealand

1. Formed in 1965, New Zealand Steel has been an integral part of New Zealand's history. Steel production began in 1968 and major expansions completed in 1987 created an integrated steel mill. The company is in Glenbrook, Southwest of Auckland on 560 hectares in industrial land, on the southern shores of the Manukau Harbour. As a significant employer with more than 1,500 people employed directly in high-skilled, well-paid jobs, and indirect employment of a further 2,500 people, NZ Steel makes a substantial contribution to the people in its community.
2. NZ Steel is a critical part of New Zealand's supply chain and provides a reliable supply of high-quality steel products to New Zealand's building, construction, industrial, energy, infrastructure manufacturing and agricultural sectors. Around 650,000 tonnes of steel is made a year and almost all our production is consumed in New Zealand or supports the Pacific Islands' needs. We contribute around \$900m to the New Zealand economy each year.

BlueScope Climate Action Strategy

3. NZ Steel's parent company, BlueScope, is committed to exploring and collaborating to pursue emerging and breakthrough technologies to work towards its [2050 net zero goal](#) across all global operations, including New Zealand.
4. Achieving the 2050 net zero goal is highly dependent on a range of key enablers, requiring collaboration and action across multiple sectors and stakeholders.

Energy and Decarbonisation at New Zealand Steel

5. Energy policy and decarbonisation are inseparable. In line with the BlueScope climate strategy, in September 2023 New Zealand Steel is committed to the construction of an Electric Arc Furnace (EAF) at Glenbrook. Work

is underway to install an EAF to shrink its carbon footprint and secure the future of domestic steel making. The environmental, societal and economic benefits to the country are far reaching:

- **Significant gross emission reductions** of 800,000 tonnes of CO₂e per annum, seeing NZ Steel almost halve its emissions from day one, (over 45% of New Zealand Steel's gross carbon emissions reduced). This is the country's largest industrial decarbonisation project to date.
 - **Retain critical domestic steel industry** and its related jobs, contribution to economic resilience and domestic supply chains, without emissions leakage.
 - **Recycle domestic scrap steel** in volumes up to 300,000 tonnes. Steel is infinitely recyclable, and this project will make New Zealand as close to self-sufficient as possible using renewable energy via an innovative partnership with an electricity generator to recycle domestic steel scrap rather than shipping it offshore.
 - The benefits are made possible through partnerships across public and private sectors.
 - Decarbonisation at scale has occurred without deindustrialisation.
 - A power supply deal that gives flexibility to lower demand on the grid during peak time loads, strengthening the grid's demand management flexibility.
 - Provides optionality for further reductions in steel making related emissions.
6. Energy policy, security and affordability are intrinsically linked to our national carbon net-zero 2050 goal, but also the continued viability of manufacturing in New Zealand. We know, through recent experience, that collaboration and joined up thinking is critical. New Zealand Steel's EAF project only came about through careful collaboration between industry, steel suppliers, commercial and environmental regulators, central government alignment and buy in from electricity generators.
7. Our main message is that New Zealand needs a coherent and joined-up energy eco-system that leverages the country's competitive advantages, recognises all of the interdependencies and avoids unintended consequences. New Zealand Steel has made submissions on all MBIE energy consultation papers, however our top ten submission points that span all energy areas are as follows.

Advancing New Zealand's Energy Strategy – Key Points

8. MBIE guide completion of the NZ Energy Strategy using a 'one eco-system' nationwide approach. This should be visionary guiding a holistic pathway as NZ transition to a low emissions society.
9. Reliable, firm and affordable energy together with demand response efficiencies is essential for heavy manufacturing, NZ Steel is no exception. The integration between energy and heavy manufacturing will only grow deeper over time as NZ Steel continues to decarbonize and leverage its Glenbrook site to more energy related opportunities. In this sense, NZ Steel is as a major energy user as a heavy manufacturer and energy policy is critical for our success and the continuation of steel making here.
10. Electrification is key to reducing emissions (both from the grid but also for opportunities like hydrogen). For this to be achieved NZ will require an abundant supply of reliable, affordable electricity generated from renewable sources.
11. The challenges posed to the stability of the electricity grid by increased intermittent generation, namely wind and solar, must be recognised. As for the challenges of dry-year risks to hydro generation. Firming of the power supply is essential – firming solutions are multifaceted and must be understood in totality.
12. Demand flexibility is recognised as an essential tool in managing increased intermittent generation and peak-time loads. NZS encourages the development of an auxiliary market with appropriate demand response products enabling industrial users to provide demand flexibility. Demand response products that reflect true economic value reduce the required generation overbuild and reduce the cost of the marginal MWh, supporting both security of supply, increased competition in the wholesale market and overall system cost.

13. NZ Steel is exploring the next stage of decarbonisation following installation of the EAF. To fully remove coal from the ironmaking process an alternative reductant source is required to produce direct reduced iron (DRI). One option being investigated is using hydrogen as the reductant. While viability is yet to be proven there are promising signs. However, we are concerned at the expectations being built for green hydrogen in NZ. Hydrogen as a process input and/or energy source has many challenges through the complete end to end supply chain and will be dependent on availability of large amounts of electricity at costs several times lower than the current wholesale and futures market prices.
14. Further to point 6 above, a hydrogen steelmaking opportunity will only come about if a 'hydrogen hub' type concept is seriously considered at the Glenbrook site. This will require careful engagement with end-to-end supply chain partners and regulators – practical workshops are essential.
15. Whilst green hydrogen is a likely end state for ironmaking, NZ Steel believes there is a credible transition pathway using natural gas as the reductant. Converting the ironmaking process to using natural gas can facilitate a further step change in decarbonisation, transitioning to green hydrogen when the infrastructure exists.
16. While electrification can be and is a substitute for many applications, gas will remain essential for some industrial applications until new technologies are available and implementable. Until alternatives can be found, natural gas remains an important fuel source for peaking and dry-year electricity generation.
17. NZ Steel supports the further investigation of offshore wind in New Zealand mainly because of the scale of the green electricity it provides and the downstream opportunities that scale unlocks. Appropriate engagement with iwi and communities is essential.

Yours sincerely

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New Zealand Steel

Submission on the *Gas Transitions Plan Issues Paper*

Name	
Organisation (if applicable)	New Zealand Steel
Contact details	

Release of information

Please let us know if you would like any part of your submission to be kept confidential.

I would like to be contacted before the release or use of my submission in the summary of submissions that will be published by MBIE after the consultation.

I would like my submission (or identified parts of my submission) to be kept confidential, and **have stated below** my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

I would like my submission (or identified parts of my submission) to be kept confidential because
[\[Insert text\]](#)

[To check the boxes above: Double click on box, then select 'checked']

Responses to questions

Chapter 2: Transitioning our gas sector

1 **How can New Zealand transition to a smaller gas market over time?**

2 **What is needed to ensure fossil gas availability over the transition period?**

3 **What factors do you see driving decisions to invest or wind down fossil gas production?**

4 **Does the Government have a role in enabling continued investment in the gas sector to meet energy security needs? If yes, what do you see this role being?**

5 **Does the Government have a role in supporting vulnerable residential consumers as network fossil gas use declines? If yes, what do you see this role being?**

Fossil gas and electricity

6 **What role do you see for gas in the electricity generation market going forward?**

7 **What would need to be in place to allow gas to play this role in the electricity market?**

8 **Do you think gas can play a role in providing security of supply and/or price stability in the electricity market? Why / Why not?**

9 **Do you see alternative technology options offering credible options to replace gas in electricity generation over time? Why / Why not?**

10

If you believe additional investment in fossil gas infrastructure is needed, how do you think this should be funded?

Chapter 3: Key issues and opportunities

Renewable gases and emissions reduction technologies

11

On a scale of one to five, how important do you think biogas is for reducing emissions from fossil gas? Why did you give it this rating?

12

Do you see biogas being used as a substitute for fossil gas? If so, how?

13

On a scale of one to five, how important do you think hydrogen is for reducing emissions from fossil gas use? Why do you think this?

14

Do you see hydrogen being used as a substitute for fossil gas? If so, how and when?

15

What else can be done to accelerate the replacement of fossil gas with low-emissions alternative gases?

16

On a scale of one to five how important is a renewable gas trading to supporting the uptake of renewable gases? Why have you given it this rating?

17

What role do you see for the government in supporting such a scheme?

Carbon Capture, Utilisation and Storage

18

On a scale of one to five how important do you think CCUS is for reducing emissions from fossil gas use? Why did you give it this rating?

19

What are the most significant barriers to the use of CCUS in New Zealand?

20

Do you see any risks in the use of CCUS?

21

In what ways do you think CCUS can be used to reduce emissions from the use of fossil gas?

Options to increase capacity and flexibility of gas supply

22

What role do you see for gas storage as we transition to a low-emissions economy?

23

On a scale of one to five, how important do you think increasing gas storage capacity is for supporting the transition? Why did you give it this rating?

24

What should the role for government be in the gas storage market?

25

Our position is that LNG importation is not a viable option for New Zealand. Do you agree or disagree with this position? If so, why?

26

What risks do you anticipate if New Zealand gas markets were tethered to the international price of gas?

General comments

1. NZ Steel has been involved in preparation of the submission by the Major Gas Users Group (MGUG) and commends this for in depth consideration.
2. Natural gas remains an important energy source in order for NZ to transition to zero carbon by 2050. While electrification can be and is a substitute for many applications, gas will remain essential for some industrial applications until new technologies are available and implementable. Until alternatives can be found, natural gas also remains an important fuel source for peaking and dry-year electricity generation.

3. NZ Steel is exploring the use of natural gas as a transitional hydrogen source. Hydrogen produced DRI (direct reduced iron) can be achieved initially via natural gas before transitioning to green hydrogen when the infrastructure exists. Natural gas would allow a full transition away from using coal in the ironmaking process.