Submission template

Consultation on Energy Demand and Generation Scenarios (EDGS) 2023

This is the submission template for responding to the consultation document on the Energy Demand and Generation Scenarios (EDGS) 2023. The Ministry of Business, Innovation and Employment (MBIE) seeks your comments by **5pm on Monday, 22 May 2023**.

Please make your submission as follows:

Fill out your details under the **Contact details** section and, if applicable, check the boxes underneath on privacy and confidentiality.

Fill out your responses to the discussion document questions in the section: **Responses to questions**. Your submission may respond to any or all of the questions. Where possible, please include evidence to support your views, for example references to independent research, facts and figures, or relevant examples. If you would like to make other comments not covered by the questions, please provide these in the **Additional feedback** section.

Before sending your submission:

a. delete this first page of instructions; and

b. if your submission contains any confidential information, please:

- State this in the cover page or in the e-mail accompanying your submission, and set out clearly which parts you consider should be withheld and the grounds under the Official Information Act 1982 (OIA) that you believe apply. MBIE will take such objections into account and will consult with submitters when responding to requests under the OIA.
- Indicate this on the front of your submission (e.g. the first page header may state "In Confidence"). Any confidential information should be clearly marked within the text of your submission (preferably as Microsoft Word comments).

Submit your submission by emailing this template as a Microsoft Word document to energyinfo@mbie.govt.nz with **EDGS 2023** in the subject line by **5pm on Monday, 22 May 2023**

Please direct any questions that you have in relation to the submissions process to energyinfo@mbie.govt.nz.

Release of Information

Please note that submissions are subject to the OIA and may, therefore, be released in part or full. The Privacy Act 2020 also applies. MBIE intends to publish a compiled list of next steps on our website at www.mbie.govt.nz. Should you agree to having quotes from your submission included in the next steps, we will ensure that all parts of your submission included does not refer to any names of individuals.

Submission on the Energy Demand and Generation Scenarios (EDGS) 2023

Contact details

Name	Privacy of natural persons
Organisation (if applicable)	Genesis Energy Limited
Contact email address	Privacy of natural persons

Privacy statement

We collect your personal information (name and email address), in order to identify stakeholders and contact you (if you agree). Providing some information (such as your organisation) is optional, however if you do not provide this information, we may not be able to link your response to the organisation you are representing. We advise caution on the use of free-text boxes, please do not provide more personal information than is required for the purposes of this consultation.

Besides our staff, we may share this information in line with the Privacy Act 2020 or as otherwise required or permitted by law. We keep your information safe by storing your data in folders with limited access. If this information is shared or published, we may need to edit comments to remove personal information.

This information will be held by MBIE. You have a right to ask for a copy of any personal information we hold about you as a result of this consultation, and to ask for it to be corrected if you think it is wrong. If you'd like to ask for a copy of your information, or to have it corrected, please contact us at energyinfo@mbie.govt.nz.

Release of information

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

☒ I agree to be contacted by MBIE about any points I have raised or obtain more information about the content of my submission.

☐ I agree to having quotes from my submission included in the compiled list of next steps.

☒ I would like to be contacted before the release or use of my submission in the compiled list of next steps 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

Instructions for completing this submission template:

- Check relevant box by double clicking on the box, then select 'checked'
- Some questions have sub-parts
- Add any additional comments
- Respond to any or all questions as relevant

Introduction

1 a) Do you agree with the stated purpose of EDGS? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) Why, or why not?

2 How do you use EDGS?

3 a) Do you agree with the frequency of the EDGS? (Please select one)

☐ Yes ☒ No (please elaborate below) ☐ Don't know

b) If NO, how frequently do you think it should be?

☐ Annually ☒ Every two years ☐ Every three years ☐ Other (please specify)

The frequency of EDGS updates should be monitored to ensure that data remains accurate and up-to-date to the extent possible, given the current and expected future rate of development (supply and demand side) of the electricity system.

Scenarios

4 Does the set of four scenarios adequately explore the potential future states that you think will be important? (Please select one)

☒ Yes ☐ No ☐ Don't know

5 a) Is each scenario's story internally consistent and coherent? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If NO, why not?

6 a) Are there other aspects that should be considered in our scenario planning? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If YES, please write here:

It is worth considering the impact of how oil prices may feed into broader system costs (including to the build cost of new renewables), in addition to electric vehicle uptake.

Further, the extent to which there is, or may be in future, a correlation between international oil prices and other fuel costs.

Key assumptions

7 Do these assumptions align with the four scenario definitions? (Please select one)

☐ Yes ☐ No ☐ Don't know

8 a) Do you agree with these assumptions? (Please select one)

☐ Yes ☐ No ☒ Don't know

b) If NO, please explain or add any specific changes to the table provided below.

If you wish to provide alternative assumptions from those we have identified, please fill out the cells in the table below.

	Variable	Reference	Growth	Constraint	Innovation
General	Carbon price *(NZD / t CO_2-e)*				
	Crude oil price *(USD / barrel)*				
	Exchange rate *(NZD/USD)*				
	Real discount rate				
	GDP				
	Population				
Electricity generation	Gas availability for electricity generation[1]				
	Cost of wind generation				
	Cost of grid solar generation				
Technology uptake	Residential solar PV				
	Electric vehicles			It is worth considering the extent to which the higher oil price in this scenario, and	

[1] This is how much natural gas is available for electricity generation, not actual levels of usage

				impact on running cost of ICE vehicles, offsets the impact of lower income growth on EV uptake.	
Electricity demand	Peak demand				
	Demand-side response				
Energy demand	Energy efficiency improvements				

9 a) Do you agree with these process heat assumptions? (Please select one)

☐ Yes ☐ No ☒ Don't know

b) If NO, why not?

Whilst uncertainty inevitably remains, we consider it is reasonable to expect that with the rate of technological advancement and expected escalating carbon prices (recent market movements notwithstanding), electricity will become an increasingly cost-effective high temperature process heat solution. Recent announcements regarding single, high impact investments through the Government Investment in Decarbonising Industry fund further support this. Accordingly, it is worth testing whether electrification of high temperature process heat should also be included in the 'Growth' scenario.

10 What mix of electricity and biomass should we be assuming for process heat fuel-switching in each of our scenarios? Please fill out the table supplied below.

Please fill in what percentages of electricity and biomass you think should be used for process heat in each scenario.

Fuel type	Reference	Growth	Constraint	Innovation
Electricity				
Biomass				

11 What do you think we should be assuming for the **future activity** of large energy users involved in specific industry process heat applications in each of our scenarios?

12 What do you think we should be assuming for the **closure** of large energy users involved in specific industry process heat applications in each of our scenarios?

13 a) Do you agree with our approach to the possible closure of Tiwai Point? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If NO, why not?

Agree with the sensitivity approach. However, there is value in running an additional analysis that models the smelter closing earlier than 2035.

Generation stack

14 What timeline do you believe we should use for the **refurbishment** of existing plants?

Given the dynamic nature of the system, any assumptions around refurbishment plans with respect to large generation plant are best tested against recent public statements. Where there is uncertainty, Genesis urges MBIE to engage with asset owners directly.

15 What timeline do you believe we should use for the **retirement** of existing plants?

As above.

16 a) Do you feel your views on the refurbishment or retirement of plants would be affected by scenario? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If YES, please provide details.

Asset owners' decisions concerning refurbishment / retirement of plants are *highly* scenario dependent. Broadly, plant investment / decommissioning decisions are increasingly correlated to scenarios as plant ages (and, relatedly, moves down the merit order).

17 If you know of any additional plants that need to be considered, please provide information below.

18 a) Do you agree with our definition of potential plants? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If NO, why not?

19 a) Do you agree with what we have presented in Table 4 in Appendix A of the Consultation document around generic plants? (Please select one)

☐ Yes ☐ No ☒ Don't know

b) If you have amendments or additional information, please provide details below.

20 a) Given the information presented in the Generation stack section and Appendix A of the Consultation document, are there any other generation types that we are missing from our generation stack? (Please select one)

☒ Yes ☐ No ☐ Don't know

b) If YES, please specify.

There is merit in consideration of the impact of potential grid-scale battery electric storage systems in the modelling. While not generation or strictly speaking 'new' megawatts, commissioning of new BESS systems (associated with new solar or otherwise) has a sufficiently material system impact to be included in the model. For example, in a highly renewable electricity system new BESS capacity could displace existing peaking capacity, or delay the need for new capacity. Similarly, intermittent renewable plant that may not otherwise be built could become viable / economic if associated battery storage is commissioned.

Views on new and emerging technologies

21 How do you envision the cost for new technologies changing in coming years?

Current inflationary pressures notwithstanding, technology costs of modular assets have been observed to decline significantly over time. Historically projections have typically underestimated build rate and cost decline. This is especially true of newer technologies.

22 What do you think the uptake will be like for these new technologies?

As above.

23 How do you believe New Zealand's green hydrogen industry will develop between now and 2050? What role will hydrogen taken in our electricity system in this time?

Green hydrogen has been the subject of a lot of debate and discussion in recent years, but this has not at this stage been matched by commercial scale investment in New Zealand. Genesis maintains a watching brief on green hydrogen and notes its potential role as a low carbon fuel for existing or future assets.

Next steps

24 Which of the below products would you find MOST beneficial? Please rank them from 1 (most beneficial) to 4 (least beneficial).

1, 2, 3 or 4 **Electricity Generation Investment Opportunities Report**

1, 2, 3 or 4 **Energy Outlook**

1, 2, 3 or 4 **Generation Stack Report**

1, 2, 3 or 4 **Levelised Cost of Electricity Generation (LCOE)**

[To edit the rankings above: right click on the field "1, 2, 3 or 4", then select 'Update Field']

Additional feedback

25 Do you have any additional feedback that you would like to provide on the EDGS or the options we have proposed? If yes, please provide below.

Thank you for completing this submission template, we appreciate you taking the time. We will use your feedback to inform our modelling for EDGS 2023 and will refine the draft assumptions based on feedback received through consultation.