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)	Nova Energy Ltd
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.

Commercial Information

Commercial Information

[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?

It is important that there is an independently derived set of viable projections for NZ's future electricity generation and demand that is consistent with MBIE's macro-economic assumptions for the purpose of determining which major electricity transmission lines need building or upgrading, and when.

2 How do you use EDGS?

Primarily as a reference against Nova's own views on the market when considering market projections and significant investment decisions.

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)

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?

Under the Growth scenario the cost of Crude Oil can be expected to be significantly (+100%) higher over the next decade as this will be driven by higher international oil demand and higher costs of production in an environment where oil producers have reduced access to capital and skilled personnel. Oil producers will be seeking higher

short-term returns. High crude prices will support methanol prices and increased gas production in NZ versus the Reference case. In the Reference case, at current oil prices, gas availability can be expected to decline.

The converse is true under the Constraint case. Crude prices will remain low and gas availability will likely decline relative to the Reference case.

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:

There should be consideration of a Strategic Growth scenario. Under this scenario NZ could aggressively expand its renewable electricity generation to help decarbonise industry in other parts of the world as well as NZ, e.g. maintain and expand the production of green methanol, steel, hydrogen, processing of forest products and aluminium etc.

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.

Comment is provided on the oil price and gas availability assumptions above.

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	Strategic growth
General	Carbon price *(NZD / t CO_2-e)*					Same as Reference
	Crude oil price *(USD / barrel)*	2023: $69 2035: $120 2050: $60	2023: $69 2035: $140 2050: $120	2023: $69 2035: $63 2050: $60	2023: $69 2035: $85 2050: $95	Same as Reference
	Exchange rate *(NZD/USD)*	0.65	0.70	0.60	Same as Reference	Same as Reference
	Real discount rate	7%	Same as Reference	Same as Reference	Same as Reference	Same as Reference
	GDP					2% p.a. higher than Reference

	Population					90th percentile
Electricity generation	Gas availability for electricity generation[1]	Medium	Medium	Lower than Reference	Same as Reference	Same as Reference
	Cost of wind generation					Lower than Reference
	Cost of grid solar generation					Lower than Reference
Technology uptake	Residential solar PV					Same as Reference
	Electric vehicles					Same as Reference
Electricity demand	Peak demand					Higher than Growth
	Demand-side response					Higher than Reference
Energy demand	Energy efficiency improvements					Same as Growth

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

☒ Yes ☐ No ☐ Don't know

b) If NO, why not?

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?

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

New Zealand needs to proactively support retention of the large energy users and help facilitate their conversion to low emissions production when the appropriate resources and technologies are available. Allowing production to move to countries with less rigorous emissions policies is not useful in helping meet climate change objectives. These industries need long-term certainty, while at the same time there needs to be sufficient incentive for them to make changes where economically feasible.

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?

No, except where a scenario could be developed for assessing the potential impact on NZ GDP, employment, and global CO_2 emissions.

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?

Generation stack

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

No comment

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

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.

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

Commercial Information

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.

The capacity (MW) for 8 natural gas peaking plants appears low at 100 – 200 MW. 8 x 50MW (nominal capacity) OCGT units could provide up to 400 MW peak in ideal conditions.

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.

Views on new and emerging technologies

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

It would appear that the biggest potential lies in new Solar PV technology being developed.

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

New Solar PV technology could significantly reduce the cost of building new solar PV , but it would not displace existing renewable electricity generation.

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 can be expected to develop to the extent of supporting domestic consumption, including potentially heavy industry and air travel, but the development of an export industry seems less likely, and of less value than domestic consumption.

Next steps

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

2 **Electricity Generation Investment Opportunities Report**

1 **Energy Outlook**

4 **Generation Stack Report**

3 **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.