# 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)** | New Zealand Wind Energy Association |
| **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?

The NZ Wind Energy Association (NZWEA) is a not-for-profit organisation that represents the interests of its members, being companies and individuals who are involved or interested in the wind energy value proposition in NZ. As such, NZWEA uses the EFDS data to assess future generation and demand patterns and trends in order to help advise its members how and/or when it could invest in future wind developments.

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?

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:

The carbon emission reduction policy scenario needs to be included as a viable alternative for investors to consider. The Transpower March 2023 report (Our Whakamana i Te Mauri Hiko scenarios) has an Accelerated Electrification scenario in its planning which takes account of the H2 development scenarios. It therefore seems important that the EDGS scenario's include an Accelerated Electrification scenario incorporating the likelihood of an H2 industry being developed. It is worth noting that H2 technology is gaining momentum internationally (including Australia, Asia, Europe and the Middle East) and in NZ, which is driving the considerable interest in offshore wind farms. It should also be noted that globally, the offshore wind industry is projected to grow from 17 GW today to 1250 GW by 2050, and offshore wind power is expected to account for 15 percent of the global wind industry within the next decade.

## 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 | Medium (should be based on USD$1,325/kW total installed), ref. IRENA | Medium | High | Low |

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

| | | | | | |
|---|---|---|---|---|---|
| | | Renewable Power Generation Costs in 2021 | | | |
| | Cost of grid solar generation | | | | |
| **Technology uptake** | Residential solar PV | | | | |
| | Electric vehicles | | | | |
| **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?

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 | 90% | 80% | 90% | 90% |
| Biomass | 10% | 20% | 10% | 10% |

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?

- Large energy users enjoy a stable political and economic environment, which NZ tends to have. The high renewable generation mix is important to some of the larger industry producers, as it provides them with a unique selling proposition for their respective commodities on the global market, i.e. produced by renewable energy sources. The assumption that needs to be considered in the scenarios is that there is relative bi-partisan support for a consistent energy policy.
- New energy intensive industries being attracted to NZ also need to be considered in the scenario, i.e. the data centre market and cloud based IT providers such as AWS.

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?

N/A

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?

It really depends on the plant, as each type will have a significantly different refurbishment profile. Hydro plant can operate for 30-40 years (if well maintained) before a refurbishment is needed, versus a gas turbine that needs refurbishment every 8-10 years depending on usage. Wind turbines typically have an economic life of 20-30 years (operating condition dependent) and would expect to receive at least 1 or 2 refurbishments and/or repowers during this period.

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

Same as above. Hydro is 80 – 100 years; gas turbines 20 years, wind turbines 25 years.

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.

Please use the following data for **Onshore Wind** plant:

Base line operating/recently commissioned (end 2023) = 1,045 MW

Proposed – 885 MW – 6 plants

Applied for Consent – 619 MW – 3 plants

Fully Consented – 467 MW – 5 plants

Under Construction – 219MW – 2 plants

For **Offshore Wind** please use the following:

Proposed = 3,000 MW – 3 plants

Proposed **Gas plant** has not been shown on the table. I note Nova Energy's (Todd) has a consented Gas Peaker plant in Waikato (Tihiroa) of 360 MW.

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.

| Plant name | Qty | Capacity (MW) |
|---|---|---|
| Generic Offshore Wind | 3 | 1000 |
| Generic wind (<50 MW) | 5 | 10-25 |
| Generic wind (50-149 MW) | 15 | 50-125 |
| Generic wind (150-299 MW) | 25 | 150-250 |
| Generic wind (300+ MW) | 6 | 300-500 |

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.

Proposed Gas Peaker's

## Views on new and emerging technologies

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

For wind, there has been considerable innovation in turbine technology that has dramatically increased the size of turbines in the market (i.e. 5MW-6MW onshore and 15MW-18MW offshore) which has driven down the costs of delivery, however the margins achieved from the manufacturers has also eroded, exacerbated by post COVID supply chain challenges and increased competition from Chinese manufacturers. Most traditional OEM's manufacturing wind turbines are therefore losing considerable sums of money. Consolidation of suppliers will take place in the coming years and is likely to be a halt in the level of price reductions we have witnessed in the past. Technology developments will increase, where OEM's will see opportunity to regain profit margins and market share.

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

The market for new wind generation technologies is increasing at a rapid rate, driven by the global energy transitions taking place in many markets. Wind and grid scale solar will be see continued uptake and is unlikely to abate in the foreseeable future. Offshore wind and grid scale solar will be particular areas of technology uptake.

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?

There is much momentum building in the NZ H2 industry, and I believe it has a strong role to play in transitioning NZ to a net zero carbon target. Storage and logistical challenges remain for H2 but these challenges are being addressed by many international players, especially in Japan, Korea and Australia. NZ has a significant opportunity to be a green H2 producer and more Govt support needs to be invested to speed this industry up, noting the positive

| | |
|---|---|
| | contribution of $32.5 million in the 2023 budget to accelerate the adoption of green hydrogen. |

## Next steps

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| 24 | Which of the below products would you find MOST beneficial? Please rank them from 1 (most beneficial) to 4 (least beneficial). |
| | 3 **Electricity Generation Investment Opportunities Report**<br>4 **Energy Outlook**<br>2 **Generation Stack Report**<br>1 **Levelised Cost of Electricity Generation (LCOE)**<br>[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. |
| | Onshore wind has been a key feature of previous EDGS outputs, which needs to continue given the strong pipeline of projects already under way. Offshore wind however needs to receive similar attention in future analysis due to the recent international interest and technology advances in these generation options for NZ. |

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.