MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

COVERSHEET

Minister	Hon Dr Megan Woods	**Portfolio**	Energy and Resources
Title of Cabinet paper	Progressing the Next Phase of New Zealand's Energy Transition: Release of Discussion Documents	**Date to be published**	9 August 2023

List of documents that have been proactively released		
Date	**Title**	**Author**
June 2023	Progressing the Next Phase of New Zealand's Energy Transition: Release of Discussion Documents	Office of the Minister of Energy and Resource
June 2023	Regulatory Impact Statement - Ban on new baseload fossil-fuel baseload electricity generation	Ministry of Business, Innovation and Employment
28 June 2023	Progressing the Next Phase of New Zealand's Energy Transition: Release of Discussion Documents DEV-23-MIN-0127 Minute	Cabinet Office

Information redacted **No**

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Regulatory Impact Statement: Banning new fossil-fuel baseload electricity generation

Coversheet

Purpose of Document	
Decision sought:	This Regulatory Impact Statement (RIS) supports the *"Implementing a ban on new fossil-fuel baseload electricity generation"* discussion document which seeks to consult on the design and implementation of a ban on new fossil-fuelled baseload electricity generation in New Zealand, as set out in the Emissions Reduction Plan.
Advising agencies:	Ministry of Business, Innovation and Employment
Proposing Ministers:	Hon Dr Megan Woods, Minister of Energy and Resources
Date finalised:	June 2023

Problem Definition

While New Zealand's electricity sector is already highly renewable (80-85 per cent), there is an opportunity to further reduce emissions from the sector through connecting new renewable generation (and displacing fossil-fuel generation). In 2020, electricity generation was responsible for 5.9 per cent of New Zealand's gross greenhouse gas emissions.

New fossil-fuel baseload electricity generation would be inconsistent with New Zealand's climate policy, energy policy and renewable electricity targets. The proposal seeks to eliminate the risk of new fossil-fuel baseload being added to New Zealand's electricity supply, which will support the Government's:

- target for 50 percent of total final energy consumption to come from renewable sources by 2035
- aspirational target of 100 per cent renewable electricity by 2030
- legislated target of net zero long-lived greenhouse gas emissions by 2050
- international commitments.

Executive Summary

The construction of new fossil-fuel baseload electricity generation plant would undermine the Government's climate change objectives

The Government has committed to ambitious action on climate change, including:

- a target for 50 percent of total final energy consumption to come from renewable sources by 2035
- an aspirational target of 100 per cent renewable electricity by 2030
- a legislated target of net zero long-lived greenhouse gas emissions by 2050.

The Government's 2022 Emissions Reduction Plan (ERP), the first ERP, set out policies and strategies to decarbonise every sector of the economy, including the energy and industry sectors. This includes an action to "ban new fossil-fuel baseload electricity

generation, to send a clear message that this has no future in Aotearoa" (Action 11.2.2 within the ERP). The ERP action is not intended to ban new fossil-fuel 'peaking' plants.

While MBIE considers the likelihood that new fossil-fuelled baseload electricity generation will be built is currently low, this ban will remove the residual risk that investment decisions taken by electricity generators in the short-term could lock in a high emissions trajectory through building new fossil-fuel baseload electricity generation plants.

Due to this Government commitment in the ERP the status quo is a discounted option and therefore this RIS considers options on how to best implement a ban on new fossil-fuel baseload electricity generation.

The options assessed

Feasible options for assessment in this analysis have been limited by previous Cabinet decisions, as outlined in the ERP, to ban new fossil-fuel baseload electricity generation [CAB-22-MIN-0152]. Therefore, the status quo is a discounted option and the analysis contained in this document focuses on options that would best implement this policy.

The options are:

- Option 1: Introduce legislation to create restrictions on new fossil-fuelled baseload generation
- Option 2: Introduce a National Policy Statement (NPS) under the Resource Management Act 1991 (RMA).

The preferred option is to introduce legislation to ban new fossil-fuel baseload generation (Option 1)

Legislation is the preferred option to implement the ERP action to ban new fossil-fuelled baseload generation.

While Option 2 (national direction under the RMA) is possible it is a regionally focussed planning statute that isn't necessarily suited to national energy system scale planning. It is likely this option would have higher implementation costs due to many local decision-making bodies being involved in resource management planning decisions and would require a prolonged period of analysis and consultation, delaying implementation.

Both the benefits and the costs of Option 1 are expected to be minimal

The main benefits of a legislative ban would be to eliminate the risk of new fossil-fuel baseload electricity generation being built, supporting the government's climate change objectives.

The primary monetised costs of a legislative ban would fall on the government to implement and monitor the ban.

There may be compliance and administrative costs to those generators seeking to build fossil-fuelled non-baseload/peaking plants depending on the design of the ban and whether such an action would require an exemption under the proposed legislation.

There are also non-monetised costs of potential opportunity costs for electricity generators who would be prevented from building new fossil-fuelled baseload generation (if such plan were economically viable). The ban may also create negative investment signals for gas field developers as there may be less gas demand in the future.

MBIE consider the overall benefits of the policy and potential opportunity costs from foregone opportunities to be small as the likelihood of new fossil-fuel baseload electricity

generation being built is low.

Risks of a ban on new fossil-fuel baseload electricity generation

The ban on new fossil-fuel baseload generation may deter investment in fossil-fuelled peaking plant, as the restriction is seen as an indicator of a future unfavourable environment for fossil-fuelled electricity generation investment in general. However, the ban is not intended to prevent new fossil-fuelled 'peaking' plants from being built.

Another risk is that under the proposed ban, the operation of a new peaking plant would be constrained – to ensure it was operating in a peaking capacity and not baseload. This may be an issue, particularly during a security of supply event (such as low lake levels). This could be mitigated through legislative design by providing the regulator with the ability to provide a temporary exemption to the restricted operation of a peaking station, permitting it to operate in a non-peaking capacity, if necessary.

Consideration is also being given that the legislation would allow new fossil-fuel baseload generation plant to be built if exempted by the responsible Minister for security of supply purposes.

Consultation

Consultation on previous Electricity (Renewable Preference) Amendment Act 2008

The Electricity (Renewable Preference) Amendment Act 2008 (which was repealed by the incoming government later in 2008) introduced a 10-year moratorium on new fossil-fuel baseload electricity generation. The Amendment Act at the time was supported by those who favoured a reduction in fossil-fuelled electricity generation. Many who supported the policy suggested it didn't go far enough as it still permitted some fossil-fuel generation (fossil-fuel peaking was still permitted) and it was not a permanent ban.

Those opposed to the Amendment Act considered the intervention as incompatible with open, competitive markets, or with the ETS and that it would significantly reduce security of supply and increase electricity prices.

However, it is important to note that the electricity sector has changed considerably since 2008 and views of stakeholders may have changed. For example, the share of renewable electricity in 2008 was approximately 66 per cent, compared to 80-85 per cent today, and climate change architecture has been put in place such as the establishment of the Climate Change Commission, emissions budgets, and emissions reduction plans.

This RIS supports the release of a discussion document titled *"Implementing a ban on new fossil-fuel baseload electricity generation"* which seeks public feedback on the design and implementation of the ban. Feedback from this consultation will inform final Cabinet policy decisions.

Government agency consultation

The Treasury, Ministry for the Environment and Electricity Authority has been consulted. Department of Prime Minister and Cabinet has been informed.

The Ministry for the Environment supports MBIE's preferred option to introduce legislation to ban new fossil-fuel baseload generation (Option 1) with exemptions for security of supply purposes. They agree that introducing legislation is more suitable for a national significant decision and is likely to be quicker and more administratively efficient and effective than under national direction.

The Electricity Authority considers that given the Government's commitment towards 100 per cent renewable electricity, it is very unlikely any investments will be made in new fossil fuel baseload electricity generation, and therefore their view is in line with MBIE's preferred position – that the status quo is retained. From a security and resilience perspective, the Authority notes the recommended option allows for generators to construct peaking fossil-fuelled stations and baseload stations to be built if exempted by the Minister for security of supply purpose.

Limitations and Constraints on Analysis

Previous Government decisions

The Government's ERP has an action to "ban new fossil-fuel baseload electricity generation, to send a clear message that this has no future in Aotearoa" [CAB-22-MIN-0152 refers]. Therefore, the status quo is a discounted option.

Consultation

At the time of preparing this RIS, no public consultation has been undertaken on the policy. However, it is intended that the feedback received through the discussion document titled "*Implementing a ban on new fossil-fuel baseload electricity generation"* will inform final Cabinet policy decisions on the design of the ban.

Constraints on impact analysis

A key uncertainty is the likelihood of the construction of new fossil-fuel baseload generation under the status quo. Analysis undertaken at the time for the 2008 Electricity (Renewable Preference) Amendment Bill found that the negative impact of the policy would be minimal. However, the policy was repealed by the incoming Government less than a year later, so there is no evidence to evaluate this original hypothesis.

Responsible Manager(s) (completed by relevant manager)

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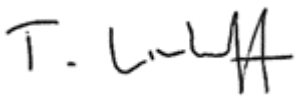

9 June 2023

Quality Assurance (completed by QA panel)

Reviewing Agency:	Ministry of Business, Innovation and Employment
Panel Assessment & Comment:	MBIE's Regulatory Impact Analysis Review Panel has reviewed the attached Impact Statement prepared by MBIE. The panel considers that the information and analysis summarised in the Impact Statement **partially meets** the criteria necessary for Ministers to make informed decisions on the proposals in this paper.

Section 1: Diagnosing the policy problem

What is the context behind the policy problem and how is the status quo expected to develop?

Context

The Government has committed to ambitious action on climate change, including:

- a target for 50 percent of total final energy consumption to come from renewable sources by 2035
- an aspirational target for 100 percent renewable electricity by 2030
- a legislated target for net zero emissions of long-lived greenhouse gases in 2050.

New Zealand's has also made a range of international climate change commitments.[1] The 2030 aspirational target is to be reviewed in 2024, prior to the release of the second emissions reduction plan.

Government has also set its first three emissions budgets, and released its first ERP in 2022,[2] which sets out how New Zealand will meet the first emissions budget for 2022–25 and put us on track to meet future emissions budgets.

The ERP included a clear action to "ban new fossil-fuel baseload electricity generation, to send a clear message that this has no future in Aotearoa." Therefore, the status quo is a discounted option and the analysis contained in this document focuses on options that would best implement this policy.

The ERP action is not intended to ban new fossil-fuel 'peaking' plants. Nor is the action intended to impact the operations of existing baseload and peaking fossil-fuel electricity generation plants.

In New Zealand the term 'baseload' has tended to be used firstly for those generators that run continuously, except for maintenance, up to the maximum capacity allowed by their water, steam, or fuel supply. This includes all 'use it or lose it', 'run-of-river' hydroelectric, geothermal, wind and solar generation plants.

The term baseload also includes fossil-fuel plants such as the Rankine units at Huntly Power Station that can run on gas or coal and combine-cycled gas turbine (CCGT) plants such as Contact Energy's Taranaki Combined Cycle Power Station. These plants are designed to operate for long periods of time without interruption.

This contrasts with peak load generators, or 'peakers', that generate only for minutes or hours each day, during the sharpest demand peaks. Technology for peakers include gas-fired open-cycle gas turbines (OCGTs) which historically operate for very short durations (8 hours or less). In New Zealand, peakers usually operate during the morning or evening demand peaks, before and after the traditional 9AM-5PM workday, and during periods where intermittent renewable energy (such as wind) falls off and needs to be 'firmed'.

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[1] For example, New Zealand's commitment to the No New Coal Power Compact https://www.mfat.govt.nz/en/environment/climate-change/working-with-the-world/building-international-collaboration/commitments-made-at-cop26/

[2] Aotearoa New Zealand's first emissions reduction plan (environment.govt.nz)

Background of the problem

The Government is seeking to remove the residual risk that investment decisions taken by electricity generators in the short-term could lock in a high emissions trajectory through building new baseload fossil-fuel electricity generation plants.

While our electricity sector is already highly renewable (80-85 per cent), there is an opportunity to further reduce emissions from the sector itself through connecting new renewable generation (and displacing fossil-fuel generation). In 2020, electricity generation was responsible for 5.9 per cent of New Zealand's gross greenhouse gas emissions.[3]

The use of low-emissions electricity also allows other sectors to reduce emissions. For example, despite New Zealand's high share of renewable electricity, only 28 per cent of New Zealand's total final energy consumption is from renewable sources[4] and there are substantial opportunities to reduce emissions by electrifying transport and process heat.[5]

What regulatory systems, or systems, are already in place?

There is currently no direct intervention restricting the construction of baseload fossil-fuelled generation or any other type of plant.

There are indirect interventions affecting the construction of new generation plant, including:

- air quality standards such as through the National Environmental Standards for Air Quality
- the Emissions Trading Scheme (which prices greenhouse gas emissions)
- a National Policy Statement (NPS) on Renewable Electricity Generation
- resource consent processes under the Resource Management Act 1991 (RMA)
- government targets, such as aspirational target of 100 per cent renewable electricity by 2030, and legislated target of net zero emissions by 2050.

There are other more technical constraints on the ability to build electricity generation such as technical requirements from Transpower or electricity distribution businesses (if generation is distributed and embedded in local networks) to connect to their networks and other electrical safety matters.

New Zealand Emissions Trading Scheme

The New Zealand Emissions Trading Scheme (NZ ETS) is a key tool for meeting our domestic and international climate change targets. The New Zealand ETS helps reduce emissions by doing three main things:

- Requiring businesses to measure and report on their greenhouse gas emissions.
- Requiring businesses to surrender one 'emissions unit' (known as an NZU) to the

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[3] https://environment.govt.nz/publications/new-zealands-greenhouse-gas-inventory-1990-2020-snapshot/#:~:text=the%20Agriculture%20sector%20was%20responsible%20for%2050.0%20per%20cent%20of,per%20cent%20of%20gross%20emissions

[4] https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf

[5] https://www.climatecommission.govt.nz/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Chapter-15-inaia-tonu-nei.pdf

Government for each one tonne of emissions they emit.

- Limiting the number of NZUs available to emitters (i.e., that are supplied into the scheme).

Electricity generators are fully exposed to the ETS. The ETS makes it more expensive to use fossil fuels in electricity generation as generators generally price their electricity and bid it into the wholesale market based on their short-run marginal cost which includes their operating costs, fuel costs and ETS costs. This provides an incentive to use less electricity, choose low emissions alternatives, invest in renewable generation, and to innovate and find new technologies to replace gas-, coal-, and diesel-powered generation.

In general, as the price of NZUs increases over time (for example, as shown under the Climate Change Commission's Demonstration Pathway) this will continue to make fossil-fuel electricity generation less competitive with renewable alternatives. Fossil-fuel generation will be used less to produce electricity, in particular baseload electricity.

What is the nature of the wholesale electricity market?

New Zealand has an open wholesale electricity market, designed to be competitive, supplying electricity to consumers. Investors can construct new or enhanced electricity generation according to their commercial preferences and internal decision-making processes, subject to a range of environmental regulations as mentioned above.[6]

Total installed generation capacity in New Zealand at the end of 2022 (including co-generation) was 10,100 MW. This is dominated by hydro-electric generation with over 5,000 MW of installed hydro capacity. The majority of it is found in the South Island. [7]

New Zealand operates an energy-only market

New Zealand has utilised the energy-only market (EOM) model since its wholesale electricity market was established in 1996. In a market with an EOM design, a generator's only assured revenue source is from the sale of electricity into the wholesale spot market. Generators may also earn revenue from forward contracts to smooth out price and revenue volatility.

In an EOM, investment decisions in generation plant (and demand-side response capability) are made by industry participants on a decentralised basis (i.e., capacity is not centrally procured as in the case of markets that operate a 'capacity market' system).

New Zealand's wholesale (or spot) market

The wholesale or spot market is used to match the supply of electricity from power stations with real-time consumption by households and businesses.

The spot market is where the wholesale price of electricity is calculated.[8] Generators that are bigger than 10 MW, or are connected to the national grid, compete in the spot market for the right to generate electricity to satisfy demand.

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[6] The national grid and local electricity distribution businesses are natural monopolies and so networks' investments and performance are regulated under Part 4 of the Commerce Act 1986.

[7] https://www.ea.govt.nz/documents/2243/Promoting-competition-in-the-wholesale-electricity-market.pdf

[8] The wholesale price of electricity makes up approximately 32% of a household/retail electricity bill. Other costs of a household electricity bill include GST, levies, metering, distribution and transmission costs and retail costs.

Each offer covers a half-hour trading period in the future and is an offer to generate a specified quantity of electricity at that time, for a nominated price. The system operator (Transpower) ranks offers in order of price and then selects the lowest-cost combination of resources to satisfy demand and ensure a reliable supply.

Fossil-fuels are usually the highest-cost (based on short-run marginal costs) form of electricity generation due to fuel and ETS costs. If it is dispatched, it is usually the marginal plant and sets the price of electricity for that trading period in which all dispatched generators receive.

Existing baseload fossil-fuel power stations are being run less and are not well-suited to meeting peak demand needs

In 2020, MBIE commissioned engineering consultancy firm WSP to review and update the thermal generation component of the "Generation Stack".[9] Since the last report was completed in 2011, WSP noted that several baseload thermal generation plants have now been retired including Southdown and Southdown E10, Otahuhu B and Huntly Unit 3. This reflects the changing New Zealand electricity market, fuel markets, the impact of the NZ ETS and the push for New Zealand to have more renewable energy supplied to the national grid.

It is also relevant to note that existing fossil-fuelled power stations are running less and less due to the impact of the NZ ETS and other factors. Less efficient, high-emitting fossil fuel power plants lose positions in the merit order and their annual operating hours are reduced due to being more expensive. For example, a recent report from Concept Consulting's found that the use of coal as an electricity generation fuel will diminish in the near future primarily due to the rising ETS price.[10]

As more intermittent renewable generation is added into New Zealand generation mix, slow-start plant (such as existing baseload fossil-fuel plant) will be less suited to meeting peak demand. This is because of their operational requirements whereby a plant may take between 6 to 12 hours to start-up, or significantly longer if they are cold, and generate electricity (i.e., slow-start). Peaking capacity (such as fast-start OCGTs or grid-scale batteries) will be required at short notice within a day to meet unforeseen cloudy and still periods. The utilisation of slow start plants will decrease, making it harder to derive economic returns, not just because renewables will be lower in the bid stack and dispatched first, but also because these plants will not be able to generate electricity fast enough to meet short-term demand peaks.

Some companies with existing baseload fossil-fuel electricity generation plants have signalled their future intentions. For example, Contact Energy's 377 MW TCC plant is expected to close in 2024 once its geothermal power station at Tauhara is commissioned.[11] Similarly, Contact Energy has signalled the closure of its 44 MW Te Rapa co-generation in 2023 at the expiry of its contract with Fonterra to provide electricity.[12]

Are there any planned new fossil-fuel baseload power stations in the pipeline?

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[9] https://www.mbie.govt.nz/assets/2020-thermal-generation-stack-update-report.pdf

[10] https://www.concept.co.nz/uploads/1/2/8/3/128396759/which_way_is_forward.pdf

[11] https://www.newsroom.co.nz/contact-warning-against-chaotic-closure-of-gas-power-plants#:~:text=Contact%20Energy%20is%20building%20a,commissioned%2C%22%20the%20report%20said.&text=updated%20science%2Dbased%20targets.,for%20our%20remaining%20thermal%20assets.%22

[12] https://contact.co.nz/aboutus/media-centre/2022/06/21/te-rapa-power-station-closing-in-june-2023

We are currently not aware, from publicly available information, of any announced plans to build a new fossil-fuelled baseload power station.

We are aware of existing consents under the RMA being in effect for the following:

- Genesis's Huntly Power Station site was re-consented in May 2012. The new consents allow for the fossil fuel thermal generation operations on the site until 2037. In December 2016, Genesis also received consents to replace its Rankine units any time during the subsequent 20 years with gas-fired generation. This could include the installation of four open-cycle gas turbines of around 100 MW each, or eight 50 MW units in two stages, or a combination up to a total capacity of 400 MW.
- Todd Energy was granted resource consent in May 2017 for a new 360 MW open cycle gas turbine power plant on a site located in the Tihiroa area, near Otorohanga in the Waikato ('Waikato Power Plant'). The consent allows for a 10-year lapse period to begin construction.
- Contact Energy's Stratford power station (home of their TCC and peaking plants) has a resource consent to build another gas-fired plant.

WSP's 2020 report considered the main potential options for further construction of new fossil-fuel power plants. It identified Todd Energy's Waikato Power Plant and Huntly repowering by Genesis Energy to be possible. It also considered that further refurbishments, replacements of existing, or new build co-generation plants remain a possibility in the forward time frame, and would seem likely to be predominantly biogas, biodiesel or conventional gas-based plants depending on resilience of gas supply.

The last major fossil-fuel baseload plant built was Genesis Energy's Huntly unit 5, which is a 403 MW CCGT commissioned in 2007. It required the Crown to underwrite its gas purchase risk in order for the investment to proceed. Since then, the only fossil-fuel plants that have been built are peakers – two units at Stratford (gas peaker), the Bream Bay Peaker (diesel peaker), McKee and Junction Road (both gas peakers).

The remaining fossil-fuel baseload electricity generation provides security of supply and dry year cover

Within New Zealand's existing electricity system, fossil fuels currently play a key security role in 'topping up' supply when renewable generation is low, and demand is high. This includes providing cover during extended periods of low hydrological inflows (due to prolonged periods of low rain) – these periods are known as dry years.

Reliable dry year firming requires a large amount of stored energy, to be dispatched over several months in a dry year, where a dry year is difficult to foresee.

In recent years the coal-fired generation from Huntly Power Station has played the primary role of managing New Zealand's dry year problem. Coal is easily storable, and when stocks get depleted, more can be ordered in from overseas.

Fossil gas-fired generation has also played several roles in the market to date. As well as baseload (a role that is expected to decline rapidly), it plays a role in shorter-term peaking services, such as covering seasonal increases in demand, and daily peaks. Fossil gas plays a role in dry year firming services too, which relies on flexible gas production and underground storage, and sometimes demand response from other gas users.

Work is underway in the Energy and Resources portfolio to understand and manage dry year risk as we transition to a more renewable electricity system including:

- The NZ Battery Project which has been set up to explore ways to solve the dry year problem in New Zealand without using fossil fuels and support a pathway to 100per cent renewable electricity generation.
- MBIE's electricity market measures project is looking at issues as we transition to a more renewable electricity system, including that the dry year risk is not made worse during the next 10-15 years, before any potential NZ Battery solution is put in place.
- The Electricity Authority are investigating risks associated with the premature retirement of thermal generation plants, including the risks of not investing in new thermal plants during the transition to a renewable power system.
- The Gas Transition Plan (GTP) will establish realistic, but ambitious, transition pathways for the fossil gas sector to decarbonise in line with the first three emissions budgets out to 2035, while signalling the longer-term direction out to 2050.

Relevant prior government decisions, legislation, and consultation

Electricity (Renewable Preference) Amendment Act 2008

A restriction on new baseload fossil-fuel electricity generation was in force for a brief period in 2008. The Electricity (Renewable Preference) Amendment Act 2008 (the Amendment Act) imposed a ten-year moratorium on new baseload fossil-fuel electricity generation. The Amendment Act was repealed by the incoming government in late 2008. A private members Bill for the same purpose was pulled from the Member' ballot and was introduced into the House in 2013 but did not progress further.

The Amendment Act was intended at the time to be a complementary measure to the introduction of the New Zealand ETS. The purpose of the Amendment Act was "*to reduce the impact of fossil-fuelled thermal electricity generation on climate change by creating a preference for renewable electricity generation through the implementation of a 10-year restriction on new baseload fossil-fuelled thermal electricity generation capacity, except where an exemption is appropriate (for example, to ensure security of supply)*."

When the original Bill was introduced, an ongoing role for fossil-fuel generation was envisioned; albeit reducing over time as the then government's 90 per cent renewable electricity target by 2025 was approached.

What were the key features of the Electricity (Renewable Preference) Amendment Act 2008?

The main provisions of the Amendment Act were as follows:

- ten-year moratorium on new fossil-fuel baseload electricity generation, with provisions applying to any proposed fossil-fuel generation above 10 MW that used more than 20 percent of fossil fuels as its fuel source
- a limitation on the expansion of the generating capacity (up to 10 per cent) of existing fossil-fuel plant (subject to the ability to apply for an exemption if required)
- ministerial exemptions to the prohibition in some circumstances could be granted, on the recommendation of the regulator (the then Electricity Commission), including:
    - emergency (whether present or future) purposes e.g., to ensure security of supply
    - a non-baseload plant i.e., peaking plant, which complied with average load factor, emissions intensity and start-up time standards

    - cogeneration plants that complied with prescribed efficiency standards
    - replacement of existing baseload fossil-fuelled electricity generation with new plant that complied with prescribed efficiency and emissions standard
    - the use of fossil fuel with renewable fuels, with an acceptable proportion of fossil fuel use to be prescribed.
- The ability for the regulator (the then Electricity Commission) to grant temporary emergency exemptions from restrictions, for example relaxing the running hours limitation to ensure security of supply
- the then Electricity Commission monitored compliance with the provisions
- a compliance regime with significant financial penalties for breaches.

Consultation on the Electricity (Renewable Preference) Amendment Bill

The 2008 Electricity (Renewable Preference) Amendment Bill was generally supported by those who wanted a reduction in fossil-fuel generation in favour of renewable generation such as environmental groups. However, it was criticised by some of those who supported the Bill as not going far enough, in that it still permitted some new fossil-fuel generation.

The Bill also received opposition, including from all major electricity generators at the time. Those against the Bill made the following points in their submissions that the moratorium:

- was unnecessary and the ETS was a sufficient intervention,
- increases risks and reduces security of supply,
- was not consistent with government oil and gas exploration policy at the time, and
- would increase energy costs and lead to regional job losses.

MBIE notes however that views from stakeholders may have changed since 2008 as the operating context has moved on. For example, the share of renewable electricity in 2008 was approximately 66 per cent, compared to 80-85 per cent today. In the last quarter of 2022, electricity was on average 94.7 per cent renewable. We have also seen the retirement of numerous fossil-fuel baseload electricity generation plants in the last decade.

Furthermore, climate change policy has advanced with architecture having been put in place to reduce New Zealand's emissions such as the establishment of the Climate Change Commission, emissions budgets, and emissions reduction plans.

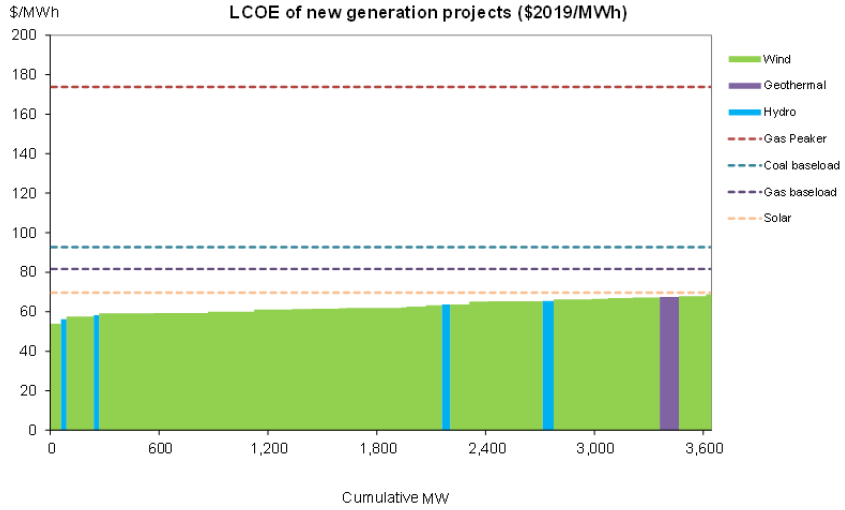
Counterfactual - how the situation is expected to develop if no further action is taken

The counterfactual is that a ban on new baseload fossil-fuel electricity generation is not imposed. Generation investment continues to be dictated by market forces (including the ETS) with generation investors competing for the best projects on a range of factors e.g., sites with superior renewable resource or access to fossil-fuel infrastructure pipelines, close to substations or existing transmission capacity, ease of consenting etc. Investors can construct new generation according to their own commercial preferences, subject to a range of existing environmental regulation.

A key uncertainty is the likelihood of the construction of new baseload fossil-fuel electricity generation under the base case. However, comparing the levelised cost of electricity (LCOE) of different generation types is informative. LCOE is a measure used to compare the lifetime costs of generating electricity across various electricity generation technologies.

The Interactive Levelised Cost of Electricity Comparison Tool created by MBIE and resulting graph ranks the projects (based on publicly available information) from lowest to highest LCOE and the resulting curve is a simplified representation of the long-run marginal electricity generation costs in New Zealand.[13]

Graph 1: LCOE of new generation projects ($2019/MWh)



If lower cost plants are built first, the graph shows that in New Zealand, renewable generation options (geothermal, wind and solar) are currently cost competitive with baseload fossil-fuelled generation and are likely to become even more competitive over time as the price of carbon increases.[14]

There are also gas market risks for generation firms to consider – there is uncertainty into the future whether there will be sufficient investment in the upstream gas sector to provide a reliable gas supply for baseload electricity generation, particularly without the retirement of an existing station.

The short-to-medium term investment pipeline indicates all investment will be in renewables

Work done for the Electricity Authority by Concept Consulting indicates, based on recently developed/committed projects, gross new generation additions are likely to average around 780 GWh per year between 2021 and 2025. This is around two and a half times the historical rate of development.

It found the development pipeline to be large, with the potential for 57,000 GWh/year by 2030 having been identified, though not all will proceed to development or be necessary. Table 2 provides an overview of potential generation projects in the pipeline out to 2030, broken down by generation source, with no fossil-fuel investment apparent.

[13] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-modelling/interactive-levelised-cost-of-electricity-comparison-tool/

[14] The carbon price used in this model was $35 ($/tonne CO2). As of 1 June 2023, the NZU spot price is $54.

Table 2: Types of generation projects in the pipeline out to 2030

GWh/year	2023	2024	2025	2026+	Total
Biofuel			283	546	828
Geothermal	1,437		446	1,298	3,180
Hydro	15	5	11	168	199
Solar	3,504	2,775	1,439	17,808	25,526
Wind	465	1,072	394	18,052	19,983
Offshore wind			-	7,019	7,019
Grand Total	**5,421**	**3,852**	**2,572**	**44,890**	**56,735**

Source: Concept Consulting July 2022

Future generation investment decisions may change depending on changes in the relative prices of building new plant, and the discovery of further gas supplies. However, MBIE considers that the likelihood of investing in new baseload fossil fuel generation plants is currently low, and likely reduces if the ETS price follows the upwards trajectory in the Climate Change Commission's demonstration path.

Overall, given the current economic fundamentals are unfavourable towards building new fossil-fuelled baseload electricity generation, MBIE considers it unlikely that these plants would be built in the foreseeable future under the counterfactual, or base-case scenario.

What is the policy problem or opportunity?

The Government's ERP has stated a clear objective of having a highly renewable, sustainable and efficient energy system supporting a low-emissions economy. To achieve this future, New Zealand needs to move away from fossil fuels and shift towards increased renewable energy.

In support of this vision, the ERP has an action to "*ban new fossil-fuel baseload electricity generation, to send a clear message that this has no future in Aotearoa*."

The intent of this policy is to ensure other policy commitments are met, such as a significant reduction in emissions from the electricity sector by reducing fossil-fuelled thermal electricity generation, contributing to the government's aspirational target of 100 per cent renewable electricity by 2030.

Even with the combination of increasing cost-competitive renewable generation builds and rising ETS prices, fossil-fuel baseload generation investment is still possible. This could put the government's climate change objectives at risk as a decision to construct such a plant could have implications on overall emissions in the electricity sector for several decades after the initial investment decision.

While New Zealand's electricity sector is already highly renewable (80-85 per cent), there is an opportunity to further reduce emissions from the sector through connecting new renewable generation (and displacing fossil-fuel generation). In 2020, electricity generation was responsible for 5.9 per cent of New Zealand's gross greenhouse gas emissions.

Fossil-fuel power plants (gas, diesel, petroleum, or coal) are emissions-intensive compared to renewable sources of electricity generation and there is scope to reduce the sector's

emissions.

Table 3 below provides an overview of the emissions intensity of different types of generation. The metric used is *tonnes of carbon dioxide equivalent per gigawatt-hour of electricity* (*tCO2e/GWh*) which encapsulates lifetime emissions for generation plant (such as emissions from construction the plant). The table includes data from a range of different sources such as the National Renewable Energy Laboratory (NERL) and MBIE.

Table 3: Comparison of emissions intensity estimates, tCO_2e per GWh[15]

Generation Type	National Renewable Energy Laboratory	World Nuclear Association	MBIE	McLean & Richardson
Hydro	7	26		
Wind	11	26		
Nuclear	12	29		
Bio-power	40	45		
Geothermal	40		130	76
Solar PV	44	85		
Gas	477	499		
Coal	979	888-1054		

As shown in Table 3, coal is approximately twice as emissions incentive as fossil gas and is 25-100 times more emissions intensive than renewable sources such as hydro, wind and geothermal.

Recent or impending plant closures of fossil-fuel baseload generation can provide an estimate of emissions impacts from such types of plant. For example, Contact Energy estimates that the closure of its 44 MW Te Rapa gas cogeneration plant will reduce their emissions footprint by 207,000 tonnes of carbon dioxide equivalent (tCO_2e). Similarly, it estimates the planned closure of its 377 MW TCC plant will reduce emissions by 287,000 tCO_2e.[16] For comparison, total gross emissions from New Zealand in 2021 were 76.8 million tonnes of carbon dioxide equivalent.

What objectives are sought in relation to the policy problem?

The objective of this proposal is to eliminate the risk of new baseload fossil-fuel electricity generation being added to New Zealand's electricity supply which would be counter to New Zealand's climate change objectives, in a way which does not undermine our security of supply.

[15] Leveraging-our-energy-resources.pdf (tewaihanga.govt.nz)

[16] Contact Energy Capital Markets Day 2023 presentation - https://contact.co.nz/aboutus/investor-centre/reports-and-presentations#Presentations

Section 2: Deciding upon an option to address the policy problem

What criteria will be used to compare options to the status quo?

The criteria used to assess the likely impacts of the options is presented in the table below:

Table 4: The descriptions and weighting of each criterion

Criterion	Description
Effectiveness in restricting new fossil-fuel baseload generation	This criterion considers the extent to which the option prevents the construction of new fossil-fuel baseload electricity generation plant.
Impacts on electricity security of supply	This criterion considers the extent to which the option impacts New Zealand's security of electricity supply and how these effects could be managed within each option.
Impacts on carbon emissions	This criterion considers the extent to which the option reduces New Zealand's carbon emissions.
Complexity of implementation	This criterion considers the administrative complexity associated with implementing each option, including the complexity for government and for electricity generators.
Costs of option	This criterion considers that costs of each option including implementation and administrative costs to government, and compliance costs and opportunity costs for the energy sector, including electricity generators.

We have not included energy affordability as a criterion in this analysis – as noted above, fossil fuel baseload is already higher cost relative to other generation options, including due to the impacts of the ETS price. Therefore, building a baseload fossil fuel power station could be expected to lead to either no electricity price difference, or more likely, higher electricity prices.

What scope will options be considered within?

The Government's ERP includes an action to "ban new fossil-fuel baseload electricity generation, to send a clear message that this has no future in Aotearoa." The ERP and the actions in it have been agreed to by Cabinet [CAB-22-MIN-0152].

Options considered in this regulatory impact analysis must be consistent with the intent of this policy and effectively prevent the construction of new fossil-fuel baseload electricity generation plant. This favours legislative instruments.

Discounted options to address the policy problem

Discounted option One – status quo (counterfactual) – MBIE's preferred option

The counterfactual is the current regime that does not impose any barrier on the choice of investment in generation. In the counterfactual investors can construct new generation according to their own commercial preferences, subject to air quality requirements, the

consenting process under the Resource Management Act, and the related National Policy Statement on Renewable Generation. The economics of fossil-fuelled generation are also affected by ETS prices and other factors such as the price, availability, and reliability of the supply of fuel.

This option was discounted because the government has an action in the ERP to ban new fossil-fuel baseload electricity generation. While it is MBIE's view that the construction of new fossil-fuel baseload power stations is unlikely under the counterfactual scenario, there is a small probability of such plant being built.

The Electricity Authority considers that given the Government's commitment towards 100 per cent renewable electricity, it is very unlikely any investments will be made in new fossil fuel baseload electricity generation, and therefore their view is in line with MBIE's preferred position – that the status quo is retained.

Discounted option Two – non-regulatory options (other than status quo)

MBIE has not considered non-regulatory options any further, other than the status quo. To implement a ban effectively, a regulatory mechanism is necessary to be able to sufficiently influence the behaviour or restrict the actions of an individual or organisation.

What options are being considered?

Option One – Introduce legislation to create restrictions on new fossil-fuelled baseload generation

This option is to introduce primary legislation to create a restriction on building new fossil-fuel baseload generation plants. This includes a completely new plant, as well as expanding an existing fossil-fuel baseload generation plant. It is not intended to restrict the building of new fossil-fuel peaking plants or interfere with the operations of existing fossil-fuel plants.

The previous Electricity (Renewable Preference) Amendment Act 2008 (which introduced old Part 6A to the Electricity Act 1992) provides a useful reference point in designing the ban. The proposed legislation would go further than the Amendment Act in that would be an indefinite ban rather a ten-year moratorium.

There may also be consequential amendments to the Electricity Industry Act 2010 which describes the Electricity Authority's (the electricity markets regulator) functions, monitoring, investigation, and enforcement powers.

There has been no public consultation on the policy to introduce a ban on new fossil-fuel baseload generation. It is questionable whether features of the previous moratorium 15 years ago, such as the previously described Ministerial exemption categories, are still relevant for today's context given the government's climate change ambitions and targets and different (more renewable) electricity landscape and supply mix. New exemption categories, not previously contemplated in the Amendment Act may also be necessary. The discussion document titled *"Implementing a ban of new fossil-fuel baseload electricity generation"* that this RIS supports seeks feedback on whether these exemptions are still relevant and why. Submissions will inform final Cabinet policy decisions.

Option Two – Introduce a National Policy Statement under the Resource Management Act 1991

This option involves the development of a National Policy Statement (NPS) to set a nationally consistent policy to restrict the development of new fossil-fuel baseload electricity generation.

NPS state objectives and policies for matters of national significance that are relevant to achieving the purpose of the RMA. NPS may also include more specific direction on how the objectives and policies are to be given effect to in policy statements and plans. A NPS must be implemented by councils through subordinate planning and consenting processes as follows:

- Policy statements and plans must be prepared in accordance with an NPS.
- Policy statements and plans must give effect to an NPS.
- Consent authorities must have regard to relevant provisions of an NPS when considering consent applications.

Section 46A of RMA sets out two options for statutory public consultation when developing an NPS:

1. The Minister for the Environment may appoint a board of inquiry to inquire into and report on the proposed National Policy Statement. The board of inquiry must publicly notify the statement, receive, and consider submissions on the statement, hold a hearing to consider submissions, and prepare a recommendation report to the Minister. The Minister must then consider the board's report but is able to make any changes to the proposed policy statement they think fit. In considering the recommendation report and deciding whether to approve or withdraw the statement, the Minister must also prepare a cost benefit report that meets the requirements of section 32 of the RMA and have particular regard to that report when making a decision on the proposed policy statement; or

2. The Minister may establish and follow a process for preparing the proposed National Policy Statement that at least includes notification to the public and iwi authorities of the statement proposed and the reasons why, opportunity to make a submission on the statement, and preparation of a recommendation report to the Minister. The Minister must consider that report but is able to make any changes to the statement they think fit. In considering the recommendation report and deciding whether to approve or withdraw the statement, the Minister must also prepare a cost benefit report that meets the requirements of section 32 of the RMA and have particular regard to that report when making a decision on the proposed policy statement.

How do the options compare to the status quo/counterfactual?

	Option One – Introduce legislation to create restrictions on new fossil-fuelled baseload generation Legislative ban	Option Two – Introduce a National Policy Statement (NPS) under the Resource Management Act (RMA)	Status quo (counterfactual)
Effectiveness in restricting new fossil-fuel baseload generation	++ Prevents new fossil-fuelled baseload generation being built as a prohibition is introduced through legislation.	++ Prevents new fossil-fuelled baseload generation being built as a prohibition is introduced via issuing an NPS.	**0**
Impact on security of supply	**0** Minor effect, so long as exemption is available. The intention (pending final government policy decisions) is to have such an exemption available.	**0** Minor effect, so long as exemption is available. The intention (pending final government policy decisions) is to have such an exemption available.	**0**
Carbon emissions	+ Likely lower, as the possibility (while low) of new baseload fossil-fuel generation is not zero. Construction of new fossil-fuel baseload generation would run counter to the government's climate change objectives.	+ Likely lower, as the possibility (while low) of investment in new baseload fossil-fuel generation is not zero. Construction of new fossil-fuel baseload generation would run counter to the government's climate change objectives.	**0**
Implementation complexity	- A Bill to introduce a ban could be based on the previous Electricity (Renewable Preference) Amendment Act 2008 which could reduce complexity. Complexity would be increased if there were a range of possible exemptions to the ban which the responsible regulator	- - This option would require a prolonged period of analysis and consultation to develop and promulgate such a policy through the RMA NPS development process described above. Under this option local councils would need to be involved in the implementation through incorporating an NPS into the	**0**

	would need to manage and administer. There may also be consequential amendments to the Electricity Industry Act 2010, which describes the Electricity Authority's (the electricity markets regulator) functions, monitoring, investigation, and enforcement powers. These consequential amendments, if required, are not expected to be overly complex. Regulations may be necessary to support the primary legislation in the form of prescribed standards, similar to the Electricity (Renewable Preference) Amendment Act 2008. For example, if there if an exemption for cogeneration plant, specifying what efficiency that must operate under to be considered for an exemption.	local/regional planning documents. Unclear how possible exemptions would be managed under this option given decision-making under the RMA is localised.	
Costs of option	- There would be some costs involved to resource the regulator to monitor compliance with a legislative ban. There may be compliance and administrative costs to those generators seeking to build fossil-fuelled non-baseload/peaking plants depending on the design of the ban and whether such an action would require an exemption under the proposed legislation.	- Implementation costs are potentially high due to the complexities of using the RMA as the legislative vehicle and having national/local responsibilities for this policy. Each local/regional council would need to incorporate a new NPS into their policy statements and plans and develop processes. There may be some opportunity costs for generators seeking to build new fossil-fuel	**0**

	There may be some opportunity costs for generators seeking to build new fossil-fuel baseload electricity generation plant although given current economics, the known generation pipeline (which appears all renewable), and recent retirements of fossil-fuel baseload plants MBIE considers this unlikely at present.	baseload electricity generation plant although given current economics and the known generation pipeline, MBIE considers this unlikely at present. Potentially negative impacts on investor certainty for those generators looking to build fossil-fuelled non-baseload/peaking plants as it could be unclear how local-decision-makers would have regard to the NPS. Somewhat dependent on drafting of an NPS.	
Overall assessment	+	**0**	**0**

Key for qualitative judgements:

++	much better than implementing status quo
+	better than implementing status quo
0	about the same as doing nothing
-	worse than implementing status quo
- -	much worse implementing status quo

What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

Option 1 is MBIE's preferred option of those that implement a ban on new fossil-fuel baseload electricity generation

The relative costs and benefits of Options 1 and 2 are fairly similar based on MBIE's assessment i.e., both options use regulatory tools to ban investment in new fossil-fuel baseload electricity generation.

However, the proposals differ in key ways including the complexity of implementing this policy and the associated costs with implementation. Option 2, while conceptually possible, would require a prolonged period of analysis and consultation to develop and promulgate such a policy through the RMA process from first principles.

A recognised benefit of a NPS is that it can allow for a degree of flexibility to councils to provide for local context. However, the rationale for providing regional flexibility is limited in relation to banning new fossil-fuel baseload electricity generation as it is intended to be a national policy.

It is expected that legislation, using the previous Electricity (Renewable Preference) Amendment Act 2008 as a starting point, will be more time efficient, targeted and ultimately less costly to implement. For example, having a single expert electricity markets regulator (assumed to be the Electricity Authority) manage monitoring and compliance, and considering exemptions to the ban, would likely be more efficient than having a regime where responsibilities are spread across the country and sit with regional/local councils. Consequently, it is also expected that having a more centralised regime under Option 1 would result in less administrative costs of the regime.

Another example is that it is intended that the Bill would provide an exemption to the ban of new fossil-fuel baseload generation to maintain the security of supply (although we do not expect this to be necessary frequently, if ever). Under Option 1, this could take the form of an exemption to be granted by the responsible Minister, on the advice of the Electricity Authority. It is unclear under Option 2, how such a security of supply-related exemption would be developed under National Direction under the RMA, and such decisions would need to be made locally, by the relevant local council.

Under Options 1 and 2, there may be some opportunity costs for generators seeking to build new fossil-fuel baseload electricity generation plant as it would be become a prohibited activity. However, MBIE considers these opportunity costs to be low given the current unfavourable economics of such plant and the known generation pipeline, MBIE considers this unlikely at present.

Generators with existing resource consents to construct fossil-fuel generation plants do not appear to be affected. From what was able to be gathered from publicly available information, resource consents for new fossil-fuel plant are for gas-fired peakers, not baseload plant and therefore not intended to be within scope of this policy.

The Ministry for the Environment, who have responsibility for environment regulation, supports MBIE's preferred option to introduce legislation to ban new fossil-fuel baseload generation (Option 1) with exemptions for security of supply purposes. They agree that introducing legislation is more suitable for a nationally significant decision and is likely to be quicker and more administratively efficient and effective than under national direction.

There has been no public consultation on the policy to introduce a ban on new fossil-fuel

baseload generation. It is questionable whether features of the previous moratorium, such as the previously described Ministerial exemption categories, are still relevant for today's context given the government's climate change ambitions and targets. The discussion document titled *"Implementing a ban of new fossil-fuel baseload electricity generation"* that this RIS supports seeks feedback on whether these exemptions are still relevant and why.

It is expected that stakeholders will be interested in possible exemption categories to the ban on new fossil-fuel baseload generation and how these would work in practice.

The 2008 Electricity (Renewable Preference) Amendment Bill was generally supported by those who wanted a reduction in fossil-fuel generation in favour of renewable generation such as environmental groups. However, it was criticised by some of those who supported the Bill as not going far enough, in that it still permitted some new fossil-fuel generation.

The Bill also received opposition, including from all major electricity generators, at the time. Those against the Bill made the following points in their submissions that the moratorium:

- was unnecessary and the ETS was a sufficient intervention
- increases risks and reduces security of supply
- was not consistent with government oil and gas exploration policy at the time
- will increase energy costs and lead to regional job losses.

However, it is important to note that the electricity sector has changed considerably since 2008 and views of stakeholders, including electricity generators, may have changed. For example, the share of renewable electricity in 2008 was approximately 66 per cent, compared to 80-85 per cent today, and climate change architecture has been put in place such as the establishment of the Climate Change Commission, emissions budgets and emissions reduction plans. The relative economics of fossil-fuel generation compared to renewables has changed to favour renewables and there a substantial pipeline of new renewable generation.

There are some risks under both options that need to be considered

Security of supply risks

There are some risks associated with introducing a restriction on any type of electricity generation. These relate to the potentially adverse effect on security of supply and on future investment in fuel supplies and generation.

Security of supply is a significant concern in New Zealand, particularly during dry years. Fossil-fuelled plant currently plays a role in supplying firm capacity in dry years.

Preventing new baseload fossil-fuelled plant, in the absence of other technologies that can fulfil this role, could accentuate perceptions that ongoing security of supply might be compromised.

However, the risk to security of supply can be managed by providing an exception to the restriction on fossil-fuelled generation for security of supply reasons within the Bill under the discretion of the relevant Minister. Furthermore, there are a range of government programmes that are considering the dry year problem and the future role of fossil-fuel thermal generation in New Zealand's electricity supply system including the NZ Battery Project and the Electricity Authority's investigation into risks associated with premature retirement of existing thermal generation.

There is a risk that the restriction could constrain the operation of new peaking plant during a

security of supply event i.e., a situation where a peaking plant is required to run in a baseload manner due to an energy shortage. This risk can be mitigated in the legislation by providing the regulator or Minister with the ability to issue a temporary exemption to the restricted operation of a new peaking station, permitting it to operate in a baseload manner if deemed necessary.

Investment risk

There is a risk that a restriction on new fossil-fuel baseload plant may deter potential investors in fossil-fuelled peaking plant as the restriction is seen as an indicator of a future unfavourable environment for investment. However, the ban is not intended to prevent new fossil-fuelled ‘peaking’ plants from being built.

Reaction to the prospect of a restriction on new baseload fossil-fuel generation may lead to concern from gas field developers that the legislation will lead to a reduction in gas prospecting (to the detriment of future electricity security of supply).

It is difficult to assess this risk and its impacts given the size of the electricity generation market for gas use is only one factor. The development of the government’s GTP and the future of large industrial gas is likely to be a more material factor for gas field developers assessing future prospects, than progressing with this ban. Again, given the unfavourable economics of building new fossil-fuel baseload plant, it is unclear to what impact this policy would have on gas field developers.

What are the marginal costs and benefits of the option?

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Regulated groups (generators)	There may be some opportunity costs for generators seeking to build new fossil-fuel baseload electricity generation plant although given current economics, the known generation pipeline (which appears all renewable), and recent retirements of fossil-fuel baseload plants MBIE considers this unlikely at present. Under the preferred option, generators will continue to have the ability to invest in renewable plants and fossil-fuel peaking plants. However, there may be compliance and administrative costs to those generators seeking to build fossil-fuelled non-baseload/peaking plants depending on the design of the ban and whether building a fossil-fuel peaking plant would require an exemption under the proposed legislation.	Low	Low-Medium Based on available information of the LCOE of energy projects, publicly available information on the generation pipeline as well as public comments from generators on future investment intentions. This RIS supports the release of a discussion document in which we will seek feedback on the design of the ban and expected impacts.
Regulators	The regulator will incur some costs for monitoring and compliance activities. The regulator would have to monitor any new fossil-fuel peaking stations to ensure they are not operating in a baseload capacity (except in the situation an exception is granted for security of supply purposes). The regulator would have to assess exemption applications under the proposed framework. The cost of exemptions could	Low	Medium

	potentially be recovered from applicants.		
Gas field exploration and developers	Gas field developers may perceive a ban on new baseload fossil-fuel generation to likely lessen future demand for fossil gas.	Low	Low-Medium This RIS supports the release of a discussion document in which we will seek feedback on the design of the ban and expected impacts.
Consumers	Do not expect any costs for consumers of this policy given that currently renewable electricity investment options economically preferable to fossil-fuel baseload plant. Costs incurred by the regulator to monitor the new regime may be borne by consumers via the industry levy (if this cost is passed on by electricity industry participants). Expect this cost to be low if passed on as it would be spread across many consumers. Decisions have not yet been made on this.	Low	Medium
Total monetised costs	Primarily costs to the government to monitor and enforce the new regime as well as process any applications under an exemptions regime.	Low	Low
Non-monetised costs	Potential opportunity costs for generators and gas field developers due to investment in fossil-fuel baseload generation becoming a prohibited activity.	Low	Low This RIS supports the release of a discussion document in which we will seek feedback on the design of the ban and expected impacts.
Additional benefits of the preferred option compared to taking no action			
Consumers	Growth is renewable generation, generally puts downward prices on wholesale electricity prices. It is difficult to predict what that may ultimately mean for households as the wholesale price of electricity is approximately 32 per cent of a	Low	Medium

	bill – a significant portion but the other components include distribution, transmission changes and retail charges which can change year to year. A ban on new fossil-fuel baseload generation removes any likelihood of new plants being built. As we assess the likelihood of new baseload fossil-fuel plants not being zero (although small), this could support climate changes objectives through lower emissions (compared to the counterfactual). Greenhouse gas emissions impact the quality of our air which can negatively impact our health, environment, and overall wellbeing.		
Total monetised benefits	N/A	N/A	
Non-monetised benefits	Non-monetised benefits of the preferred option would in the form of supporting the government's climate change objectives through removing the possibility of new fossil-fuel baseload generation being built which would lock in higher emissions generation for potentially decades.	Low	Medium

Section 3: Delivering an option

How will the new arrangements be implemented?

Option 1 would result in an amendment to the Electricity Act 1992. Consequential amendments may be needed on other pieces of electricity market legislation such as the Electricity Industry Act 2010. The legislation could come into force on the date of royal assent as a transitional period may not be beneficial or necessary, given the signals the Government commitment to the ban has given to the sector.

It is anticipated that final policy decisions on the ban on new fossil-fuel baseload generation will be made by the end of 2023. A Bill to implement a ban on new fossil-fuel baseload generation plants could be introduced into the House in 2024, depending on government legislative priorities.

As previously mentioned, MBIE intends on consulting on the design of the ban on new fossil-fuel baseload generation through the discussion document titled *"Implementing a ban on new fossil-fuel baseload electricity generation*". MBIE will be seeking feedback on implementation risks through the submissions process.

Implementation risks that could arise from the design of a Bill can also be raised and considered at the select committee stage of the parliamentary process.

The regulator of this new compliance regime would be the Electricity Authority as it has the necessary electricity market skills and knowledge. Guidance may be required to be developed for generators, for example, on how to apply for an exemption (e.g., security of supply purposes).

Further engagement is planned with the Electricity Authority prior to final policy decisions to ensure workability and effective implementation of the Bill. This includes further policy work on the how any potential exemption categories would work in practice, and what resourcing impacts this could have on their work.

With respect to communication, this policy has been signalled to the market as it is a manifesto commitment of the current government, and it is an action in the government's ERP. As part of the intended release of the *Implementing a ban on new fossil-fuel baseload electricity generation* discussion document, energy sector stakeholders, including generators, will be contacted via MBIE stakeholder email lists to alert them of this consultation.

How will the new arrangements be monitored, evaluated, and reviewed?

The status quo, with respect to monitoring levels and types of generation investment includes the regulator monitoring pending generation investments (including consenting status), levels of renewable electricity, and of emissions from electricity generation.

Transpower, through its role as the national grid owner, also has access to information on the generation pipeline through its connection queries process, which includes breakdowns by generation type and estimated commissioning date

In addition, security of electricity supply is closely monitored by the Electricity Authority and Transpower, including regular assessments of hydrological conditions and annual security of supply assessment.

Should a restriction be implemented, additional engagement with affected stakeholders who could, or would, potentially construct new baseload fossil-fuelled plant will provide feedback on the effectiveness or otherwise of the policy.

At this time there is no intention to conduct a set review of this ban following its enactment through legislation. This may change, if regular market monitoring indicates there are significant concerns with this policy, for example risks to security of supply.