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ECO Submission on New Zealand's Energy Transition and the Energy Strategy and related papers

Submitter information

Please provide some information about yourself. If you choose to provide information in the "About you" section below it will be used to help MBIE understand the impact of our proposals on different occupational groups. Any information you provide will be stored securely.

About you

ECO is an organisation of organisations with a commitment to conservation, protection of the environment and biophysical systems, sustainability of any use of resources, and that Te Tiriti o Waitangi should be honoured.

Formed in 1970-71 (as CoEnCO) ECO has long been interested in energy policy and was a leading voice against nuclear power in the Royal Commission on that matter. We have pushed for low environmental impact energy solutions - such as avoiding dams on wild and scenic rivers, and have promoted energy demand management, public transport and many other by now much more mainstream measures. During and since the 1980s, we have pressed for energy, transport and land use changes to reduce the risk and severity of climate change. Our commitment to eliminating the use of fossil fuels is long-standing policy. We are economically and environmentally literate. We have considerable knowledge of public policy and of decision making in New Zealand.

ECO is an organisation of organisations and our member groups (and Friends) are spread around Aotearoa. There are a variety of views on some issues but we do our best here to convey what we believe to be commonly held views and agreements within ECO.

This submission was prepared by the ECO Executive Committee and draws on suggestions and considerations by member groups, the Executive Committee and in some cases by organisations such as NZ Climate Action Network, the International Climate Action Network, IUCN, various academic sources, Wise Response and experts who have provided us with insights. We attended most of the webinars MBIE ran and were glad of that opportunity.

Our member bodies are diverse, but are all not-for-profit. The ECO's work is almost all done on a voluntary basis. We collaborate extensively with like-minded organisations.

*** 2. Name:**

3. Organisation and role (if submitting on behalf of a company or organisation):

Environment and Conservation Organisations of NZ Inc (ECO);

Executive Member, economist and policy specialist. Former Senior Lecturer in Public economics and public policy, with specialisms in ecological, environmental and resource economics,

*** 4. Email Address:** _____ _____

**** 5. Are you happy for MBIE to contact you, if we have questions about your submission?***
Yes

**** 6. Please clearly indicate if you are making this submission as an individual, or on behalf of a company or organisation.***
NGO Organisation - ECO is an organisation of organisations with about 40 member bodies and then also individual "Friends of ECO".

Contents

Submission Energy Strategy and Transition Paper, includes other comments

ECO present comments and observations on the Energy Strategy and Transition Paper, includes some other comments and then comments on each of the sectoral papers. We have already submitted a submission on the Hydrogen roadmap (for ECO under the name of Rob Taylor) but this submission adds to that submission and covers the Energy Strategy and Transition and the specific topics below:

- *Fossil-fuel baseload ban*
- *Gas transition plan*
- *Offshore renewable energy*
- *Interim hydrogen roadmap*
- *Electricity market measures*

ADVANCING NEW ZEALAND'S ENERGY TRANSITION

ECO welcomes the opportunity to make submissions and thanks you for the extension of time granted due to circumstances beyond our control.

ECO agrees with several of your introductory paragraphs - on the 40% of Aotearoa's GHG emissions being due to energy, and the context of emissions reductions and the principle of the staged reductions but we would like to see a closer attention to the new science, the new predictions, and the need for more rapid emissions reductions.

The Goals of MBIE's Energy Strategy:

Promoting "economic growth" is a NOT a sensible goal. A better primary goal would be to promote wellbeing growth within biophysical limits. This needs also to honour Te Tiriti o Waitangi, engender a just transition to a low carbon, low environmental impact energy future and support for the vulnerable. Those on low incomes should be supported as prices rise, and workers should receive support to retrain or redeploy.

The goal now should be for humanity, and NZ in particular, to live well within the constraints of biogeophysical systems and the Earth's carrying capacity, with a just transition. This requires a constrained optimisation approach.

Constraints that must be observed are to maintain natural processes and "natural capital", biodiversity and human wellbeing. Bio-geophysical systems (such as atmospheric exchanges, ocean-atmosphere interactions, deep ocean conveyer belts of seawater and nutrients, maintain the natural systems that provide "resources" and maintain icesheet integrity, sea levels, ocean water pH, and so on. The need to not impair natural systems is paramount. It is also a government obligation to ensure ethical allocation across time to all life and, between humans present and future, and within contemporary human society. Markets must operate within these constraints and MBIE's job is to ensure this.

We suggest Goal of Growth of Wellbeing not GDP, within biophysical and ethical limits.

It is now many decades since the academic economic community and many public sector organisations concluded that pursuit of economic growth as measured by economic aggregate indicators such as Gross Domestic Product, Gross- or Net National Income, etc is misplaced. This for several reasons, such as that GDP in fact muddles production of capital goods, intermediate goods, and final goods, and that there are many perverse activities and actions that are counted in such blunt national aggregates as social benefits when they are actually harmful.

Most particularly, the goals of public policy have largely shifted from counting income and expenditure to assessing the wellbeing of humans, of nature, and our responsibilities to the future (and with respect to tikanga, our accountabilities to the past).

There is now a huge amount of empirical evidence that human wellbeing depends on dignity, a degree of freedom and autonomy consistent with that of others, adequate income, access to nature, relative financial and political equity, political "voice", access to participate in society and social connectedness. Notably, absolute increases of income do not provide anything but very short-term improvements in human well-being. Inequity reduces wellbeing.

We know that there is considerable energy poverty In Aotearoa, and that there are excessive (supernormal) profits made by the gentailers. Thus, energy access, energy efficiency are important, as is demand reduction. These issues should be recognised in the Energy Strategy and in much-needed changes to the energy market structures and pricing.

Climate Goals:
The goals of the consultation and of the Energy Strategy should have higher ambition than net zero by 2050. This is because as measurements of climate indicators and of biodiversity losses have extended, we find that the models and scenarios for climate and biodiversity loss on which we have based our projections are being shown to be far more damaging and rapid than projected. NZ must become more ambitious at curbing climate destabilisation and biodiversity losses.

Decarbonisation:
It is now impossible to stay with energy business as usual (BAU). The need to decarbonise very rapidly is intense. Fairness within the contemporary community is vital but intergenerational fairness is also pressing. In the 50+ years that ECO has been involved in energy policy, the need to re-gear the economy has never been so urgent. Those younger folks who are now here and vocal, who used to be some vaguely perceived "future generations" are here and deeply resentful at what older folks have allowed to happen to our environment and of the concentration of wealth, due to denial and procrastination. It is no longer tenable to postpone action on decarbonisation or on achieving greater equity. We have driven some young folks to take their own lives in despair at the future that we are presenting them with. It is crucial that MBIE recognises this, takes radical action, blocks those who want to maintain the status quo or to favour corporate interests over society and the environment.

Sustainability and ethical considerations mean we should be considering long time horizons and the interests of the future, and, most pressingly, preserving the health and functioning of biophysical systems that generate life processes. This requires prioritising

preserving nature and its systems including biodiversity, over the super-profits of suppliers, particularly of fossil fuel interests. We must live within biogeochemical conditions - such as atmospheric composition, ocean health, stable climate, and the richness of the natural world and ensure these processes are unaffected.

Principles of polluter, depleter and degrader pays, serving the public not private, interest.

Full implementation of the principles of polluter/depleter and degrader pays will be difficult if MBIE and the incoming government do not hold tight to the mission of serving the public interest, social justice and the future.

Mechanisms to achieve the public interest and a just transition will require strong minded measures to reform the energy market structures and to dismantle the gentailer cartel. This means MBIE must resist and dismantle industry capture of some sections of MBIE.

Vested interests tend to invest heavily in the capture of governments and government agencies. It is all too easy in technical fields for regulatory agencies to recruit from the industry they regulate and gradually come to believe that industry objectives should be served instead of the public interest. That must be guarded against, and it would be helpful if that goal were articulated formally in strategy documents.

Many species and ecosystems and the biophysical systems are now gone or badly depleted and destabilised. We consider that attention to the biological and biophysical impacts of "growth", are now critical, likely irreversible, and unacceptable on any standard of ethics.

The Energy Transition paper and its companion industry papers should acknowledge and discuss these issues and spell out a vision on how to tackle the biophysical systems problems and limits, the issues of justice, and the severity of greenhouse gas impacts on Earth systems.

There have been some very good decisions made in the past - such as the use of renewable energy sources and in some cases distributed energy - but we must do much more and much faster to achieve a just transition to a less destructive energy system.

ECO strongly endorses the moves to decarbonise the energy system and rapidly to phase out fossil fuels. We are greatly concerned now at the proposals in the Energy Strategy, and its associated papers, at the extent to which they individually and collectively seem to want to maintain the status quo, and to slow down the transition.

Some proposals in the market measures paper seem to want to preserve the cartel of gentailers and the power of the big players. We do not accept that and ask MBIE to change its perspective to that of the wellbeing of the planet and, consistent with that, of citizens.

MBIE is the market regulator - it is essential that this is approached in the interests of the climate, decarbonisation. and citizens - rather than in maintaining the infrastructure of fossil fuel supplies and of the supply lines, and fat profits borne of the highest marginal cost pricing so that the intramarginal rents are captured by the suppliers.

Distributed energy and market power. Instead of preserving big, centralised supply sources, lines, and pipes, regulation and market power should be adjusted to shift industry structure to much more resilient distributed generation. This shift should include solar, small hydro, substitution from fossil to genuinely renewable fuel supply, and substitution from energy intensive to renewable energy that does not depend so much on pipes and lines.

Products, inputs to production should be substituted - so that for instance:

- wood should be substituted for steel and other greenhouse gas intensive production;
- good design and insulation should largely replace space heating;
- reuse and recycling should replace newly extracted fossil fuels, metals and other minerals, and products.

In short, there must be a major and just transition to a circular economy. This will require major changes not only on the supply side but also on the demand side. Expectations, designs, habits and regulations on buildings, transport, construction and communications and much will also have to change. Government has a huge role in promoting and governing these changes.

There is immense urgency to these changes - the planet and our own wellbeing and those of the future are at stake.

Such changes are both needed and possible: despite the scoffing of those who have not understood the underpinning thermodynamics, compelling science of biodiversity loss, human psychology, and human myopia. The growing evidence of profound harms to the planet and to society if we do not work hard and fast to shift the current trajectories, must engender rapid and profound adjustments.

Changing mindsets and habits: MBIE and other energy institutions and players should help the country to change course, mindsets and our habits. MBIE could do much more and should not shield vested interests. MBIE needs to shake off the capture of its outlook and regulators by suppliers and related industries. We ask MBIE to champion a just transition and to ensure that the transition is rapid and profound. You will need to inform and educate possibly unwilling Ministers, suppliers, industries and consumers to support the transition and those affected by it without impeding the scale and speed of the necessary transition and emissions reductions.

Resilience: Building resilience of supply of low carbon energy is an essential element of the transition: we reject the emphasis in the Energy Transition paper and the sectoral papers on preserving and investing in the resilience of fossil fuel supply.

We do not agree with the goal of maintaining cheap affordable energy. Such a goal will suppress the price incentive for investment in renewables, alternatives to the use of energy (such as energy-smart design), and innovation. We do support income support for those households badly affected by high energy and carbon prices, and workers displaced by the transition. The changes we recommend in order to make the system more resilient are likely to result in lower prices than would be the case with a protected oligopoly heavy where the gentailers are dominant. The ongoing reduction in prices for renewable energy production and storage (eg plummeting solar panel costs per watt and batteries) indicate lower relative costs.

Consumers and energy installers should be helped by regulations and education to see and adopt energy efficiency measures, and non-fossil fuel options, including battery storage.

One of us was shocked in the aftermath of the cyclones Hale and Gabrielle to be offered the installation of LPG a replacement of a damaged electric water cylinder, and to see a local Gull service station offering coal and carbonettes, those most filthy of fuels. This was in a small town with a high proportion of retirees who would be especially vulnerable to respiratory harm from burning such fossil fuels. The local electrician/plumber presented moving to LPG as what "most people choose" and clearly saw no reason not to lock households into the use of fossil fuels. Regulations to prevent new installations of gas, coal and other fossil fuels should be introduced as soon as possible.

Fossil-Fuel Baseload consultation paper

ECO makes the following comments on the baseload consultation paper:

- ECO strongly supports a ban on new fossil-fuel baseload (and peaking!) electricity generation, but wants to see a fast phase out of all fossil fuel extraction and production. We do not accept gas as a transition fuel. Allowing continued extraction and use of fossil fuels will skew investment and crowd out renewables and passive energy saving designs.

- The longer these linger, the harder it is for genuine renewables to gain traction and economies of scale. Gas, coal and oil should be phased out quickly and both demand and supply side strategies employed.

- ECO rejects exemptions to rapid phase out, regardless of fuel mix, CCUS, or co-generation. Security of supply should be managed through demand management, rapid uptake of renewables, battery storage, and not adopting highly wasteful strategies for liquid fuels such as hydrogen production given the vast amount of extra electricity generation hydrogen would demand require and how energy-inefficient it is.

- MBIE and the incoming government should immediately set a series of dates for phase-out by 2030 with milestones and firm deadlines.

- No new fossil fuel prospecting, exploration or mining permits or should be issued and those already issued must be cancelled on the basis of *force majeure*. Nothing could be more compelling than the destabilisation of climate, loss of biodiversity and the increased risks from fossil fuels to the society and economy. Fossil fuel powered energy generation must cease.

Offshore renewable energy consultation

ECO makes the following comments on Offshore Renewable Consultation paper: Offshore renewable energy generation is controversial and expensive. There are several considerations:

- The disturbance to the marine environment should be strictly controlled and any designs approved should be such as to limit to the greatest extent possible, harm to biodiversity.

- Integrated spatial planning is needed to achieve strict avoidance of locations and impacts on:
    - places with vulnerable marine ecosystems;
    - threatened or rare species;
    - areas already under stress from benthic disturbance, habitat damage, increasing water temperatures and ocean systems disruption;
    - Areas of cultural and historic importance.

The processes for selecting areas to be avoided should include expert advice with a public process for a strategic environmental assessment, spatial planning, and site-specific environmental impact assessments. The amount of copper and other metals in the off-shore installations and in the links to the on-shore nodes should be part of the assessment.

- Genuine public consultation and participation in decision making and of Tangata Whenua should be mandatory.
- A mixed local and central government, and community-led planning process should be employed. This should involve truly independent expert and Mātauranga Māori informed processes of deliberation. Rather than cutting resource consenting processes, there should be community inclusive processes with Strategic and Environmental impact assessments open for public participation informed by EPA expertise. This should be employed prior to application-led consideration. A spatially and environment planned energy decision making approach would also allow for consideration of cumulative impacts.
- Permitting for offshore renewable energy should only be considered after an independent whole-of-system analysis that determines the amount of energy required for sufficiency, not economic growth, and that allows for biodiversity, cultural and site-specific considerations
- Thorough considerations of alternatives including substantial demand management, other renewables and energy storage are also required.
- If a permitting system is to proceed, the criteria for feasibility and subsequent commercial permits must include environmental concerns and demonstration of the proponent's willingness and ability to minimize impacts and to ensure that there are clear lines of accountability and liability for environmental damage. Applicant-funded decommissioning plans with provision that these funds are available and safeguarded for decommissioning are essential.
- Subject to the above, we support offshore renewable energy and government investment to decrease, and then end, reliance on fossil fuels.
- There is much consented on-shore wind which is not being built (about 1100MW vs about 1200MW operating). This indicates that the problem is not with the consenting regime but with the electricity system which does not incentivise renewable energy generation over fossil fuel. Wind energy production could double from about 10 to 20% under currently consented farms.

Gas Transition Plan

ECO makes the following comments on the Gas Transition Plan:

- Phase down fossil gas quickly, and don't wait for existing fields to be exhausted: the planet cannot afford to have the gas burnt.

- Do not allow further exploration or building of new fossil fuel power plants through legislative bans.
- Prioritise energy security for public services, marae, papakāinga, households and some essential small businesses, rather than maintaining security of fossil gas supply.

- Rapidly phase out large users of gas eg Methanex.

- Green hydrogen production, storage, transport and conversion are very energy wasteful and hazardous. The PCEs recent report shows that major hydrogen investment will increase the future price of electricity to other users[1]. Blending biomethane and/or hydrogen (even if feasible) into fossil gas pipelines will prolong fossil gas use and emissions, as will carbon capture and storage (CCS). Globally there is no evidence that CCS has effectively reduced GHG emissions.

- Rather than making ever more energy, put in place measures that effectively lower peak demands through education, incentives, regulations and smart technologies. Invest in grid-scale storage such as batteries alongside renewable generation, as well as distributed, smart energy networks with storage and EV integration.

Interim Hydrogen Roadmap
In regard to the Interim Hydrogen Roadmap: please see ECO's submission already submitted in the name of Rob Taylor, one of ECO's executive committee members. We submit and/or endorse the following points, some made by colleague organisations:

- Green hydrogen is energy intensive to make and its use as fuel is very inefficient, especially compared to direct use of electricity, and is impractical for many applications.

- There are comparable and much more efficient alternatives to heavy transport, such as batteries. Battery charging requires much less new infrastructure and equipment, which will come with embedded greenhouse gas emissions.

- The space requirement of compressed hydrogen makes it impractical for aviation and shipping. Liquid hydrogen is impractical because of the energy required to make it and because of losses due to boil-off.

- The added electricity demand needed to make green hydrogen will increase electricity prices and add to energy poverty of disadvantaged communities.

[1] Energy Link. 2022. Residential Electricity Price Pathways to 2050. Report to Parliamentary Commissioner of the Environment.

- Hydrogen is an indirect greenhouse gas and leaks through most containment materials. We don't know how much hydrogen leaks to air because we don't yet have the technology to measure it. If hydrogen is used as fuel and 10% leaks to the air, scientists have calculated that it would create fully half the global warming that would have otherwise come from burning fossil fuels, in the next few decades. We should not trade one global warming problem for another.

- Hydrogen is highly explosive, can't be smelled to alert people to leaks and burns with a flame that is invisible in daylight. Hydrogen explosions are common around the world and will become more common as more hydrogen is used and transported. Communities will not allow hydrogen refuelling station and would not want rescue and fire fighters to be exposed to the risk of harm due to accidents involving hydrogen vehicles.

- Hydrogen is not suitable for heating homes, as found recently by the UK National Infrastructure Commission, and adding hydrogen to our fossil gas pipeline system will result in additional hydrogen leaked to air and additional global warming. Heat pumps are a better and more efficient alternative to burning fossil gas and hydrogen for space heating.

- We urge the government not to support the green hydrogen industry other than for industrial uses. There are alternatives which will make our communities safer, more energy efficient and reduce global warming.

- We do not support the mixing of so-called green hydrogen with bio-methane and fossil gas.

- While we might support the production of green hydrogen as feedstock for necessary industrial products, such as the manufacture of steel, as needed to decarbonise industry, we do not support the use of green hydrogen as fuel for transportation or home heating.

- We oppose the production of hydrogen for export. Aotearoa needs our renewable electricity here and we should not compromise our energy security and environment for an export product. An export market would increase the price of electricity to other users and further raise barriers to transition to zero emissions (see the PCE letter commenting on this, 16 June 2023).

Electricity market measures

ECO makes the following comments on Electricity Market Measures.

ECO strongly endorses the energy market submission submitted by Dr Geoffrey Bertram. He has studied, researched and taught at advanced university level this market and regulatory pathologies for decades. His brutally honest critique is sound and reflects deep knowledge and expertise in the matter. We endorse his views.

MBIE will need to commit to its mission as a regulator and move its apparent mindset from protecting existing market players and market structures to allow significant disruption of the

existing market oligopolies. MBIE should encourage and regulate for new market dynamics and stop sheltering existing players from low carbon, less environmentally damaging, competition.

The existing regulatory structures provide an oligopoly of gentailers with the intra-marginal rents and barriers to competition. The proposals appear to want to support the status quo for fossil fuels and engender further protection of existing suppliers. That is not helpful for the transition, for economic efficiency or for justice. Consumers would benefit from government letting renewables flourish, insisting on better provisions for access to the grid and better feed-in tariffs, and more support for up-front costs of passive solar design, solar systems and run of the river installation and other measures to achieve distributed generation and demand reduction and smoothing.

Economic efficiency and resilience will benefit from more competition - and one of the really good things about distributed renewable generation and demand management is the buffering that provides when there are natural (or other) disasters that knock out networks.

Resilience and batteries: In one small coastal town (and many others) and surrounding rural areas during cyclone Gabrielle, the electricity lines and poles were highly vulnerable to the storm. When power poles blew or lines were struck by trees, floods or slips, power and communications systems were knocked out for 4-5 days over wide areas, longer in some other places.

The need to plan for resilience was underscored when the households who had installed solar power (e.g. with Australian (CSIRO)-designed and Chinese made, lead-carbon deep cycle batteries) were able to provide power for themselves and for neighbours and others. They helped others to power up devices. These ranged from torches and lanterns to cell phones and computers, as well as allowing others to use their washing machines or hot water. This experience put a whole new slant on the role of solar power and water heating in providing resilience and community wellbeing. Solar is often portrayed as unreliable but that is not the case if there are good batteries and multiple installations.

Lead-acid batteries are problematic because they are classed as hazardous goods - but lead-carbon and other similar sealed batteries are not so are much easier to transport.

Even if 20% of the households had renewable distributed power supplies with battery storage, those one in five households would have been able to sustain some of the critical services to others as well as themselves.

Provisions for community hub resilience is also needed, but in cyclone Gabrielle, road and track impassibility meant some households would not be able to access those anyway but at least those of us off the grid were able to use lights, washing machines, have showers and so on.

In response to cyclone Gabrielle on the Coromandel Peninsula, the local electricity company is supporting investments into grid tied solar to make the system more reliable and resilient.

There is a huge amount of work going on internationally to provide for batteries of different kinds and capabilities - from these lead-carbon batteries to seawater-based base-load

batteries, solar reactive window coverings that do not obstruct much light, wall and roof technologies, and so on. This includes the use of flywheel and weight systems. The use of electric vehicle batteries as a battery storage system, would add to resilience.

We are particularly encouraged by the installation of solar panel arrays over pasture with the benefits not only of the power generation but advantages of shade and shelter for both pasture and stock. There is much innovation globally on the installation of solar panels over car parks, buildings, and over roads and rail.

There is a great deal of research and innovation to deal with the problems of excessive reliance on lithium and other "rare" or transitional metals for transport. This will allow for less concern about supply bottlenecks and strategic behaviour in the geopolitical domain, and the further development of recycling systems including building batteries that are easier to recycle.

We hope that MBIE including NZPAM understand that there is NO need to allow fast tracking of so-called transitional or "critical" minerals for clean renewables. The benefits of re-use of batteries from vehicles to home tied systems, and the recycling of minerals has the ability to have major impacts on future demand.

Collective, localised and, community provision of distributed electricity generation, storage and sale could be encouraged, with the government either directly or indirectly fostering uptake by helping to provide upfront capital, installation services and advice.

Lowering information costs for consumers for demand reduction and smoothing and for domestic installations is also something that would help both with market efficiency and with equity.

MBIE or EECA could also support more community-scale distributed renewable energy system initiatives aimed at sufficiency and affordability, such as by vastly expanding the Māori and Public Housing Renewable Energy Fund.

We recommend that any investment in transmission and distribution networks have a strong focus on flexibility and on resilience against extreme weather events and other disruptions, with demand control capability as well.

Large scale networks, plants and production facilities may have economies of scale, but the stakes can be very high when those fail. Distributed generation should be encouraged, especially as climate change tightens its grip and weather events become more damaging, disrupting and isolating of communities when networks fail.

ECO also adopts colleagues' guides to *"Measures for Transition to an Expanded and Highly Renewable Electricity System"*. Some of our answers to the questions below are ECO's own composition. Other suggestions are drawn in whole or part from colleague organisations and experts.

Responses to questions

Part 1: Growing Renewable Generation	
1.	Are any extra measures needed to support new renewable generation during the transition? Please keep in mind existing investment incentives through the energy-only market and the ETS, and also available risk management products. Any new measures should add to (and not undermine or distort) investment that could occur without the measures.

We recommend commencement of work on a vision of how New Zealand will look without fossil fuels. We can then develop a pathway of how to get there.

This consultation document assumes there will be a great manufacturing effort over the next decades to produce power lines, power pylons, windmills, PV panels, electric cars, rail tracks and other infrastructure. This will all be done predominantly by using fossil fuels with associated emissions. It will also be done on the backdrop of diminishing resources of raw materials including crude oil.

In terms of energy, we are facing a reduction of the ratio of Energy Returned On Energy Invested (EROI) while aiming to produce new infrastructure and trying to maintain or replace existing infrastructure all built with fossil fuels at a high EROI ratio. It is very likely that globally and nationally the current underlying assumptions of resource availability and emissions future are over optimistic, the proposed workstream should clarify that.

As above in our introductory section, we also recommend that MBIE face up to the reality that growth, even green growth is associated with increased emissions, because economic growth and emissions are not currently uncoupled. We should therefore consider an economy of "enough" or even well managed degrowth. This could lead to a demand side response of not engaging in wasteful economic activities of overconsumption but still providing the necessities of life for everyone. MBIE and other government agencies have a key role in making this clear to Ministers and our communities and business. This is not ideology but basic thermodynamic realities.

2.	If you think extra measures are needed to support renewable generation, which ones should the government prioritise developing and where and when should they be used? What are the issues and risks that should be considered in relation to such measures?

The institution of half hourly price auctions to determine the electricity price is not supporting renewable generation, because power generators get all paid the price of the highest accepted bidder. In these days this is usually a fossil fuel-based generator, who are dearer than the renewables-based generators. That leads to everyone being interested to also have a fossil fuel-based generator in the supply mix.

We recommend moving to a model that is based on the actual production costs of power companies. After all, large energy consumers, like the NZ Aluminium Smelter, buy at a fixed price.

Another extra measure we recommend is that the ETS quantities be managed down more stringently, coverage be broadened to all sectors prices allowed to rise further, and that we move to encourage renewable generation. We support the ongoing review of the ETS system and like to see more policy settings towards renewables than just leaving it to the market.

Government support for up front capital costs for households and community installations will help to distribute energy generation. Government funded training in communities to achieve installations and sufficient skilled workforce is needed too.

3. If you don't think further measures are needed now to support new renewable generation, are there any situations which might change your mind? When and why might this be?

n/a

4. Do you think measures could be needed to support new firming/dispatchable capacity (resources reliably available when called on to generate)? If yes, which kind of measures? What needs do you think those measures could meet and why?

We should build more renewable generation in advance, which would save on hydro generation for base load and hydro will then be available for dry times and for other interruptions to supply.

5. Are any measures needed to support storage (such as battery energy storage systems or BESS) during the transition? If yes, what types of measures do you think should be considered and why?

First priority, should be with a smart grid and the roll out of vehicle to grid technology, because batteries of electric vehicles don't require an extra investment, and then big battery grid tied systems. New Zealand is generally behind other similar countries in developing big battery systems. Australia has many examples of large battery systems as does North America.

6. If you answered yes to question 4 or 5 above, should the support be limited to renewable generation and renewable storage technologies only or made available across a range of other technologies?
Keep in mind that fossil fuels are generally the cheapest option for firming, though this may change over time as renewable options (particularly batteries) become more efficient and affordable.

	It should be limited to renewables and to demand management and reduction. Support for workers to transition should also be included, as should support for vulnerable households. Fossil Fuels must be phased out rapidly, not propped up. There is no option if we are to avoid catastrophic biophysical collapse.
7.	If you answered yes to question 6 above, what are the issues and risks with this approach? How could these risks and issues be addressed?
	The risk can be minimised by overbuilding renewables as it has been done with the hydro schemes of the last century. The demand side must also be addressed through improved housing design and insulation, and the promotion of solar hot water heating, and similar measures. ECO considers that energy dense production and consumption functions will adjust as energy prices rise – and that is helpful. There should not be wholesale subsidies for large emitters but it is reasonable for the state to make loans to help the like of NZ Steel, Fonterra, etc to transition.
8.	Are any measure(s) needed to support existing or new fossil gas fired peaking generation, so as to help keep consumer prices affordable and support new renewable investment?
	We should NOT foster or support new or existing fossil fuel plants, because the more we do that, the more we maintain the damaging emissions and we crowd out substitutes and renewables. Such actions would stifle market signals and displace innovation and renewables as well as behaviour change.
9.	If you answered yes to question 8 above, what measures should be considered and why? What are the possible risks and issues with these measures?
	n/a
10.	If you answered yes to question 8 above, what rules would be needed so that fossil gas generation remains in the electricity market only as long as needed for the transition, as part of phase down of fossil gas?
	n/a. We do not agree with and oppose maintenance of gas generation.
11.	Are there any issues or potential issues relating to gas supply availability during electricity system transition that you would like to comment on?
	As in our answer to 10, we do not think that fossil gas should be retained. Demand smoothing and management, substitution in production and consumption functions, price signals and support for vulnerable households should be implemented to speed and assist the transition.
12.	Do you agree that specific measures could be needed to support the managed phasedown of existing fossil fuel plants, for security of supply during the transition?

	Yes, but only to a very limited extent over a short time, no more than five years and preferably less.
13.	If you answered yes to question 12 above, what measures do you think could be appropriate and why? What conditions do think you should be placed on plant operation? For example, do you have any views on whether there should be a minimum notice period for reductions in plant capacity, and/or for placing older fossil fuel plant in a strategic reserve?
	It will require a departure from the current market driven model, but notice periods should be short and phaseout as soon as possible. We have a climate emergency already!
14.	If you answered yes to question 12 above, what are the issues and risks with these measures and how do you think these could be addressed?
	The greatest risk is that MBIE and the government will be asked to rescue what are already stranded assets. There is a risk that the government will be spooked by vested interests into perpetuating the use of fossil fuels and providing market player protection.
15.	What types of commercial arrangements for demand response are you aware of that are working well to support industrial demand response?
	Pass
16.	What new measures could be developed to encourage large industrial users, distributors and/or retailers to support large-scale flexibility?
	Some regulatory requirements to dismantle the oligopolies and vertical integration. Support of large-scale flexibility is a term that could be interpreted several ways. Do you mean support keeping fossil fuel options? We reject that. The phase out of Tiwai Point Smelter would free up a large amount of low cost hydro-generated electricity.
17.	Do you have any views on additional mechanisms that could be developed to provide more information and certainty to industry participants?
	Consumers need more protection than industry participants. Setting harder and earlier deadlines for fossil fuel extraction and generation to cease would allow the transition to gather speed, given the greater certainty that would be provided.
Part 2: Competitive Markets	
18.	Do you agree that the key competition issue in the electricity market is the prospect of increased market concentration in flexible generation, as the role of fossil fuel generation reduces over time?

No. The key competition issue is the Wholesale market structure and the gentailer cartel. There have been highly uncompetitive markets that have allowed the gentailers to capture huge intramarginal economic rents. Businesses, consumers, and the environment have suffered.

Hydro dam sourced generation will be large scale, but there will increasingly be more wind and more solar. As energy saving through more high tech in buildings and insulation spread, and grid-connected feed-in mechanisms are made more small generator friendly and electric vehicles can feed back into the grid, there will be more flexibility and resilience.

19. Aside from increased market concentration of flexible generation, what other competition issues should be considered and why?

Demand management, stressing to all the environmental limits, providing more public investment in household and community level generation and storage, dismantling of gentailer supply and price influence.

20. What extra measures should or could be used to know whether the wholesale electricity market reflects workable competition, and if necessary, to identify solutions?

We know already that the wholesale market is ill-designed and that the gentailer cartels and excessive economic super-profits need to be dismantled. Aid entry and exit to the market and into the grid.

21. Should structural changes be looked at now to address competition issues, in case they are needed with urgency if conduct measures prove inadequate?

Yes, dismantle the gentailer oligopoly. It is important that both the Electricity Authority and the regulators are stringent about seeing the public and planet as the objects of their efforts and that they cease to feel as though they are there to serve the electricity generators.

22. Is there a case for either vertical separation measures (generation from retail) or horizontal market separation measures (amending the geographic footprint of any gentailer) and, if so, what is this?

Yes, and yes. See Geoff Bertram's submission. We don't want local monopolies.

23. Are measures needed to improve liquidity in contract markets and/or to limit generator market power being used in retail markets? If yes, what measures do you have in mind, and what would be the costs and benefits?

Yes. Gentailers would lose some super-profits.

24. Should an access pricing regime be looked at more closely to improve retail competition (beyond the flexibility access code proposed by the Market Development Advisory Group or MDAG)?

Yes. This is a case for a strong-minded regulator to intervene and to not see itself as the advocate for the industry, but for the public. The Commerce Commission and independent economists such as Dr Geoff Bertram and others who are not part of the industry should be given the job of designing out of the system oligopolistic profits and those from local monopolies.

25. What extra measures around electricity market competition, if any, do you think the government should explore or develop?

- Demand management
- Consumer and citizen information provision including on pricings and contracts.
- Transitional support for workers and vulnerable households;
- Public investment in capital costs for distributed generation and loans to assist installation of capital intensive renewables

26. Do you think a single buyer model for the wholesale electricity market should be looked at further? If so, why? If not, why not?

Adoption of such an approach would depend on the level of public ownership and interest oversight; controls over super-profits; measures to protect against denationalisation, and to protect against the privatisation sale of what should be a publicly owned entity. The new generation system is complex and requires a design, that integrates all elements. But, like the old Telecom, it could ossify and go stale on innovation.

Part 3: Networks for the Future

27. Do you consider that the balance of risks between investing too late and too early in electricity transmission may have changed, compared to historically? If so, why?

The prior issue is surely that there should be less dependence on networks and more distributed and local generation from renewables only.

People need to be educated about the impending necessity to vastly scale down energy demand as fossil fuels are eliminated.

The disruption to networks is certain, and there is little virtue in underinvesting in resilience.

28. Are there any additional actions needed to ensure enough focus and investment on maintaining a resilient national grid?

To emancipate MBIE and others from capture by those who MBIE and associated institutions regulate.

Encourage both more off-grid solutions and more access to supply to the grid.
Do not perpetuate fossil fuels in the interest of achieving stability of prices and supply.

29. Do you agree we have identified the biggest issues with existing regulation of electricity distribution networks?

No, not entirely, since MBIE seems not to see how it seems to want to perpetuate the influence and continuation of fossil fuel-based generators and capacity.

30. Are there pressing issues related to the electricity distribution system where you think new measures should be looked at, aside from those highlighted in this document? How would you prioritise resolving these issues to best enable the energy transition?

As in 29.

- Vulnerability to capture, underpinning attachment to the status quo.
- Matters of a just transition, especially for workers
- Income support and direct provision for vulnerable households
- Impacts on biodiversity
- More attention to the demand side.

31. Are the issues raised by electricity distributors in terms of how they are regulated real barriers to efficient network investment?
Please give reasons for your answer. Is there enough scope to address these issues with the current ways distributors are regulated? If not, what steps would you suggest to address these issues?

We require more long-term holistic thinking and less rent-seeking by oligopolists

32. Are there other regulatory or practical barriers to efficient network investment by electricity distributors that should be thought about for the future?

Policy and regulation to maintain the ban on nuclear power and to phase out fossil fuels will help to drive investment towards renewables and towards less environmentally harmful alternatives to fossil fuels.

It will be important to avoid adopting policies for huge mis-direction of investment towards hydrogen. Vested interests will push heavily for the government to prop up stranded assets and that should be resisted.

33. What are your views on the connection costs electricity distributors charge for accessing their networks? Are connection costs unnecessarily high and not reflective of underlying costs, or not? If they are, why do you think this is occurring?

Yes, the access costs for both consumers and small suppliers from feed in tariffs are too high and in the latter are designed to stifle competition have the effect of discouraging small scale renewables. Fairer feed-in tariffs would not only provide more product but also more resilience.

34. If you think there are issues with the cost of connecting to distribution networks, how can government deliver solutions to these issues?

Regulate for fairer prices.

35. Would applying the pricing principles in Part 6 of the Code to new load connections help with any connection challenges faced by public EV chargers and process heat customers? Are there other approaches that could be better?

Pass

36. Are there any challenges with connecting distributed generation (rather than load customers) to distribution networks?

	As customers or suppliers? This needs clarification.
37.	Are there different cost allocation models addressing first mover disadvantage (when connecting to distribution networks) which the Electricity Authority should explore, potentially in conjunction with the Commerce Commission?
	Pass
38.	Should the Electricity Authority look at more prescriptive regulation of electricity distributors' pricing? What key things would need to be looked at and included in more prescriptive pricing regulation?
	Yes, Pricing should be such as to eliminate super-profits. New entrants should be able to join.
39.	Do current arrangements support enough co-ordination between the Electricity Authority and the Commerce Commission when regulating electricity distributors? If not, what actions do you think should be taken to provide appropriate co-ordination?
	We are not familiar with the arrangements but suspect that the Electricity Authority is more prone to work in the interests of the electricity suppliers than the Commerce Commission which has a clearer view of its public interest regulatory role - or is that simply a hope?
40.	Will the existing statutory objectives of the Electricity Authority and Commerce Commission adequately support key objectives for the energy transition?
	Energy transition requires speed, cognizance of biophysical limits, rapid decarbonisation and a just transition. The Electricity Authority seems to have taken the role of preserving the status quo and shielding the gentailers from competition.
41.	Should the Electricity Authority and/or the Commerce Commission have explicit objectives relating to emissions reduction targets and plans set out in law? If so, · should those objectives be required to have equal weight to their existing objectives set in law? Why and how might those objectives affect the regulators' activities?
	Yes, to Q41.1. With respect to the second question, there should be a requirement rapidly to phase out fossil fuels. Fast and deep emissions reductions must be a primary goal. The other goals mentioned are subsidiary, not equal in weight.
42.	Should the Electricity Authority and/or the Commerce Commission have other new objectives set out in law and, if so, which and why?
	Rapid reduction in emissions is important Both agencies should have requirements to ensure that the players whom they regulate avoid damage to the environment and to biophysical systems.

The transition must be done in a just manner, with an emphasis on achieving emissions reductions and avoidance of harm to biodiversity accompanied by being fair to workers and consumers.

43. Is there a case for central government to direct the Commerce Commission, when dealing with Electricity Distributors and Transpower, to take account of climate change objectives by amending the Commerce Act and/or through a Government Policy Statement (GPS)?

Yes. Aotearoa must do its fair share of emissions reductions and that should be required to be implemented by all. Mandatory protection of biodiversity should also be required.

44. If you answered yes to question 43, please explain why and indicate:

- What measures should be used to provide direction to the Commerce Commission and what specific issues should be addressed?

How would investment in electricity networks be impacted by a direction requiring more explicit consideration of climate change objectives? Please provide evidence.

Direction should be provided to ensure the climate crisis is being dealt with. A GPS would be appropriate. Climate and biodiversity risk assessments should be done and be publicly available. Disclosures of such risks should be required for companies, and should be part of any assessment of procurement and distribution contracts.

The direction to the Commerce Commission could be that they must ensure that social and environmental costs and benefits are fully considered and publicly disclosed . This will mean that there is better recognition of non-rival harms and benefits (a.k.a public goods) and non-excludable harms are fully revealed and costed in. Harms should be assessed for climate and biodiversity impacts and be subject to social action such as polluter / degrader/ depleter pays policies imposed.

Accurate, accessible and good information with low information costs is also an important part of well-functioning markets and good governance.

Part 4: Responsive Demand and Smarter Systems

45. Would government setting out the future structure of a common digital energy infrastructure (to allow trading of distributed flexibility) support co-ordinated action to increase use of distributed flexibility?

Yes, but it should not be so onerous that it can be used as a barrier to entry.

46. Should central government see how demonstrations and innovation to help inform how trade of flexibility evolves in the New Zealand context, before providing direction to support trade of distributed flexibility? If yes, how else could government support the sector to collaborate and invest in digitalisation now?

No, central government should act now, because we are in a climate emergency. Adaptive management can be adopted but with very clear political and governmental

commitment to eliminating fossil fuels and to a timely, adequate and certain set of emission reduction requirements. Regulation will stimulate inventions and innovations.

47. Aside from work already underway, are there other areas where government should support collaboration to help grow and develop flexibility markets and improve outcomes? If yes, what areas and actions are a priority?

It is important that the government set the expectations, is clear and firm about commitment and expectations and is centred on giving very clear signals that stranded physical assets will not be propped up, let alone subsidised.

Workers should be supported to switch away from fossil fuels. Investment in fossil fuels should be discouraged.

48. Could co-funding for procurement of non-network services help address barriers to uptake of non-network solutions (NNS) by electricity distributors?

Yes.

49. Would measures to maximise existing distribution network use and provide system reliability (such as dynamic operating envelopes) help in New Zealand? If yes, what actions should be taken to support this?

Yes, we should copy what is underway overseas.
There should be considerable effort to encourage and assist non-network solutions and demand shifting and smoothing.

50. What do you think of the approaches to smart device standards and cyber security outlined in this document? Are there other issues or options that should be looked at?

Yes, appropriate feed-in tariffs should encourage investments. In addition to smart car chargers, vehicle to grid technology should be promoted.

We do not have the expertise to offer opinions on cyber security.

51. Do you think government should provide innovation funding for automated device registration? If not, what would best ensure smart devices are made visible?

Pass

52. Are extra measures needed to grow use of retail tariffs that reward flexibility, so as to support investment in CER and improved consumer choice and affordability?

Appropriate feed-in tariffs, off-peak tariffs and load shifting should be introduced. Greenhouse gas emissions reporting should be mandatory to allow consumers to reflect concerns about emissions.

53. Should the government consider ways to create more investment certainty for local battery storage? If so, what technology should be looked at for this?

Yes. Distributed storage from community to local to household or plant storage should be encouraged.

54.	Should further thought be given to making upfront money accessible to all household types, at all income levels, for household battery storage or other types of CER?
	The priority should be on provision of direct provision, loans or other measures, information and training for household generation and battery storage. Some of us have personally invested in and installed solar PV systems and had good success in using lead-carbon batteries. These, though more expensive than lead-acid batteries have good deep-cycle success. Others of the many innovations in battery technology provide more resilience and should be used. There will be a need to train and fund more installers of distributed systems and the inverters, controllers, batteries etc household or building generation and storage systems but also for passive energy and demand reduction.
55.	Should government think about ways to reduce 'soft costs' (like the cost of regulations, sourcing products, and upskilling supplier staff) for installing local battery storage with solar and other forms of CER/DER storage? If so, what technology should be looked at?
	Yes for solar and other genuine renewables and to help research innovations and to negotiate for access to these. Good and clear information for all and training of installers is a very suitable role for government. This should include systems for feeding energy from vehicle batteries etc into the supply chains. It should also help with apprenticeships and funding workers in transition. One of the good things about local generation and storage is that this provides training and work close to where people live.
56.	Is a regulatory review of critical data availability needed? If so, what issues should be looked at in the review?
	Yes, total data transparency from the generator to the smart meter should be achieved subject to personal privacy protection.
Part 5: Whole-of-system considerations	
57.	What measures do you consider the government should prioritise to support the transition?
	Making clear and firm commitments to emissions reductions and a rapid just transition with a rapid phase out of fossil fuels is high so that expectations are set is high priority. Clarity for investors and others is vital. The political flip flopping of the last 3-4 decades must cease – and MBIE and other government agencies must stress this to incoming ministers. The Zero Carbon Act gave a good deal of clarity and certainty, but political obfuscation and unconstructive ambiguity has delayed and made the transition far more expensive and bumpier than if we'd been firm in our direction and commitment.

Any attempt to remove the Zero Carbon Act or to disable the Climate Commission will cause uncertainty, further distrust, and expense. Such an attempt would damage investment in renewables, damage NZ's reputation abroad and lead to more stranded assets and mis-directed investment, with huge fiscal costs to the Crown and to producers and consumers alike.

Not taking a strong, long-sighted and firm position on rapid and deep emissions reduction will damage our environment and economy. There will be a huge fiscal cost as well if we have to pay for our emissions on the international market (if there is one). Our trade and reputation will be damaged, especially with the EU.

Most of all, our children and grandchildren will suffer and will hold us all in contempt for not reducing our emissions and for delaying well beyond reasonable caution the taking of action to tackle the climate and biodiversity crises.

58. Are there gaps in terms of information co-ordination or direction for decision-making as we transition towards an expanded and more highly renewable electricity system and meeting our emissions goals? Please provide examples of what you'd like to see in this area.

The endless stop-start-stop policies and political jockeying have been disastrous for the country, the environment and for the mental health of the young. The government will need to direct a firm and rapid timetable for emissions reduction and to stop fossil fuel burning. The incoming government will have to be told freely and frankly that there is absolutely NO MORE cause for delay and that they must act immediately to tackle the climate, biodiversity and inequity crises.

59. Are there significant advantages in adopting a REZ model, or a central planning model (like the NSW EnergyCo), to coordinate electricity transmission investment in New Zealand?
Would a REZ model for local electricity distribution be an effective means of addressing first mover disadvantage with connecting to electricity distribution networks?

Yes, there are advantages. A REZ model could be the first step to overcome disadvantages of the current market driven model in NZ. It would also be an effective means to addressing first mover disadvantage. The planning model should be designed so that off-grid household level distributed generation is not trammelled, and new entrants and innovation is not stifled.

60. Should MBIE regularly publish opportunities for generation investment to enable informed market decision-making?

Yes.

61. How should the government balance the aims of sustainability, reliability and affordability as we transition to a renewable electricity system?

This is the wrong question. Distributed renewables are the answer to the above three aims.

The primary goal must be emissions reductions in emissions and avoiding environmental harms. Sustainability thus is a requirement. Affordability should be a lesser concern with income support or support for up-front investment for households used to relieve potential hardship from high prices. People employed in the sector should be assisted to transition. Prices should then be allowed to signal the need to use less energy and to eschew fossil fuel use, though the latter needs to be regulated out of the choice portfolio.

Reliability is highly desirable, but price signals will help people and businesses to become more energy efficient, will cause shifts in product and transport choices. Changes in both consumption functions and production functions will be driven by high prices and regulations to leave fossil fuels in the ground. Passive energy and demand options will also be signalled and could and should be part of new build requirements. The government could assist to various degrees retrofitting and conversion from high carbon and energy inefficient buildings, plant and transport in the short to medium term.

62. To what extent should wholesale, transmission, distribution or retail electricity pricing be influenced by objectives beyond the (affordability-related) efficiencies achieved by cost-reflective pricing, such as sustainability, or equity?

Sustainability including decarbonisation and avoidance of environmental damage and biodiversity loss are essential for the planet and the future.

Intertemporal equity and equity for vulnerable households and workers are both moral imperatives and are social goods which will lessen resentment, poverty and inequality.

A mix of education and exhortation, regulatory measures, direct provision, funding, and pricing should be used to achieve these goals. Some will also raise prices in the short run, but the effects of controls and actions will also stave off increasingly large financial, social and environmental costs.

Price-gouging should be addressed through controls on superprofits and market structure and power. Hardship caused by price rises should be addressed via income support or better still by direct government investment and installation of renewables and/or loans and guidance for households.

The half hourly auctions do not support affordability nor sustainability, but renewables will.

63. Are the current objectives for the system's regulators set in law (generally focusing on economic efficiency) appropriate, or should these also include more focussed objectives of equity and/or affordability?

No, the objectives are too limited.

Moreover, economic efficiency seems to be interpreted far too narrowly. The conception in the text seems to regard the price at market marginal cost and market marginal benefit as the point of economic efficiency, but that is not the case.

Efficient free markets allow private marginal cost = private marginal benefit but that excludes many values and considerations. Government should correct, not create, market barriers, and that should include correction of super-profits from market barriers.

Reliance on market prices omits full true costs and benefits such as externalised costs and benefits such as environmental and social harms.

Markets cannot provide at socially efficient quantities of public goods. Public goods are those that are non-rival and non-excludable. The market will never on its own provide the socially efficient quantity such that marginal social cost = marginal social benefit. Collective provision will be needed. For true economic efficiency, the government must step in and provide or fund the socially efficient quantity of marginal social cost = aggregated marginal social benefit

Merit goods. Merit goods and services are those with private (rival) and excludable consumption characteristics, so could be provided by the market but not to all who need or deserve them. Where society deems that for reasons of social justice or entitlement, society should provide them to people of certain characteristics, the government (or other collective) steps in This might be funding or direct provision to vulnerable people, particularly families, who, say, need warm dry homes, the young or the old and/or infirm. The winter energy payment is an example of such a scheme.

There seems in the discussion paper to have been an incorrect view that markets deliver economically efficient outcomes, but that is not the case.

So yes, environmental and equity issues should be specified and required, and price is one mechanism for delivering these but keeping all prices "affordable" does not make for efficiency. Too low prices will inhibit investment and innovation, so for equity reasons it is better to provide direct support.

The financing and/or provision of services that society deems certain classes of people deserve - such as warm and dry living conditions or retraining in the transition from the social and environmental bad of fossil fuels, can be provided directly.

Workers may need retraining or relocation; capital market barriers will need to be overcome with government help. That will be especially important for Māori since culturally land should not be alienated, and funding and employment of people where there is community building and communal living and working is highly desirable for reasons of culture and mental health.

General Comments: