Submission No 35

INQUIRY INTO 2024 ANNUAL REPORT OF THE NET ZERO COMMISSION

Organisation: Climate Change Balmain-Rozelle

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Climate Change Balmain-Rozelle

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Submission from

Climate Change Balmain-Rozelle

to NSW's

Joint Standing Committee on Net Zero Future

regarding the

NSW Net Zero Commission's 2024 Annual Report[1]

Climate Change Balmain-Rozelle[2] (CCBR) is an independent community group in inner west Sydney with around 1000 supporters. We campaign to promote local and national action to reduce fossil fuel use, increase the adoption of renewable energy, and head off catastrophic global warming.

Recommendation

We strongly endorse the Report's conclusion that more must be done to reduce NSW's Greenhouse Gas emissions. Some suggestions for how the NSW Government could do that are made below. Our hope is that the Committee will endorse or relay some of these suggestions to the Government.

Key points

Current measures are inadequate. We note that the Report concludes

> "*The April 2024 projections show NSW barely reaching its targets for 2030 and 2035, but only under the most optimistic assumptions modelled.*"

We further note that the accompanying Figure 1.4.A shows the forward projections ("Program/policy abatement as currently tracking" and "Program/policy abatement as designed") only achieve an 85% reduction on 2005 levels in 2050, not the 100% set out in the Act.

Below, we suggest actions which would assist in meeting and beating the targets in the following areas:

- Planning in general
- Coal mining approvals and monitoring
- Electricity sector
- Mitigation v. Adaptation
- Transport

Our more detailed explanation of these points follows.

Submission prepared by Derek Bolton

[1] https://www.netzerocommission.nsw.gov.au/2024-annual-report
[2] https://www.climatechangebr.org/

on behalf of CCBR Committee

February 8, 2025

Planning in General

Suggested actions

- A Regulation under the *CC(NZF) Act* should be created to place a duty on key planning decision-makers
    - to work towards meeting the 2030, 2035 and 2050 targets, and
    - to consider downstream emissions in the context of the Paris temperature goals (as per the purpose of the Act).

Coal Mining Approvals and Monitoring

Continuing coal and gas extraction risk sabotaging emissions reduction targets

Suggested actions

- The NSW Government should request a specific, dedicated report from the NZC on the risks that coal and gas expansions pose to NSW climate targets, to be completed by June 2025. The report should include advice on a coal sectoral target to drive emissions reduction in the coal sector.
- Approvals of new coal expansions should be paused until such advice has been provided by the NZC.

Economic benefits assessment in planning applications

Many development proposals are required to include an assessment of the net benefit to NSW. Under current rules, greenhouse gas emissions form one cost to be counted, but only insofar as they affect NSW financially. The algorithm for coal mine proposals is commonly:

1. Estimate the scope 1 and 2 GHG emissions expected (principally fugitive methane) in each year
2. Multiply by a defensible carbon price (possibly increasing over years)
3. Apply a discount rate, typically 7%
4. Sum over the project lifetime
5. Scale down according to one of the following ratios:
    a. NSW's GDP as fraction of World GDP
    b. NSW's population as fraction of World population
    c. Australia's GDP as fraction of World GDP
    d. etc.

Naturally, the final step reduces it to a trifling sum. For the purpose of meeting legislated State targets, it is obviously inappropriate.

Suggested actions

- Abolish the scaling down (which is anyway indefensible from a global equity standpoint). This would allow the net benefit test to assist in achieving the State's targets.
- Mandate the carbon price trajectory and discount rates to be used; we recommend the values set by the US Environmental Protection Agency (EPA) in 2023[3], but an option would be to tailor them dynamically to the legislated State targets.

[3] https://www.epa.gov/environmental-economics/scghg

Methane monitoring of coal extraction is inadequate

The Report does not comment on methane monitoring. Instead, it assumes the official emissions figures are accurate. However, it has long been suspected that coalminers seriously underestimate methane emissions. In 2023, the International Energy Agency (IEA) showed[4] that in Australia the actual emissions were about triple the reported numbers.

This creates a potential challenge to meeting the targets. The baseline is likely to be an underestimate. It will be tempting to refrain from improving the accuracy since that would make the percentage reductions harder to achieve. We believe such subterfuge would backfire in the long run.

Allowing emitters to self-report with no independent audits is either naïve or complicit. It is unnecessary to be so trusting. According to the IEA,

> "*Current satellites and data processing techniques can be used to detect and quantify total emissions from major leaks over a large area, down to small leaks at the facility level.*
>
> *…*
>
> *"New satellites are being developed that will provide higher resolution, greater coverage, and have more sensitive detection thresholds.*"

Suggested actions

- The Commission should address the accuracy of the methane emissions data.
- The NSW government needs to take an active role in monitoring methane emissions. Since the Federal government also has need of such data, a joint operation should be possible.
- The NSW government should make clear an intent to stay abreast of the technology. This will discourage emitters from relying on current limitations.
- Penalties should be a multiple of the carbon price used in the economic assessment mentioned above, The higher the multiple the lower the need for regular audits.
- With respect to targets, consider raising the baseline based on estimates of historical under-reporting.

Electricity sector

The Report notes that further decarbonisation is needed to meet the targets. We identify some barriers and suggest remedies.

Electricity supply and demand profiles are changing

There is an ongoing dramatic shift in both profiles[5]. Baseload generators are being displaced by wind and grid scale solar PV. On the demand side, households and transport are becoming more electrified, but also cutting daytime demand through self-consumption of rooftop solar. Domestic solar export lowers demand in the transmission network but can locally decrease or increase capacity requirements in the distribution network.

The role of tariffs in the transition

Managing the mismatches through storage and peaking generators is expensive. This will slow the transition, inhibiting the decline in emissions. Cheaper approaches, such as Demand Response, are being pursued. Here we consider tariffs.

The growing move towards cost-reflective tariffs should help, but only if consumers have the information and the tools to respond to these price signals.

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[4] https://www.acf.org.au/australia-dramatically-underreporting-gas-and-coal-methane-emissions

[5] For the purpose of this submission, we will treat self-consumed rooftop solar as a reduction in demand. Whether exported solar looks like reduced demand or increase in supply depends on the viewpoint within the grid.

Controlled load

There is potential for improving the match between supply and demand by making more use of daytime activation of controlled load circuits. For a detailed discussion see the *Appendix on Electricity Pricing*.

Suggested actions

- Investigate the markup (up to 1000%) retailers add to controlled load tariffs.
- Investigate whether it is time to introduce a 'CL3', cheaper than CL2, to maximise use of solar PV (filling in the 'duck belly'), likely phasing out CL1 later. For many, though, CL2 would still be preferable for EV charging since it offers an overnight charging option.
- Ensure that the public is informed about these options and their potential benefits. Mandatory information on the electricity bill would help.

Time of use and demand tariffs

For the reasons behind the following suggestions, see the *Appendix on Electricity Pricing*.

Suggested actions

- Provide an app that makes it easier for householders to experiment with different usage profiles, instantly seeing the result for the retailers selected.

  The hard part is representing the demand tariff. The problem is not the regular usage but the occasional spike. To model that would require statistical variation beyond the talents of most people to invent.

  - The existing app, when furnished with actual time of use data over several months, should construct a statistical model and estimate the probability distribution of spikes and, thus, the expected demand tariff.
  - Householders would benefit from an alarm when usage within the current half hour exceeds a threshold. Perhaps a free mobile phone app could be provided.

Rooftop PV switch off

While the need for networks to protect themselves against excessive feed in from rooftop PV is acknowledged, the consequence for most systems is that they are shut down altogether. The household can no longer enjoy the output of their system and are forced to pay for power from the grid instead. This is unhelpful in reducing emissions.

Suggested actions

- If/when smart inverters are available which can respond by blocking feed into the grid, while continuing to supply power to the household and top up from the grid as necessary, this fact should be publicised.

  Assistance in migrating to such inverters should be considered, particularly from older systems that cannot respond to the signal at all.

The Benefit of Distributed Generation

Marrying the demand and supply profiles is only one side of the task; the other is marrying the geographies. If the extra generation required for EVs and other electrification were to be met by centralised plant then there would be a significant need for grid upgrades. There would also be measurable losses in the wires. The ideal arrangement is EVs charging in the daytime from nearby rooftop solar.

One barrier is that DNSPs have no concept of distance within the distribution network. If the feed-in from a rooftop solar panel is being used next door, the DNSP is inclined to charge for the use of the wires connecting them as if the source and load were at opposite ends of the network. As a result, the proximity does not make the arrangement as attractive to the proponents as it should.

Suggested actions

- Discuss with DNSPs the possibility of registered arrangements whereby
    - a significant generator (such as a commercial operation with much rooftop solar) meters its grid feed-in, down to the minute, while…
    - … a nearby significant consumer of daytime power (such as a supermarket or EV charging station) similarly meters its demand, and
    - the lower of the two, minute by minute, is taken to have only used the DNSP's network for the short hop from the one to the other, for which the DNSP charges accordingly.

Mitigation v. Adaptation

It would appear that the Commission has been tasked with reporting on mitigation and adaptation as independent matters. Since these compete for resources, some analysis is needed on striking the balance.

While some adaptation will prove necessary, the competition for funding creates a moral hazard.

- A dollar spent on adaptation may produce two dollars of benefit within the local area, yet the same dollar spent on mitigation could produce $100 of benefit to the world as a whole.
- Adaptation concentrates on the short term welfare of people, ignoring impacts on the broader environment which may be more serious for the people in the longer term.

Suggested actions

- International cooperation at the Federal level can be echoed by subnational agreements, such as between NSW and collections of US states.
- Mitigation should be favoured over adaptation that is not essential.

Transport sector

The Report endorses the Australian Government's New Vehicle Efficiency Standard. Unfortunately, as legislated, we perceive three flaws. These may result in not only lessening the impact on NSW's transport emissions but also in failing to rein in the trend to bigger and heavier cars that is leading to higher road deaths, more road damage and more congestion.

- A failure to encourage making heavy vehicles lighter

  The permitted emissions for a vehicle rise in relation to the mass of the unladen vehicle. This creates no incentive to use lighter materials.

  It can even create an incentive to make a car heavier! if the car was already more efficient (per unit mass) than the standard, its exceedance was negative. Increasing the mass will not increase emissions in direct proportion, so makes the exceedance more negative, generating credits.

- Ambiguity in regard to the vehicle aggregation algorithm

  It is unclear whether the supplier is to apply the fleet limit curve to each vehicle individually then sum the exceedances (some of which may be negative) or should first aggregate the vehicle emissions across sales into one average and the masses into another.

- The potential for gaming the excessive allowance on very light vehicles

  A supplier could earn enough valuable credits on very light, cheap vehicles to justify a substantial discount, easily recouped by the proceeds on a corresponding supply of heavy vehicles exceeding their allowances.

We reported these in much greater detail in a submission at the time, but no changes seem to have been made. That submission[6] makes proposals for solving each of these.

Suggested actions

- Lobby the Federal Government to amend the rules.

Appendix on Electricity Pricing

Cross subsidy of connection fee

The traditional combination of daily connectivity fee plus a flat rate usage tariff artificially bundled a significant slice of the poles and wires cost into the usage. That helped poorer households by keeping costs down for households with modest usage, but it has been accidentally exploited by rooftop solar. It is no longer possible to distinguish disadvantaged households by their overall demand.

Forcing all customers onto time of use and only subsidising the network cost from the evening tariff would solve the rooftop PV problem, but batteries scuttle that. Increasingly, households that can afford solar PV and a battery will treat the grid as little more than back-up.

We are unable to suggest a solution for this.

Controlled load

- Background

  A household may elect to have Controlled Load circuits, charged at a lower rate per kWh than the regular tariff. The DNSP guarantees to activate the circuits for a fixed total number of hours each day within each of certain fixed windows, but which hours within the window on any given day is at the whim of the DNSP. The extra control this provides to the DNSP is the advantage it has over leaving it to the householder to limit the demand to off peak by means of a time switch on a standard circuit.

  The load is often a tank water heater with a thermostat, so does not necessarily draw power all the time the circuit is active.

  For the original type of these circuits, ‘CL1’, there was one daily window, 11pm to 6am, perhaps, suiting baseload generation. CL2 added a daytime window, but what CL1 and CL2 now mean varies by DNSP. The common theme is that CL2 provides more hours of activation each day so, in general, costs a little more[7].

  To avoid a demand surge, there is a random delay in activating each circuit.

- EV charging

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6 https://docs.google.com/document/d/1mJR0JH6FJXpg6OmlHA4bO1nZey0UD1bbB6H7MSylUZg/edit

7 The DNSP may charge double for CL2 (<2¢/kWh for CL1, ~4¢ for CL2), but the retailers add disproportionate markups (up to 15¢), making the price to the customer the same or nearly so.

NSW DNSPs Endeavour Energy[8] and Ausgrid[9] permit an EV charger as a controlled load. Essential Energy is unclear[10] on the point.

- Trend

  As the 'duck' curve[11] deepens, the price difference should vanish. Indeed, as coal plant closes, the roles would logically be reversed: the cheaper for daytime only, the dearer for day and night.

Time of use and demand tariffs

DNSPs now apply time of use and demand tariffs to all users on smart meters. Eventually, everyone will be forced to have a smart meter.

How the retailer charges the household is another matter, but the tariffs will be such that the retailer expects to clear a profit. A predictable trend is that households capable of relatively low evening demand (having a battery, maybe in the form of an EV) will seek these smart tariffs, while those with high evening use (and/or rooftop PV) will stick with flat rate. The retailer will therefore raise the flat rate tariff, leading more households to find ways to lower evening demand, etc.

In principle, this should lead to a substantial flattening of demand, but little effort has been made to help householders navigate this. Many will suffer hardship, and might never grasp how to fare better.

The government website[12] for comparing retailer plans doesn't consider that the household might be able to adjust its profile. It is geared to comparisons of retailers' fees based on the current usage profile. True, the user can construct any profile and manually enter a "bill" to represent that, but that's quite onerous as a way to try out options.

Further, households presently on dumb meters have no easy way to find their current profile, so cannot readily judge whether they might be better off with a smart meter (plus a profile adjustment). They will wait until the smart meter arrives and, in all probability, get a nasty shock.

Glossary

Acronym	*Expansion*	*Meaning*
CCBR	Climate Change Balmain Rozelle	An incorporated not-for-profit climate action group
CCNZF[A]	Climate Change (Net Zero Future) [Act]	
DNSP	Distribution Network	A company operating a network that connects the

8 https://www.endeavourenergy.com.au/__data/assets/pdf_file/0024/5955/NETWORK-PRICE-LIST_NETWORK-TARIFFS-2021-2022_July2021.pdf

9 https://www.ausgrid.com.au/-/media/Documents/Technical-Documentation/ES/ES7-Network-Price-Guide.pdf?rev=8cf882af4d0340d4ab6784590c8414ab

10 https://www.essentialenergy.com.au/-/media/Project/EssentialEnergy/Website/Files/Our-Network/FactSheetControlledLoad.pdf?rev=870df35f50474b8b8c2456e97698c20c

11 https://www.leadingedgeenergy.com.au/analysis-and-tools/duck-curve-charts/

12 https://www.energymadeeasy.gov.au/plans/electricity/manual-entry

	Service Provider	high voltage transmission network to the electricity customers.
	NSW DNSPs	
	Ausgrid	Inner, northern & eastern metropolitan Sydney and surrounds
	Endeavour Energy	Southern/western metropolitan Sydney, Blue Mountains and surrounds
	Essential Energy	Country & regional NSW
	Duck curve	The shape produced by superimposing the daily profile of total electricity consumption on that of the consumption excluding the output of rooftop PV.
EV	Electric Vehicle	… but generally meaning an electric car.
IEA	International Energy Agency	
NZC	Net Zero Commission	
PV	Photovoltaic	