2025 consultation

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Net Zero Consultation Paper 2025

Response from Nigel Howard [redacted]

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Thank you for inviting comments on the NSW Net Zero Commission's Consultation Paper. My responses to the questions as asked are as follows. I hope you find them helpful?

Q1 I have been a climate energy and environmental researcher, consultant and activist in UK,US and now Australia since reading Limits to Growth aged 19 and realising that mankind was on a dangerous path for its survival. I have done pioneering work internationally on Green Building Rating systems, Life Cycle Environmental Impact Assessment and recently on forecasting deaths from climate change. I have been shocked that decade after decade we have continued on an utterly reckless path and are now on the brink of runaway climate change from compounding feedback loops. I am disappointed in the IPCC for failing to advise on the precautionary science and misleading the world with complacent interpretations when they are convened under UNFCCC which demands precautionary action from UN member states. I naively believed that as soon as we knew the science we would act rationally and prioritise a survivable future over all other hubristic goals, but I was wrong. We are a suicidally stupid species! What's more, our cognitive dissonance makes us easily distracted with relative trivia like economy and we usually fail to think through the full consequences resulting in the wrong policies being adopted. For example the push for "Green Hydrogen" simplistically assumes that renewable power plus water makes renewable hydrogen ignoring the fact that every MWh of renewable power generated currently goes on the grid and shuts down 1MWh of coal fired power and 1 tonne of emissions. If we divert a MWh of power to make hydrogen then the 1 tonne of emissions remains making the so-called "Green Hydrogen" 4 times more emitting that Grey hydrogen from Gas and makes any steel produced 7 times more emitting that conventional steel from coal. This all changes as soon as our grid is fully decarbonised – then I become a supporter of truly Green hydrogen. The commission NEED to start telling the full appalling truth, examine issues more than superficially to ensure there are no perverse outcomes and be courageous enough to call out failures and dysfunction with no holds barred.

Q2 The Commission need to have a reasonably sophisticated model of climate impacts and their causes and the extent to which NSW contributes to climate change. From this basis the Commission can advise effectively; without it the Commission will be flying blind on subjective and corporate or politically motivated opinions alone which are usually flawed. Mitigation MUST come first, because adaptation is what you have to do after you have failed at mitigation. Mitigation is tackling the problem at source and has long-term benefits, adaptation is putting band-aids on the expanding balloon of emissions resulting in ever increasing costs and inevitable failure if we don't stop the emissions as first priority. We can be masters of mitigation, we will always be victims of adaptation.

Q3 For me this is one of the distractions into relative trivia that the Commission should avoid. First Nations people's bush management and cool burning techniques for sure should be adopted nationally. Aside from this, First Nations people are more likely (due mostly to economic disadvantage) to suffer most and earliest from the effects of climate change, but

resolving First Nations legitimate issues is a far broader problem that barely relates to climate mitigation at all and the Commission should not get distracted by it. (I am definitely not saying that it is unimportant from an ethical standpoint, just mostly unimportant for climate).

Q4 As above

Q5 Figure 1 is a typical example of misleading and unhelpful presentation of information which does not really identify relevant sectors of influence. In particular, electricity and energy are shown as the 44% sector. The most potent initiatives for reducing electricity and energy emissions reside with the end-users and when this electricity and energy emissions are reallocated to Transport, Agriculture, Industry (waste should be separated out) and the built environment you get a completely different prioritisation of sectors – the largest becomes the built environment, next industry, next transport. In addition, the opportunities and motivations are different between Housing, Commercial buildings, Industrial Buildings, Education and Health.

ALL of this relates just to domestic emissions, but by far the biggest cause of climate damages that we can/MUST mitigate comes from exported fossil fuels, coal and gas. The emissions from exported fossil fuels are 2-3 times bigger than our domestic emissions – that's up to 200% on the same scale as Figure 1 that we are completely ignoring and pretending isn't happening. Australia is THE biggest global climate pariah for exported emissions in the world, closely followed by Indonesia. For every year that these emissions continue, 0.5million people, mostly of our own children's generation will likely die from climate impacts. The exports have to stop NOW and NSW has to stop approving new coal and gas and stop approving its export. Please don't play the not within our terms of reference BS, because if exported emissions are not part of your remit you HAVE to get your remit changed to include them.

By way of illustration, below is the audit that the Environment Strategic Reference Group of the Northern Beaches Council compiled in order to hold NBC to account for its climate impacts, policies and actions. This shows far more potently the sectors causing emissions and this then implies policy measures that can mitigate these emissions. It reveals that Homes and Industry are the most significant (because this is where the electricity and energy are consumed), it reveals how NSW incentives for rooftop solar are expected to bring down emissions toward 2050 (but not far enough, with remaining problems for apartments – landlord/tenant and strata problems), it reveals that industrial emissions are the sector where far too little is being done (and where very large rooftop areas could be provided with rooftop solar if market barriers were removed – allowing industrial buildings to sell power to the grid). For commercial buildings the biggest barriers are the landlord/tenant problem (solved with inclusive leases and façade solar panels for high rise buildings coming soon). For all buildings, our building regulations are utterly dysfunctional for getting to net zero by 2050. We SHOULD immediately implement Net Zero for new houses by mandating this within BASIX. This is MUCH easier for builders to achieve than the failed 7* NATHers energy efficiency standard, massively reduces the burden and costs of regulation because Net Zero is very easy to achieve. It simply requires new houses with no gas connection and rooftop solar installed from new sufficient to exceed the regulated loads for the building. For the average new house that's just 3 kW, whereas the average new solar install is already 9kW (leaving another 3kW in anticipation of the next car being an electric vehicle and 3 kW spare to export to the grid for industry and other more challenged sectors. Net Zero for BASIX would also make all new houses more affordable immediately, because the energy cost savings for a net zero house are 4-8 times greater than the additional mortgage repayments for the added rooftop solar (<2% of build cost). Net Zero for BASIX would accelerate emissions

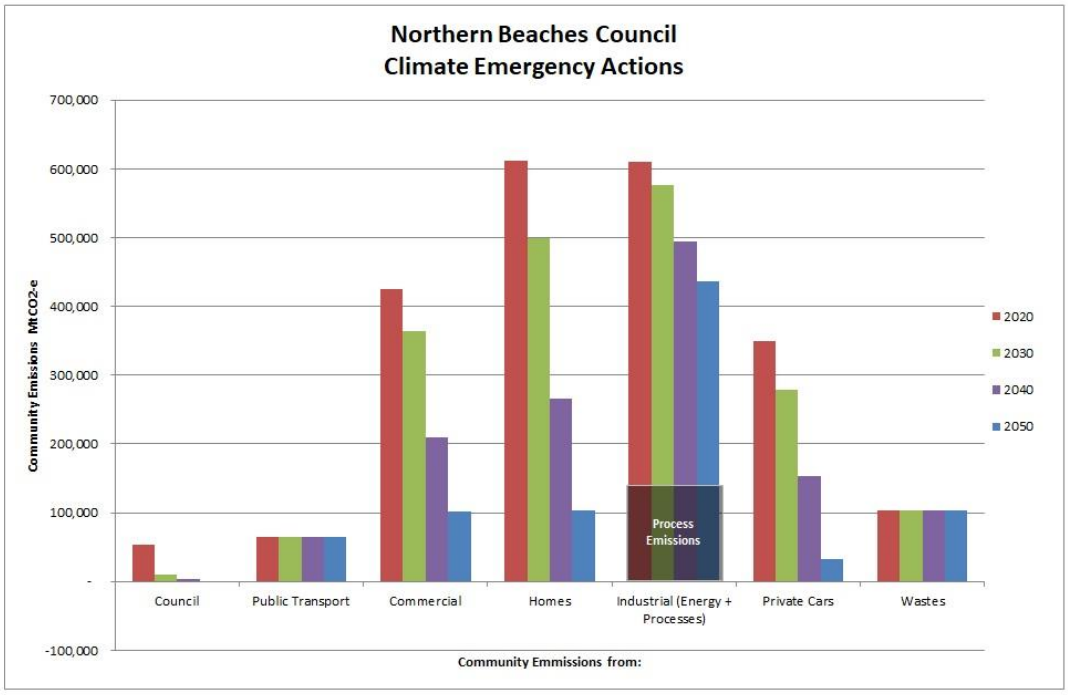
reductions from homes 4 times faster out to 2050 that the current dysfunctional regulated standards. For private cars, the solution is the transition to electric vehicles and this needs to continue to be incentivised, but in addition, we NEED to incentivise the uptake of bi-directional charging for electric vehicles even more aggressively than we promote home batteries. Bi-directional charging of electric vehicles is the closest thing to a silver bullet for getting Australia to 100% renewables and eliminating the need for gas peaking that currently gouges our energy prices. https://johnmenadue.com/post/2021/05/myopic-thinking-electric-vehicles-and-renewable-power/

ESRG Sub-Group

How All Government Actions and Initiatives Reduce Northern Beaches Community Emissions Compared to Northern Beaches Council's "Protect, Create, Live" Aspirations and Commitments

Source	Baseline 2020 MtCO2-e	%	2030 MtCO2-e	2040 MtCO2-e	2050 MtCO2-e
Council	53,394	2%	9,513	3,006	- 663
Public Transport	64,688	3%	64,688	64,688	64,688
Commercial	426,000	19%	364,261	209,913	101,870
Homes	612,000	28%	499,001	266,695	104,202
Industrial (Energy + Processe	610,000	27%	576,855	493,992	435,988
Private Cars	349,313	16%	278,817	153,699	33,084
Wastes	103,000	5%	103,000	103,000	103,000
Total	**2,218,394**	**100%**	**1,896,134**	**1,294,992**	**842,167**

Commitments / Actual	% of 2020 Community Emissions			
	2020		2030	2040	2050
Council Aspiration	Baseline		Zero	-	-
Council Commitment	Baseline		-	50%	Zero
Forecast from Existing Polici	Baseline	100%	85%	58%	38%



Q6 This question presumes that emissions reduction depends on electricity infrastructure upgrade. I think we can do better. If instead we incentivised and drove the availability and uptake of bi-directional charging and electric vehicles, we could make most houses not just self-sufficient (reducing the need for grid upgrade) but also providing DISTRIBUTED car battery storage exceeding the storage needed to get to 100% renewables. Electric Vehicles with bi-directional charging can provide at least 4 times as much storage as the largest home battery for the same cost (the battery comes free with the electric vehicle and the bi-directional charger costs less than a large home battery). Because car battery storage is distributed around the grid,

it allows local generation to be stored locally for reuse locally reducing the net demand on the grid not increasing it. This would be a FAR cheaper path to net zero than grid level renewables and storage. Car batteries with bi-directional charging will probably make Snowy 2.0 and all of its infrastructure upgrades completely redundant. It will also make home batteries redundant so we should not be incentivising these ahead of bi-directional charging! AEMO are at last starting to consider this possibility – the Commission should jump right in to making it a reality.

Q7 No, with our current ill-conceived path to net zero. By contrast, the financial benefit to the community for the combination of rooftop solar, electric vehicle with bi-directional charging is so compelling that it is likely to see rapid uptake and widespread acceptance with some initial market priming incentives to build market, capability/skills and economies of scale. Although the direct benefits will accrue first to those able to benefit from these investments, energy prices should fall dramatically as the distributed car batter storage becomes ubiquitous enabling the accelerated transition to renewable power for all with little to no curtailment or demand shifting necessary. The freed grid capacity will enable power to be transferred from regions with temporary excess to regions with temporary shortage.

Q8 Remote First Nations communities can benefit more rapidly from the solar/electric vehicle/bi-directional storage combination because it is a solution that allows local generation to be stored locally and reused locally. First Nations communities more generally will benefit from the lower energy prices that this transition provides to all.

Q9 The incentives for electric vehicles need to be expanded and incentives added for bi-directional charging as above. The transitions to electric buses are also welcome. I think that modular batteries that can be charged through the daytime renewable energy peak (also providing storage to the grid), but then swapped out for depleted batteries may offer greater potential. For long distance freight transport more use of rail freight and especially electrified rail freight offer the most potential. For shorter distance freight transport electrified trucking is emerging and already feasible for local freight delivery.

Q10 I don't know much about this, but carbon drawdown agricultural practices appear to offer some potential. The biggest benefits seem to come from reducing meat consumption overall, addressed with educational initiatives. Also, methane emissions from livestock may be reduced with feed additions (seaweed) perhaps, but this seems to be taking a long time to go from pilot to common practice.

Q11 Given the uncertainties (and down-right cheating) in land-sector emissions, NSW should adopt the most conservative possible assessments of land-sector net emissions and focus on real emissions reductions. ACCU's must always be retired and never traded – this is fatally flawed – it amounts an emitter to continuing to emitting whilst buying the right to pretend not to emit from a sequesteror that must then presumably pretend not to be sequestering with no net emissions reduction anywhere – just pretence. The timber coming from a forest must pretend to no longer contain any sequestered carbon – but this never happens – the timber is sold on the assumption that reality prevails and the timber contains sequestered carbon.
https://johnmenadue.com/post/2021/07/carbon-offsets-are-a-delusion/

Q12 The mechanisms for carbon drawdown include phytoplankton (by orders of magnitude the largest), mineralisation (alkaline minerals taking up CO2 and locking it away as carbonates), carbon drawdown agriculture, reafforestation, restoration of prairies, mangroves, peat bogs, sea grasses and estuaries. First Nations peoples know how to look after country and their

knowledge should be respected and enhanced. At the same time, we cannot delude ourselves about the potential of drawdown! Even if we adopted every possible mechanism of managed drawdown on every scrap of viable land/sea globally, we could reduce atmospheric CO2 concentrations by 20ppm per century. We add 20ppm equivalent from emissions every decade. Thios means that even if we did everything globally we would still go backwards by 90% of our emissions. We HAVE to really reduce emissions and stop pretending anything other.

Q13 The Safeguard Mechanism is appallingly bad policy especially in respect of carbon trading as discussed above and there is now an emerging realisation of just how flawed this has always been. Decarbonising heavy industry is indeed challenging, but our initiatives to-date are somewhat flawed.

For cement and lime production the possibilities include substitution with steel slags and coal fired power fly ash, which in-turn have already caused emissions, but at least the emissions are now shared between the cement and the electricity and steel produced. Also there are waste derived fuels, which share emissions with waste disposal for say car tyres or other wastes.

For steel, we must continue to maximise electric arc recycling and transition the electricity used to renewable power. However demand for steel is still growing far faster than scrap arising (the steel is accumulating in infrastructure) so there will remain continuing demand for primary steel into the foreseeable future. As discussed above until our grid is 100% supplied with decarbonised energy, we will significantly increase consequential (power station) emissions if we divert any renewable power to make hydrogen to then make fertilisers, chemicals, or so-called "Green Iron". Charcoal might provide a transitional solution and direct electrolytic reduction has been demonstrated at pilot scale and will be much more efficient than smelting with hydrogen.

For aluminium smelting, the process is already electrolytic and the Green Aluminium Production Credit simply encourages aluminium smelters to contract renewable power. This is a worthwhile initiative, but ignores the additional 20% of energy consumed to mine and refine the feedstock alumina which is typically gas and coal fired, with some use of biomass. There are a number of options for alternative electrified heating solutions. Solar furnace might play a part here, but no one seems to have made this cost-effective.

Q14 Saul Griffith will have many answers for this.

Q15 This a one of the questions riddled with perverse outcomes from transport and reprocessing. Of course reduce is worthwhile and we have far too much packaging on the food and goods that we purchase. Putrescibles should be composted and reused (ideally at source). Many materials/products might appear to be great candidates for recycling and reuse, but often this involves far greater transport impacts and emissions than simple landfill, because the waste materials must be gathered from widely dispersed consumers/users. Metals should always be recycled and the markets and mechanisms are well established and economically viable. Plastics should also be recycled, but this is challenging with different incompatible types, often contaminated and with every recycle the plastics degrade – they need to be down-cycled. Glass should also be recycled and bottle glass already is, but this is challenged by coloured glasses needing separation or acceptance of comingled glass colours. Window glass is a much smaller part of the waste stream and is not easily recycled. Other materials like cardboard and paper are marginally worthwhile recycling. There are 2 possibilities to overcome these many limitations – gasification and pyrolysis, that can be used to revert mixed plastics

and organic wastes to a mix of simpler chemicals that can be used as chemical feedstocks or as fuels (interim solution offsetting emissions from the oil exploration and refinery supply chain). Finally, incineration with heat recovery and cogeneration could be used as a transitional solution offsetting coal fired power generation and heating fuel emissions. Construction is a major source of wastes, but can also be a place to reuse or recycle wastes from other sectors. Construction waste is predominantly waste soil, concrete and masonry that can be crushed and reused as fill, or road-base materials. Timber can be reused or chipped for particleboard products of within fibre-cement products. Plasterboard is a problem contaminant of wastes to be used in proximity to concretes, but can be returned to be remanufactured or ground up as soil improver. Crushed masonry and concrete does not make good concrete aggregate because the particle shapes do not pack well requiring higher cement contents to achieve the same strength as natural aggregates, which results in greater emissions not less. Solar panels and batteries are comprehensively recyclable despite the breathless criticisms of the fossil fuel lobbyists. As we transition to renewable energy sources the coal, oil and gas industries will go into decline - we will have to transition to alternative sources of plastics, helium, bitumen, lubricants, chemical feedstocks, ammonia/fertilisers, sulphuric acid…etc.

Q16 It's good that NSW Government are showing the foresight to establish Future Jobs and Investment Authorities with representation from coal-reliant regions, but these bodies must do their job of establishing future jobs, not become a lobbying body for slow-walking the transition. When it comes to transparency and honesty in reporting emissions, NSW Government must simply legislate heavy penalties for accurate and timely reporting and establish an inspectorate to really police the transparency of emissions reporting. If this does not happen it will demonstrate that NSW government are not really serious about emissions reduction.

Q17 All trading in offsets has to be shut down and outlawed, because it serves only to hide the truth rather than actually result in any emissions reductions as above.

Q18 NSW government must legislate and enforce emissions reduction regardless of the Safeguard Mechanism. It is time that we all realised that climate mitigation is an existential threat and stopped playing games with our own children's generations survivable futures.

Q19 This once again is masterfully misleading because it ignores emissions from electricity. As discussed above the compelling economics of the combination of rooftop solar and electric vehicle with bi-directional charging are utterly compelling economic justifications for every household to become net zero emissions and fully electrified. This should be incentivised aggressively ahead of home batteries that are expensive and will for sure become redundant. NSW should develop education and advocacy resources to promote the uptake and benefits of the rooftop solar/electric vehicle/bi-directional charging combination and run a demonstration programme to help household transition their existing buildings to net zero. It's really simple – replace gas appliances with electric, put solar on the roof, make the next car purchase an electric vehicle (cheapest equivalent by 2027 or sooner) and install bi-directional charging at the same time. NSW should ban new gas connections and mandate Net Zero in BASIX (as discussed above). With regard to refrigerant emissions, zero or very low GWP refrigerants should be mandated – this may result in some sacrifice in refrigerant efficiency, but provided we have excess renewable power this will not matter.

Q20 Mitigating our emissions to give our children's generation a shot at a survivable future trumps all other considerations. At present social equity is at a minimum – the innovators today already have negative energy prices, but equity will increase as more and more early adopters

take up the opportunity and as more and more storage goes on the grid, peaking prices (which dominate our energy bills currently) will tumble benefitting all. The returns that early adopters see initially will diminish as more and more households start to transition and everyone's energy prices will come down. These same early adopters will essentially be providing the storage to the grid that enables everyone's energy prices to tumble.

Q21 Legislate GWP<10 for all future refrigeration and AC equipment and enforce it with manufacturers, importers and refrigerant suppliers, but exempt existing installations that must use recycled refrigerant.

Q22 As above for the type of practical sector specific metrics that are adopted. But don't just publish nice sounding science sounding metrics unless you really intend to legislate them, enforce them with inspectorate and legal action and heavy penalties for infringement. A survivable future is not a nice-to-have, it is the absolute minimum "Duty of Care" that we owe to our youth and future generations.

Q23 I strongly support the whole-of-economy approach with modelled pathways and sector targets, especially if the goals are legislated and specific individuals are tasked with achieving their sectors targets, given the autonomy and support to drive change and realistic budgets to achieve these goals.

With regard to adaptation, NSW government should project climate impacts farther ahead in determining its best adaptation strategies and take bold precautionary action to plan out of harms way rather than keep trying, at every increasing cost, to retrospectively respond to the many disasters as they unfold. It's time to move settlements out of flood plains, bush-fire vulnerable locations, storm surge vulnerable areas etc. that are no longer insurable. This will almost certainly prove more economic longer term than trying to fight nature.

Q24 NSW government should project climate impacts farther ahead in determining its best adaptation strategies.

Q25 NSW government should project climate impacts farther ahead in determining its best adaptation strategies

Q26 Question is too broad.

Q27 NSW Government need to better educate the public about extreme heat events emphasising the importance of humidity and provide practical measures they can take to stay safe. This might include shelter places. Remote communities, the elderly and poorer folk will likely be particularly vulnerable.