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<tr>
<th>Name</th>
<th>Shaun Ellis</th>
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**A Zero Carbon Act is important to me because...**

As a son, nephew, cousin, uncle, husband, father, grandfather who has studied and continues to study Earth and environmental science, I believe that we all have to examine our own worldviews and pull our collective weight on this problem that we have all been in implicit in. I believe we have a duty of care to our own and future generations of human and non-human life on the Earth.

**Q1. What process should the Government use to set a new emissions reduction target in legislation?**

The Government should set a target for 2050 in legislation now.

**Q2. If the Government sets a 2050 target now, which is the best target for New Zealand?**

The most ambitious target: reducing total greenhouse gases to net zero by 2050. I also support taking a science-based approach to ensure our efforts to reduce emissions are as impactful as possible: we should aim for negative levels of long-lived gases, while reducing short-lived gases to sustainable levels.

**Q3. How should New Zealand meet its targets?**

By using domestic emissions reductions only (including from new forest planting).

**Q4. Should the Zero Carbon Bill allow the 2050 target to be revised if circumstances change?**

The 2050 target should not be altered in response to “economic changes” as this undermines its long-term certainty. However, the ability to revise the 2050 target in light of major changes in scientific understanding or international agreements should be permitted.

**Q5. The Government proposes that three emissions budgets of five years each (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?**

Yes - I agree with 5-year budgets set 10-15 years in advance, so that 3 are in effect at all times.

**Q6 - Q7. Should the Government be able to alter emissions budgets?**

No - emissions budgets should not be altered in response to “economic changes” as this undermines their long-term certainty. However, the ability to revise budgets in light of major changes in scientific understanding or international agreements should be permitted.

**Q8. Do you agree with the proposed considerations that the Government and the Climate Commission will need to take into account when advising on and setting budgets?**

I agree that the Government and the Climate Commission should take the following factors into consideration when advising on and setting budgets:

- scientific knowledge regarding climate change
- technology relevant to climate change
- economic circumstances and the likely impact of a decision on the economy, as well as the competitiveness of particular sectors of the economy
- fiscal circumstances and the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances and the likely impact of a decision on fuel poverty
- energy policy and the likely impact of a decision on energy supplies and the carbon and energy intensity of the economy.

**Q9. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the emissions budgets?**

Yes - we must learn from the mistakes of the UK’s Climate Change Act and specify a strict time frame for producing a plan.
Q10. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

The Government’s policy plans to meet emission budgets should be comprehensive, fair, cost-effective, environmentally sustainable, and reflect a commitment to Te Tiriti o Waitangi.

Q11. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with these functions?

Yes - the Commission should not be a decision-making body.

Q12. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (NZ ETS)?

The Commission should advise the Government on policy settings in the NZ ETS. It should not make decisions itself with respect to the number of units available in the NZ ETS, or its implementation.

Q13. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed expertise?

I agree with the following collective expertise:
- climate change policy (including emissions trading)
- resource economics and impacts (including social impacts, labour markets and distribution)
- te Tiriti o Waitangi, te reo me ona tikanga Māori and Māori interests
- climate and environmental science including mātauranga Māori
- experience with addressing adaptation challenges like planning, insurance and local government
- risk management
- engineering and/or infrastructure
- community engagement and communications.
- business competitiveness
- knowledge of the public and private innovation and technology development system.

I think expertise in public health is also important.

Q14. Do you think the Zero Carbon Bill should cover adapting to climate change?

Yes. This may require a separate adaptation sub-committee within the Climate Commission.

Q15. The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with the proposed functions?

I agree with the proposed functions below, but recognise that nuance is required in terms of how local councils are involved:
- a national climate change risk assessment
- a national adaptation plan
- regular review of progress towards implementing the national adaptation plan
- an adaptation reporting power

Q16. Should the Government explore setting up a targeted adaptation reporting power that could see some organisations share information on their exposure to climate change risks?

Yes
Further comments

Furthermore, clear information needs to be given to members of New Zealand's primary industry community about the implications for them. Important factors of consideration include:

- Education about climate change, particularly relating to causation and risk. Risk that includes the environmental, economic, and social impacts of climate change.
- Education about the workings of the planetary carbon cycle, and the impact of national and global modern agricultural practices as part of the carbon cycle (NIWA, NASA, Costanza, Daly, Shiva, Pollen, Hamilton, Seuss, Jackson, Webster, et al).
- Education on why agriculture's contribution to the carbon cycle has drastically changed over the last 100 years. This is partly illustrated by Vaclav Smil's calculation highlighting the current description of terrestrial vertebrate biomass with human beings making up 30%, all domesticated vertebrates supporting the human population making up 67%, and wildlife making up 3% of terrestrial vertebrates on the entire planet.
- Education about the dependency of high throughput and monoculture dominated modern agriculture on finite fertilisers, oil, pesticides, herbicides, and the impacts of pollution by the overwhelming of the Earth's natural sinks which are often considered as externalities in industrial farming processes where the corporations acquire the commons for the lions share of profits and place cost upon the commons to be carried by the wider population. These externalities threaten not only the life supporting capability of the atmosphere, but also the commons of water, soils, and the biosphere. (Costanza, Daly, Shiva, Pollen, Hamilton, Seuss, Jackson, Webster, et al).
- Education that the human economy is actually a subset of the biosphere and the overarching and highly integrated Earth system. The importance of this being that our wellbeing and economies are totally dependent and limited by the carrying capacity of the Earth system as governed by the laws of thermodynamics and the principles of diminishing returns (Costanza, Daly, Shiva, Pollen, Hamilton, Seuss, Jackson, Webster, et al).
- Development of systems capable of giving robust information and estimates of operational carbon balances and options for reduction as well as offsetting. Such systems might resemble the Overseer software currently utilised to calculate agricultural nitrogen budgets in Aotearoa New Zealand.