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Think Globally. Act Locally!

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That's not a Plan. THIS is a PLAN!

How does the Federal LNP's "Australia's Long Term Emissions Reduction Plan" (1) to reach net zero CO₂e emissions by 2050, which, by all appearances, was concocted in a weekend workshop and released five days before the COP 26 meeting (2), compare with a Plan which was years in the making? Which of these two Plans contains costed action items down to Council Area detail?

Rather than be expected to rely on a Plan produced by an incumbent, hitherto climate-denialist Government, could we find an independent, university-level analysis of exactly the steps and costs needed to reach net zero CO₂e emissions by 2050?

Answers to these three questions can be found in Princeton University's Final report "Net-Zero America" (3). We'll call it "NZA".

We also need to answer one other vital and wide-ranging question: "How will we apply the lessons learned from NZA to our local community, say Toowoomba?" Answers to this question will be also be provided in this article and in follow-up analyses.

For this article, let's try to get some focus, within this comprehensive comparison, by restricting it to three main features. Firstly, we need to clarify the trajectory of overall emissions reductions from 2020, preferably in clear graphical form, which is necessary to get Australia to net zero by 2050. Secondly, we need to apply the overall trajectory to reductions in local emissions. Thirdly, we need to estimate the costs and benefits to our community activities and economy during the thirty year transition period to net zero emissions.

Firstly, let's look at the reductions trajectory. Page 22 of the NZA report (3) shows a graph of emissions reductions, and shows a straight line of emissions reduction from 2020 to 2050. It also shows a reduction of 42% from 2005 levels to the required level at 2030. The NZA report is based on that trajectory line, so, if we are to make use of the NZA findings, Australia should follow the same trajectory. By comparison, at 26-28% by 2030 (6), the LNP's Australian commitment to the United Nations falls well short of the 42% demonstrated by the NZA report.

Furthermore, the LNP's components of their Plan shown on page 49 (1), indicate up to 20% offsets, not emission reductions, and up to 70% of their target composed of possible future technologies. This is not good enough for a plan of this critical importance. The LNP's Plan and estimates are way off the calculations and details provided by Princeton University's report. The LNP plan does not appear to take this challenge seriously enough. This must raise questions about how much independent research went into, and formed part of, the LNP's Plan, and how inaccurate the LNP's plan would turn out to be. I, for one, would prefer to work with the Princeton University report which uses comprehensive Federal, State and County data to arrive at solutions.

Secondly, let's look at a Local Government Area, an LGA, such as Toowoomba to see how we can apply the NZA plan, and data from the USA, to an Australian regional economy, comparing it with data from Canada and Australia. By comparison, the LNP Plan does not make any references to regional details, nor does it compare its Plan with that of any other country.

At the 2018 count, Australia, Canada and the USA had a CO₂e emissions per head of population of 15.5 t, 15.5 t and 15.2 t respectively (6). These figures may be compared with the world average at 4.5 t, the UK at 5.4 t and the EU zone at 6.5 t (6). If the NZA report is tackling the emissions of the USA to get to net zero from 15.2 t per capita by 2050, then the same approach can be used to get Australia from 15.5 t per capita to zero by 2050.

In 2018, Toowoomba's CO₂e emissions were 4,405,000 t (7). For a population of 170,356 (9), that gives per capita emissions of 26.3 t/a, a rate well in excess of the national averages quoted in the previous paragraph, and a long way from zero. This is a considerable challenge, but further examination of NZA will locate Counties in the USA with similarly challenging reductions to be made. Future articles would address the granular details required to meet that challenge.

Thirdly: what's it going to cost? Good question, Barnaby! No costings, or even estimates of costings, are given in the LNP plan (1). By stark contrast, the NZA (3), on page 257, shows the predicted capital investment needed to get the USA to the target of net zero by 2050. The graph shows a mindboggling near 10 trillion US dollars investment over the 30 years for the US population of 331 million! Translated to Toowoomba's population of 167,657, this would result in a figure of about 1400 Australian dollars per person per year at an exchange rate of 0.75USD/AUD. This gives an annual average, NPV, budget of \$234 million AUD for the transition. This is to be compared with, and possibly added to Toowoomba's 2018-2019 capital infrastructure budget of \$175.13 million AUD (8). These figures show that the transition costs laid out by the NZA report are well within the realms of possibility. This is encouraging!

We will now examine just one of the predicted benefits expected from this transition: increased and varied job opportunities. According to NZA (3), on pages 261, 263 and 264, to reach the 2050 target, most of the coal mines will close down, and all of the coal fired power stations must close down, by 2030. This goes a long way to explaining the massive infrastructure investment revealed in the last paragraph: massive electrification of our society and industries will be required due, in part, because of the coal fired power station closures. That means a substantial increase in electrical supply using renewable sources and distribution will be needed. That means a substantial number of jobs will be required to deliver the hardware and services demanded.

But what kinds of jobs? Page 280 of the NZA report (3) shows an increase of jobs in the energy sector to increase from the current 1.5% to between 2 and 4% in coming decades. The six scenarios are explained on page 24 of NZA (3). We would be looking at Scenario E+RE+: the 100% renewable power path. Page 282 of the NZA (3) shows predicted distribution of jobs by resource sector and by industry sector. We can see that the of the energy sector jobs, 22% would be in construction and 16% in manufacturing. This may be compared with the data in reference (10), which shows employment by industry sector for Toowoomba in 2016 and indicates just 1.1% in the utilities sector, 7.0% in construction and 6.8% in manufacturing. Now that's encouraging!

Toowoomba has a healthy construction and manufacturing sector, and room to move in the utilities sector. In fact, with its diversified industry base, its agricultural wealth, its enviable location and transport services and its strong educational and health sectors, Toowoomba is in a very good position to lead and thrive on the path to net zero. Studying, interpreting, scheduling and applying well-researched net zero plans, such as NZA (3), to the Toowoomba region as a matter of urgency would make the district a great example to the rest of the country.

References:

- 1) <https://www.industry.gov.au/sites/default/files/October%202021/document/australias-long-term-emissions-reduction-plan.pdf>
- 2) <https://unfccc.int/conference/glasgow-climate-change-conference-october-november-2021>
- 3) <https://netzeroamerica.princeton.edu/the-report>
- 4) <https://netzeroamerica.princeton.edu/?explorer=year&state=national&table=2020&limit=200>
- 5) <https://www.industry.gov.au/policies-and-initiatives/australias-climate-change-strategies/international-climate-change-commitments>

- 6) <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC>
- 7) <https://snapshotclimate.com.au/locality/australia/queensland/toowoomba/2017/fy>
- 8) https://en.wikipedia.org/wiki/Toowoomba_Region
- 9) <https://economy.id.com.au/toowoomba/?IndkeyNieir=23100&sEndYear=2019&Indkey=23002>
- 10) <https://economy.id.com.au/toowoomba/employment-census>

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