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1. Reduce the cost of meeting carbon targets

1. What could be done to improve the cost-effectiveness and alignment of policies to reduce emissions across the industrial, electricity and transport sectors?

1. (a) Lift all moratoriums on modern nuclear power and the nuclear fuel cycle at Treaty, Federal, State/Territory and institutional subject to best practice in environmental controls in responsible nuclear nations levels.

(b) For wind solar, batteries and grid extensions reinstate proper Environmental Impact Assessments, and ecological management plans and associated legal powers for regulators.

(c) Formal end of life remediation and waste management plans and associated financial reserves for operators and owners and associated legal powers for regulators.

2. Seek synergies of the civilian nuclear energy sector the the nuclear submarine program, including but not limited:

(a) Workforce and local supply chain to create new options for jobs, training and local institutions partnering internationally

(b) Create a positive, predictable, long-term investment context for local partners to work with international peers industries and industry bodies that have Australian and global reach

(c) Support local companies and tertiary institutions developing fission and fusion reactors and associated technologies.

(d) Access of Australian companies in fission and fusion and the fuel cycle to Federal and State innovation programs

3. Partner with local nuclear engineers and scientists to improve tertiary education training and eliminate unfounded bias against nuclear power.

4. ATSE, Energisers Australia and all other relevant associations and labour organisations are encouraged to formally adopts a technology neutral approach to decarbonisation.

5. All actors in the system use good practice internationally exemplified in fully democratic governments that do not have bans, - as all studies show that is gets the lowest carbon, lowest cost to consumer electricity.

2. Are there gaps in the emissions-reduction policies in the industrial, electricity and transport sectors which should be addressed?

The ban on nuclear power and other aspects of the fuel cycle is the most serious.

Dr Robert Barr has done very detailed modelling. One example of the outputs can be found here: <https://nuclearforclimate.com.au/the-economics-of-nuclear/>

This detailed modelling system would be and excellent training and research platform id transferred Universities, with a diversity of outcomes.

Planners could use it to develop good strategies for nuclear program introduction. This

would underpin well-founded, and technology agnostic approach from engineering, economic and democratic social license perspectives.)

In the area of legal reform Australia has Helen Cook, she is an Australian and lives in Sydney. She is one of the top global legal practitioners in drafting Nuclear Law for countries that are adopting nuclear power for the first time and has done this in a range of states with different legal systems.

Her book is the key global text in this area:

The Law of Nuclear Energy, 3rd edition

London:

Sweet and Maxwell, 2022

ISBN: 978-0-414-09120-7.

She would, if approached correctly, be in strong position to assist.

The lack of a mandate for modern fission and fusion as an option for Australia will undisputably have had catastrophic impacts on our economy, environment, ecology, security and society in the long term.

At present the option theory shows that lack of the nuclear option is a handbrake on the economy and growth.

This can be demonstrated at the system level by the work of Dr Barr references above and by the studies of Stephen Wilson and more recently his students.

The global peer-reviewed literature confirms this:

1) The Role of Firm Low-Carbon Electricity Resources in Deep Decarbonization of Power Generation

Nestor A. Sepulveda, Jesse D. Jenkins, Fernando J. de Sisternes, Richard K. Lester

<https://doi.org/10.1016/j.joule.2018.08.006>

2) Levelized Full System Costs of Electricity,

Robert Idel.

<https://doi.org/10.1016/j.energy.2022.124905>

This study published in the top global journal energy shows clearly why GenCost (CSIRO) and the Levelised Cost of Electricity (LCOE) more generally is not a good proxy for the price to the final consumer.

From a policy planning perspective Gen Cost and LCOE have proved to be deeply flawed. They have no utility in Australia as we have Dr Robert Barr's modelling toolkit when the responsible groups secure access to it properly and legally.

<https://doi.org/10.1016/j.energy.2022.124905>

3. **Are there any duplicative emissions-reduction policies in the industrial, electricity and transport sectors which could be streamlined?**

I have no expertise in this domain.

2. Speed up approvals for new energy infrastructure

1. Are planning and approvals processes for large energy infrastructure taking too long? If so, what causes the most delay?

The bans on nuclear power and the nuclear fuel cycle in general, have been toxic to balanced and responsible policy development, an open and transparent market, innovation and invention, academic programs, human capital development, supply chain resilience and many other important features of our society.

2. How can planning and approvals processes be sped up without unduly compromising regulatory standards?

Un ban nuclear power and focus on outcome incentives and the planning will adjust.

3. Should clean energy projects be treated differently to other projects for the purpose of environmental and other approvals? If so, how?

ARPANSA and ASNO are excellent regulators in the nuclear domain and State and Commonwealth workplace Health and Safety and effective.

It is unclear why a nuclear safety regulator is being established for defence? There were more cost-ways of doing this.

The practice (already in place) of reducing environmental and ecological regulatory approvals and standards for wind turbines in particular irresponsible and are have current, and will have future impacts. This will forever be a blot on our democracy and its checks and balances.

4. What can be done to build local community support for new energy infrastructure projects?

The visits to communities that have coal power (WA, South Australia, Queensland, and NSW to talk about nuclear energy have convinced me that there is a very high support in Chambers of Commerce, business, local community leadership and suppliers for nuclear to be an option.

When people get the facts, fairly presented with ample time for contestation and discussion communities do see the benefits and the optionality is attractive.

In areas on the "diesel grid" served by Single Wire Earth Return (SWER) electricity generated by diesel power there is massive support for nuclear Mini (container-sized) and Small Modular Reactors.

This is also true for remote mining sites.

The focus should be on options and pathways, not "source promotion". This is absolutely clear.

I have has the good fortune to work with all modern sources and before I was involved in nuclear I led and Materials and Energy Division at CSIR in South Africa.

I worked in the laboratory next door the inventors of the lithium batteries we have in our phones today (at the time I was working on high temperature batteries). The key lesson I learned was: have a flourishing well-funded research sector outside of universities. Do not constrain innovation and scope with legislation but with governance and good practice. Teach people to protect Intellectual Property and make it easy and low coat to secure.

Facts beat fear.

Lowest cost to the user is never correlated with the Capital to establish systems technology.

People are smarter than their leaders.

Benefit-sharing on constructing inputs like electricity always fails, intergenerational systems that are robust, win.

5. Please outline any evidence showing the productivity benefits of faster approvals for energy projects.

Compare the Finnish, Canadian and Australian nuclear regulators (excellent) with the US NRC (paper mill).

3. Encourage adaptation by addressing barriers to private investment

1. What are the barriers and enablers impacting decisions by owner-occupiers, landlords and developers about how housing is built and updated over time so that it is resilient to the effects of climate change?

1) Lack of a nuclear option

Nuclear power would avoid:

a) Low energy density non-dispatchable Wind-Solar DC power production

b) Massive Battery Farms (10-15 year life, fire hazard, not defensible)

c) Digital Inverters to make poor quality AC "electricity at the fence"

d) Electricity supply and AC quality will need an undetermined number of synchronous machines improving the quality and dispatchability of the power for critical infrastructure and response to extreme weather events and for defence.

2) Increased transmission cost in a grid which will have to be nearly twice as long.

2. What information do people need to make decisions about where to live, how to build and how to upgrade their homes to appropriately factor in climate change?

The World Meteorological Organisation based in Geneva is the global organisation responsible for Weather and Climate.

They have no guidance on this topic - for good reason.

1. Climate is a "construct" - it is a period of 30 years. That 30 years is ONE climate data point. 90 years is three climate data points.

2. Houses are impacted by EXTREME weather.

3. Specialists in this domain use ATTRIBUTION studies over a series of 30 year periods to see if the effect of sunspots, the well-described "Urban Heat Island (UHI)" effect, carbon dioxide....are having an effect on extreme events.

4. In cities UHI is a factor.

5. Australia's ABC regularly make "attribution" claims that are debunked quietly by academics, but the damage is done - as can be seen from your question which is very disappointing.

3. What are the most cost-effective retrofitting options for improving the resilience of Australia's existing housing stock? What are their costs and benefits?

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4. What role might minimum standards play in ensuring the resilience of Australia's housing stock?

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5. The impacts of climate change are being factored into the regulation of where and how houses are built in different ways around Australia. What does leading practice look like? Where is there room for improvement? Are there lessons we can learn from other countries?

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