

Climate change and management of the environment is complex but its not. People still have an issue grappling with the idea that there are gases we emit that are actually impacting our climate and environment. If its not there is it real? That is why science is so important to explain the unseen world and to explain the underlying forces of nature. CO₂e is the benchmark for all Greenhouse warming gas emissions measured against Carbon as 1. Methane is between 28 and 44 and Nitrous Oxide is about 230. PWV- Precipitable Water Vapour (PWV) – which is water in gas form- is the major Greenhouse gas impacting our weather drivers. Increases in volume of PWV have now been measured in the Stratosphere since about 1980. La Nina is an example of PWV in action and the thermal drivers that “push” climate thermodynamics.

After the bushfires of 2020 I made a submission to the Bushfire Royal Commission. It is **hard** to answer an event like the 2019-2020 bushfires in a succinct, and rational way. Though I think it is safe to say most of us were shocked and left in awe by the sheer intensity and size of those fire events. To a greater extent, I feel that there is now nearly “**nothing off the table**” that can be held sacrosanct in politics, industry or for the community in terms of securing Australia into the future beyond the background of those events. To transition Australia into a renewable, ‘Green Energy’ superpower does hold complexity but it is clear that Australia is a vulnerable climate country. With temperatures already up to nearly 1.5 C warmer, even at this point, with al good intentions we are going to feel impacts for at least a further 10-15 years. The prediction for China’s reductions on the present path won’t reduce emissions until past 2030. On this basis, it is a dangerous time not to act on reducing emissions and promoting Net Zero is a just and righteous cause for any government to push. Australia is lucky to some extent that we don’t have the energy complexities of Europe and we do have the potential to transition in a strategic way.

Right now an Energy crisis has entered into the climate and energy space. And this is a significant time to strategically reassess our direction and energy management. Taking control of our energy management as individuals and as a community is important. Applying public policy in the climate space to take as many with us as we can, as Chris Bowen and Labor have stated, is a significant challenge. Applying fairness and applying incentives, rebates and subsidies to take everyone forward may be one of the keys for the Australian economy to transition forward.

The previous Labor government implemented the Clean Energy Act from 2011, otherwise known as the Carbon tax. It lasted only 2 years before it was shutdown by the Abbott Government in 2014. At the time it was vilified across a lot of segments of the community and was seen as a “voodoo” tax by many. To transition our society, if there **are** taxes they need to **be applied** in a fair and equitable way across our society to help shift the economy. Without “threading” the needle, a Carbon Tax, as such, may be unnecessary. However, applying a high “social principle” to the concept of economic transition on the basis of better climate policy can be done with clear insight and a balanced viewpoint. The real difference in the result of those policies and the quality and speed of transition is the funding model and financial commitment to the transition. Many things are possible if the Commonwealth can fund a comprehensive transition to support the States and the public at large. The more dollars invested and a fiscal commitment made, the more quality and speed of transition will occur. A simple practical way to transition and fund a new energy market and Electric vehicle uptake is to hold a “reserve” of funds through legislation or re-purpose the Clean Energy Finance Corporation to “manage” a transition. \$7.7 Billion is currently provided to the Mining Industry and agricultural sector for the ‘Fuel Tax Credit Scheme’.

These rebates ought to cease and those funds could now directly fund a renewable energy program. A \$8 Billion dollar reserve would “pump up” the transition and can fund power infrastructure including larger battery storage and the 400 Community Grids stated as a step-goal to 2030. Some smaller agricultural businesses could be exempt but the community expectation is now that the Commonwealth and States work towards a clean energy economy.

The concept of ‘Net-Zero’ is commendable, though, without comprehensive transition programs and funding and strategic planning it will be slow to realise. 5 year “Step-Goals” may be a way forward. The previous government was hoping that the economy would transition “organically” once we had its ‘Technology-Not Taxes’ plan. Until now we have been claiming a 20% reduction of emissions simply based on the ‘Land Care, Land Use, and Forestry’ reductions known as LULUCF. That is a land management formula which only reflects in some part reductions in real emissions. It is a carbon accounting method. Real reductions means changing our sources of energy and power and committing to real reductions in other sectors such as vehicles and agriculture. As the new Energy and Climate Change minister has already described...“there is no silver bullet” to energy and this applies for climate change.

The overarching principle must be to protect Australia from the worst that is yet to come. By developing a rational transition and “**locking**” it in we can build confidence in our economy and we can likely increase Australia’s perceived and **real** value as a great place to live in the future. I see it as the role of the Commonwealth to help “lock” it in and to help move it forward. Everyone in the community must be considered as a consumer and contributor to Greenhouse and global warming. And on this basis, all sectors of society must make a contribution as well as commitment to the cost of transition. I see this as **the** most important aspect for Australia. And I think a lot of people voted for a substantial commitment to a transition to 2030 and beyond.

Emerging out of the CoVid recession it is reasonable for everyone to recognise that a sustainable environment is not a ‘Greenies’ domain but is an intrinsic and important aspect for Australia’s economy moving forward to the mid 21st century. The development of more innovative and “**circular**” types of taxes **may** hold the key to the Australian economy to ensure a practical transition. I see this as **the** most important aspect for Australia over the next 20 years.

Conceptually, it is productive to view a transition in two ways... improving sector emissions by modification with programs for industry and the economy, and secondly, to provide programs and infrastructure to improve and protect the unique and fundamental elements in the environment. These hold intrinsic value and also contribute to Carbon Drawdown. Modifying Australia’s energy and emissions path is one component. Maintaining and improving our ambient environment and protecting its unique nature by mitigation and adaptation is another. They do go hand-in-hand of course, but also have to be looked at as two separate elements of management. Economy is human-focussed and pure nature is sustainability, survival and aesthetics. It is global in scale.

As well as Australia’s 500 Mega Tonnes of direct Greenhouse emissions, we must acknowledge that our resources output adds substantially and indirectly by our own global exports. Overall, we contribute to about 8% of total global emissions. A climate focussed economic transition will not be easy. We can only do the best we can do...**and take it as far as we can.**

The current government has been left the legacy of the Technology Investment Roadmap. With or without a Carbon Price it is ½ a plan. The current energy policy dilemma is difficult. Given the current circumstances it may be of value for the Commonwealth to even assist energy companies to maintain their old coal power stations to assist through a transition. Much more power will be required to transition to a completely renewable power grid and to build a hydrogen industry. The Renewable Energy Target (RET) may need to be revised and the Commonwealth may need to back the States further in investing in long term battery Storage. The Step-change to “pump up” the renewable sector may require the Commonwealth to invest with power companies to build the long-term storage assets infrastructure to facilitate growth and stability in the market. This is even to the extent of the Commonwealth funding the assets and handing them over to power generators to overhaul the market.

The transition itself to embrace hydrogen as a primary fuel source requires a massive investment in technology and funding. According to Dr Alan Finkel, it will take **8 times** Australia's annual electricity output to build a hydrogen industry equivalent to our current electricity output. This vision is utopian in scale. It's a “save-the-world” vision and requires a massive investment and shift in the economy. At this stage much more needs to be done to fully develop all the potential of our solar and renewable sector. Solar needs to be explored to its full potential through policy and investment before we explore the use of nuclear power. The expense of nuclear power, with even smaller reactors, can't be justified until Solar PV and large battery storage is fully developed. Even now there is an American facility coming on line that will hold 4-5 days of power. The energy and power demand is truly huge. This must be understood when we embark on this transition.

The Hornsdale Tesla battery in SA initially cost the government \$150 Million. How much would it cost to get a community battery in Fyshwick or Minto or Logan? Adding more funding to critical infrastructure like transmission and incorporating Virtual Power Plant technology with Community Grids will link the Grid. And in this way, we can fund and link renewable energy zones like those in NSW.

Community Grids and Solar Farms are truly the way forward for major power generation. Yet we haven't even finished building and funding domestic solar PV at this point. Funding the consumer for Battery Storage is just as important as putting PV on the roof. 'Virtual Power Plant' (VPP) technology has just been implemented to build virtual grids. If the Commonwealth can engage in partnerships to build community batteries and link communities and commercial areas using this technology we may finally be able to reduce the cost of power to the consumer. I believe however, it will involve direct Commonwealth funding through the States if necessary. The social principle behind a transition must be to really reduce the reliance of the consumer on grid power and encourage them to be more sustainable. To be a new renewable superhub we will need lots of power for other sectors.

We have 25% solar on the roofs and now we need to use battery technology to build it further. The Rewiring the Nation program by the new government builds on 'Poles and Wires' and builds capacity and transmission. In the Commonwealth's plan to build 400 community grids we can then build to “next-Level” and link VPP Grids from domestic use to further commercial storage for the general community. Larger scale storage holds the key to rebuild power and an energy transition at scale. We ought to be aiming and funding for 50-75% solar PV in domestic and taking battery storage to a substantial scale right across Australia.

A simple formula for this is for Power companies to work with State governments to put PV on roofs and the Commonwealth to fund Domestic battery installation. Conceivably, an Income and Assets Means Test can be built into this or incentives be built in to regional areas which have developed capacity to “switch-on”. 100,000 Domestic Batteries equals \$1 billion = 100,000 homes off the grid. Then they can sell off excess power to the grid by tariffs or to pay down the infrastructure spending.

Much can be done and much more needs to be done in solar at the domestic level. I have developed a concept called the ‘Solar Bond’ which pushes for legislation for property investors to commit to a ‘Solar Bond’ of about \$25,000 to put solar PV and put battery storage onto investment properties. With capital gain, and over time, this can be paid down and a residual paid back to the Commonwealth at time of sale. A program like this may also be suitable for holiday homes. This builds a ‘circular’ funding formula into the funding for renewable programs. Funding 40,000 homes will cost \$1 billion at \$25,000 each. By building domestic power plants with virtual technology we can build local grids. Perhaps applying an Income and Assets formula or tax rebates can engage consumers or funds pensioners so it is possible to build a new grid at scale. It is possible for the Commonwealth to assist the States directly or with commercial agreements to build Community Grid co-operatives. By backing larger infrastructure and bigger Community batteries this creates a new asset base for power generators to work with. This is what has been lacking and the technology is now available.

Targeting suitable commercial zones with VPP technology to build Community Grids and long-term battery storage is a clear direction. Even if the Commonwealth was subsidising a larger Grid Battery and larger Electricity Generators were involved in a suitable Cost development ratio then excess power can be sold back into the grid. Excess power can be sold on by the Generator after hours and over the weekends. Companies or institutions or fund managers who commit to Net Zero can sign up for joint ventures using larger scale batteries and VPP.

These are numerous examples of how a new renewable energy grid can be built if there is enough co-operation and good intervention in the market. The answers are simple in some respects. To build it on scale the new energy grid needs a substantial financial commitment and stimulus. An amount of \$10 Billion per annum to 2050 funded by Commonwealth will go a long way. If fossil fuels subsidies were removed for the mining industry that is about \$10 Billion. Turn that into a ‘Reserve Fund’ by legislation and “lock it in” to 2050 and we can gradually progress towards being a clean energy superpower. Though the Commonwealth budget is tight there is now a clear mandate to act. To reduce to 43% emissions by 2030 requires reduction of about 140 Mega Tonnes beyond the 20% already achieved. Some climate organisations have been calling for an extraction tax per tonne on coal and other resources. Even the United Australia Party suggested a tax on Iron Ore at 15% for the last election.

The Baby Boomer generation from the 50’s and 60’s are now reaching Age Pension age. The cost of supporting Age Pensioners will only increase. The provision of legislation to fund an Age Pension ‘Renewable Package’ may be another way to further reduce reliance on the Grid. This could be applied through an Income and Assets Means Test to target suitable customers and be repaid at a later date. Applying a ‘Circular taxation’ method or capital repayments could further reduce costs. Age Pensioners also receive exemptions when they go into nursing care and the Commonwealth could use the power for the Grid when this occurs.

A practical transition policy is required to upgrade the vehicle sector as we move forward. The first hydrogen prime mover is available and so the Commonwealth needs to ensure that the vehicle market is set to transition. Leaving incentives to the States may be a slow transition. Funding EV charging in shopping precincts and in car parks is a great way to encourage take-up. The amount of power required in the transition is huge and so for the Commonwealth to be actively involved with the States to ensure charging capability across Australia is a good initial strategy. I personally have explored how to replace Fuel Excise with new road taxes and it certainly makes sense that a 'User Pays' road tax system is developed based on kilometre usage. A Using a 'Linkt' style monitoring system may be a practical way to get EV taxes back to the Commonwealth or the States. At present the States are talking about EV taxes paid at registration annually which may not be very practical. More Increased incentives to fund Electric Vehicles and to build the EV market may also be useful. In 2021 EV take up in Australia was about 20,000 vehicles. Direct funding of \$20K from the Commonwealth and Zero interest loans by the States will "pump up" the EV market. Eligibility could be based on an Income and Asset testing formula. An Income & Assets model may be a useful way to help lower and middle income earners purchase an EV. That is 50,000 vehicles annually at \$1 Billion. It makes sense over a 5 or 10 year to accelerate the take up. And then we may be in a place where Hydrogen vehicles are ready to go. A minimum standard of Hybrid technology, or dual fuel LPG ought to be a minimum benchmark in this country. A 'Renewable Energy Package' could be offered to Older Australians and students. With an Income and Assets formula an EV could be purchased on a Reverse mortgage loan that is secured on property. A Capital write-down formula can also be built in. Students could re-pay a portion like a HECS loan. A "draw-the-line" policy to limit most full petrol and diesel vehicle imports is a clear signal for the market.

Moving forward to 2027 the previous government set this as the year Euro 6 standards are to be implemented. This is the AdBlue SCR exhaust standard in place in Europe since 2015. Retro-fitting is possible and could be implemented for some older diesel. It may be a better direction to only allow Hybrids and EV imports from 2027 and signal the market that most full petrol vehicle imports will cease. Possibly smaller petrol vehicles and cleaner luxury vehicles can be exempted. From this point we can move towards a full vehicle transition. Restarting the LPG Scheme for older petrol vehicles may also be useful in the short-term.

When we play golf we ought to have battery carts. Larger lawn mowers at the golf course ought to run on Euro6 Standard now. All councils ought to have funding to upgrade their plant to EURO6 Adblue diesel or Battery mowers. Most building sites are running diesel generators and most can be running Clean Adblue Euro6 technology now. Generators may even plug into the Community Grid over time. Business can be subsidised on Plant and equipment depending on their Profit margin. The priority will be to run cleaner diesel technology that that includes direct subsidies to industry and small businesses and for "tradies".

Even Joe Biden has even stated "no more dirty diesel". Clean diesel is okay but we ought to be on board by 2030 to shut down the "old stuff". I feel the Commonwealth ought to fund emissions monitoring in the vehicles sector and link it to reducing emissions.

Promoting cleaner air was mandated by the Commonwealth in the 'National Clean Air Agreement' work plan which has been in place since 2015. \$8 Billion annually will go a long way to fund a transition. It can help to fund the building of battery buses in Australia. Moving forward it has the potential to provide more CEFC funding to build more partnerships for manufacturing of vehicles. If we are to get to Net Zero intervening in the market in a smart way is the best way forward.

Many things are possible. If we are going to drive Hydrogen cars now is the time to start building innovative partnerships and perhaps in the future build cars once again in Australia. Petrol vehicles will never disappear in this world but we can commit to a whole lot of **"better gear"**. Fuel excise generates \$10 Billion per year. An EV road tax is almost essential or an increase in GST is a practical way to make up the shortfall we will lose from Excise revenue. The User pays concept on the road is still fair. Australia's Commonwealth budget is only \$500 Billion per year and balancing the budget will still be important as we drive a transitions into the future. Funding of \$10 Billion per year can fund ARENA, the CEFC, and the ERF to strategically transition energy and the economy. Funding vehicle fleet purchases and a small business transition for cleaner vehicles supports the economy in a transition. Many things are possible if we can just take the step and embrace a transition to a cleaner future!

To create quality you have to invest in quality! There is no better adage for the environment. Cleaner air, cleaner water and cleaner cities creating a cleaner country.

'Justification' is a key word in this transition and to ask the community to make sacrifices across all levels of community I have asked this question... "If you have to have a transition and play with a budget what return does the community get back from it?". "Where is the community value?" This has been my most important consideration. "Where will the money come from?"

A fully funded transition built from a meta-framework takes a substantial "tier-down" approach and rewards the community and the consumer for the sacrifices they make. In its conception it rewards, and if necessary, implements reforms to shift the economy forward. Taken as a whole, or delivered in stages, it focusses on re-organising and supporting the major sectors of the economy through a comprehensive solar package, and transitions transport to cleaner and updated technology. With enough funding built in, it can include some infrastructure components but can also provide programs to build on "drawdown" concepts to create jobs and work. The primary aim is to safely, and securely, move Australia to transition into less emissions and protect the community and to create jobs.

The real acceleration and delivery arrives when Industry, community and the government are on board together to work through the transition issues so as to be in a place that is... "As Good as it Gets" in this current world and fiscal circumstances. A Meta-Framework has the potential to fund a wide-range and programs and even include funding for water sustainability and infrastructure to mitigate future climate change and future drought. And while it is important to realise worthwhile programs may include some adjustment to taxation the goal is to make the transition relatively painless. By the end of 2030, I am hoping that we can be well under way to reduce **'Actual'** emissions by at least 100 Mega Tonnes per year! And this will continue and extrapolate forward towards 2050. The National Reconstruction Fund has the potential to build some of the new infrastructure. It may need the Commonwealth to seek tenders to build on some of the technology and to actively seek partnerships ad tenders to build a new economy.

These are actual emissions through economic investment. Though Net Zero is possible, I feel that Net Zero is unlikely without real and practical reductions that are tangible and take the whole community forward. If we are going to have smart government! If we are going to have a government that promotes innovation, then we need smart climate policies that take everyone forward. It's been said by both sides of politics. A smart government would not be afraid to apply a 'Point of Extraction' tax on resources of 3% adding \$5 Billion per year to Commonwealth revenue. With the removal of portions of the Fuel Tax Credit Scheme we can easily create a reserve of \$8 Billion per year to fully fund the CEFC in a comprehensive transition. Instead of treating the environment and a transition like a "cheap trick" like the previous government we can now develop Sector based policies to reduce across all the emissions sectors in the economy to assist in transition. A policy shift that can truly engage the community and build a renewable economy is possible. Committed funding over the long term for the next 30 years is required. \$8 Billion per year "locked-in" across the important sectors of the economy, and working in partnership with business may go a fair way to build it. Fairer energy equity across the economy for all consumers is now possible though it will take serious policy change across the States and the Commonwealth. Developing a practical formula for the Commonwealth to fund the 400 Community Grids promised by 2030 is important and is probably most practical working with energy companies to transform the energy grid.

Being a vulnerable country exposed to climate change we can hardly pressure larger economies like China or the USA and the EU without having our energy "mix" sorted. We have been lagging and to push harder in the future we will need to be in a better position with emissions to justify pushing other OECD countries. The Marinus Link Project won't be completed until 2028-29 and China is still to "top-out" on emissions at 2030. On this basis, more serious and committed action is required even within the current term of this government. The Hornsdale Tesla battery storage was completed in 63 days in 2017. 10 Hornsdale Batteries might cost \$3 Billion now but that is long term infrastructure that can be brought on line within 2 years. Mapping out new renewable power zones with the States may help the Commonwealth build effective Community Grids. If pushing the "button" will only cost \$8 Billion (or less) let us find the funding and build the transition. Even the Integrated System Plan published by AEMO wants development of other energy generation that may reduce the footprint of larger scale generators. Distributed Energy Resources (DER) are now capable of building the energy grid further if enough homes and commercial zones are linked by Virtual Power Plants (VPP) and Community batteries. A Two-Way grid is possible. Let's build it as soon as possible. The Commonwealth has the potential to fund a lot more Battery Storage directly and sell the assets on to generators at reduced cost to facilitate cheaper electricity. Saturating the market with Battery Storage to create cheaper electricity is possible even now. To have the reserves of electricity to become a Hydrogen superpower we need to utilise all large and small scale generation capacity.

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(This is the type of Long Term storage we need!)

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