Submission No 69

SUSTAINABILITY OF ENERGY SUPPLY AND RESOURCES IN NSW

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SUBMISSION INTO SUSTAINABLE ENERGY AND RESOURCES FOR THE COMMITTEE ON ENVIRONMENT AND PLANNING.

Dr Michael Schien September 1st 2019

My brief submission starts with the UN 2018 International Panel on Climate Change (IPCC) report on global warming. It found that for warming to remain below 1.5c we need to reduce man-made greenhouse gas emissions (GHG) to 50% by 2030, and to be carbon neutral by 2050, while also preparing for additional carbon drawdown. As well, the IPCC Special Report on Climate Change and Land Use 2019 detailed the threats to our food systems, including increased heating, extreme weather events, prolonged drought, and land degradation leading to mass food shortages, and widespread political instability.

I also point out that Australia ratified the Paris "Agreement on Climate Change" in 2016, committing to reduce emissions intensity by around 60% by 2030.

It follows that every region, every nation, and every community must make the changes necessary to reduce GHG emissions and avoid catastrophic climate change.

At present, our industrial societies are heavily reliant on fossil fuels for energy, transport, agricultural production, manufacturing, construction, fibres, medicines and so on. Global economies are built around coal, oil and gas, with ten million dollars of subsidies every single minute to facilitate exploration, extraction processing and distribution. There is an understandable reluctance of these industries to

transition to renewable energy, with an estimated one hundred trillion dollars of infrastructure at stake, so there are powerful campaigns to deny or question the science and urgency of a transition to renewables.

In Australia the major coal, oil and gas companies, apart from AGL, are overseas owned, with most profits flowing overseas. Exploration leases cover vast swathes of our land and sea, and very often trigger resistance from local communities. It is true to say the fossil fuel industry has a rapidly dwindling social licence, despite stubborn ongoing political support.

Our capacity to transition to Renewable Energy (RE) in Australia is virtually unlimited. We have an educated workforce, a stable political system, and ideal conditions for solar, wind and other RE across most of our vast interior. Unfortunately to date we have not been nimble enough to capitalise on some of the photovoltaic technology that originated here, and is now being utilised in China, but work is ongoing, and opportunities will arise again. For example, there is Queensland research behind the hydrolytic “Green Hydrogen” industry, and the potential to export H2 as gas or ammonia to markets in Asia, displacing “natural gas”, which is a fossil fuel and major GHG source. We have the “Cat-HTR”, developed at Sydney University, converting up to 20,000 tonnes of mixed plastic waste annually, back to fuel or polymers and new plastics. In the Hunter coalfields, work by Muswellbrook Council has identified dozens of sites suitable for “pumped hydro” electricity. Australia is also the world’s largest supplier of lithium, the major metal used in battery storage of RE.

A strong trend in RE is the steep and ongoing fall in the price per kilowatt hour of electricity. It is now competitive with existing coal generated electricity, nett of any subsidy, and far and away the cheapest and fastest to build, when compared to the costs of new coal, gas or nuclear power plants. Once a solar farm, windfarm or pumped hydro unit is constructed, it's margin cost of production is virtually zero, and reliability is unparalleled. No need for cooling water; no need to shut down in extreme heat waves; no toxic fly ash production; no nuclear or greenhouse gas waste, and virtually no fuel costs for the life of the plant. Servicing costs are a fraction of conventional fossil fuel generators. Another crucial difference is the ability to spread the grid over a wide network of smaller generators, in "virtual power stations". Some European Union countries have used this to advantage in encouraging cooperatives of roof- or hilltop RE generators to produce a large fraction of national grid power. It is simply not possible for fossil fuels to compete.

Australia has some of the world's highest energy prices, acting as a drain on national and household budgets. Decreasing prices due to competition from RE are helping fix this problem. Remote communities, including mining operations, previously reliant on diesel generated power, or hundreds of kilometres of vulnerable high voltage power lines, are now turning to locally generated RE. This helps make remote and rural communities more robust and self - sufficient, with money staying locally rather than being spent on large power bills from a large centralised utility.

Regarding transport; Australia's car fleet is overwhelmingly petrol and diesel powered. At any one time our nation has only a few weeks of fuel in reserve; we are dependent on imports for 90% of our oil, which mainly comes from the Middle East, via refining in South Korea, China or Singapore. This is not secure or sustainable. It should be a source of great concern to us. Our large lithium, copper, nickel and iron reserves, and endless sunlight, now make the transition to electric and hydrogen fuelled vehicles even more logical.

The public health consequences of moving away from fossil fuels are seen at many levels. Avoiding catastrophic climate change, with its heat waves, drought, fires, and reduced food production, is the most obvious. Reducing particulate emissions from power stations, cars and coal mines is another, with a proven link between fine particulates, nitrous oxides and lung disease. An equitable transition to RE will also create a jobs boom, with secure employment, vital for psychological and financial well-being, for generations to come. Jobs include metals mining, building new grids, wind and wave generators, solar farms, pumped hydro units, and the computer power that goes with these. The research and development for new materials; recycling systems; adaptive, regenerative agriculture; rehabilitating and replanting degraded farmland and mining landscapes; developing an electric vehicle industry and so on. Not least, our homes and cities need to be retrofitted to reduce energy dependence, and encourage active transport such as walking and cycling. Virtually all activities involved in building sustainable societies, are good for human wellbeing.

SOME SUGGESTIONS FOR IMMEDIATE CONSIDERATION

1) An immediate moratorium on fossil fuel exploration and development in Australia
2) Phase out public subsidies to fossil fuel industries
3) Place a realistic price, tax, tariff or impost on carbon. Sweden's is currently around US $139/tonne CO2; their economy has grown by 60% since the tax was introduced in 1991, while emissions have fallen
4) Develop an independent panel of experts to facilitate a just transition to RE across all sectors in line with IPCC recommendations and Paris Agreement, so that no workers are disadvantaged
5) Increase transparency of decision making at all levels. This would involve well- resourced, permanent, and effective ICAC type organisations. In Australia there are too many examples of corrupt behaviour and system rorting; for example, the financial sector, and the devastation of the Murray Darling river system
6) Expand our research and development budgets back to levels at least equal those seen in other OECD countries
7) Rebuild Australian manufacturing and infrastructure to better suit the transition away from fossil fuels
8) Incentives for installation of rooftop solar, local power generating cooperatives, and electric vehicle ownership
9) Increased opportunities for training in sustainable industries via apprenticeships and an expanded role for technical colleges and universities.

ADDITIONAL FILES APPENDED TO THIS SUBMISSION

2018 UN IPCC Climate Report

2019 UN IPCC Land Use Report

2015 Beyond Zero Emissions; Australia Energy Superpower

2003 WHO Report into air pollution

Dr Michael Schien.

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Attachments included with submission:

Climate Change and Land, Intergovernmental Panel on Climate Change, 2019.

Zero Carbon Australia: Renewable Energy Superpower, Beyond Zero Emissions, 2015.

Health Aspects of Air Pollution with Particulate Matter, Ozone and Nitrogen Dioxide, World Health Organisation, 2003.