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Committee Secretary
Senate Standing Committees on Economics
PO Box 6100
Parliament House Canberra ACT 2600

Dear Committee Secretary and Senators

I am a retired Mechanical Engineer who spent over 30 years of my working life as a design engineer in power station design, commissioning, construction and operation, concentrating mainly in the specific area of steam and gas turbine-generators and their associated plant.

I will concentrate my submission on item (h) of the terms of reference but before I do I would like to say that Australia needs to move forward over the next 30 years with large development projects such as water storage, high speed interstate rail systems, oil refineries, steel making, and nuclear energy power systems. All of these will require us to re-establish a large manufacturing base which has mostly disappeared over the last 40 years, with the gradual loss of skills which will be difficult to replace and will require to be addressed in restructuring our education system and importing skills from elsewhere.

To do this we will need access to trillions of dollars and our financial system will also need to change from one is concentrating of the housing market and gambling with its huge exposure to derivatives. The way to do this is to establish a national bank that can issue large amounts of credit backed by the countries wealth and a glass-steagall separation of private banks to become a trusted partner of the national banking system thus supporting the availability of credit for development and all of the other add ons that come from this such as housing, education, health and the increases in the services industry.

Which ever way you look at it relying on renewable energy will lead us into a dead end as far as proceeding to achieve the above. Renewable energy is not reliable, even with large battery back-up. We can't control when the wind blows or when the sun shines and batteries will run out of stored energy in a matter of a few days at best, which is not helpful if the days in succession are of light or no wind and overcast days. Currently people can't see this because the base load coal fired plants are still ensuring reliability of the system. South Australia is an exception to this and it has already suffered two major failures. Other examples of this have already occurred in Germany, Texas and California. Also it has been demonstrated from studies that by the time you reach 40% capacity of your system from wind and solar the price of electrical energy has already doubled. So when you talk about cheap, reliable renewable energy you have not looked into it in enough detail and the costs are camouflaged by government subsidies.

To have a reliably power system you need to have base load generators whose output is able to be controlled to mett the demand. For a power system to be reliable it needs the energy to be supplied as the users of the system demand it. Renewables are not capable of doing this. The cost of batteries to give even a few days of stored energy would be prohibitive and maybe there would be a supply issue with having enough materials to manufacture such a large requirement world wide. If fossil

fuels are to be outlawed, as the world banking systems green new deal is trying to force on nations

and governments, then you have no other option than to go to nuclear energy power systems. But as the green new deal is also outlawing these, it's time to take a stand against this dictatorial control. Advanced nuclear reactor designs such as the molten salt reactor using thorium as the energy source overcomes all of the objections to nuclear such as safety and waste. Australia should consider starting a manufacturing industry in modular reactors in the same way it manufactured cars, as a local and export industry.

To give you into some insight into the unreliability of renewables using wind and solar I will give you some facts based on the German experience where they have over 50,000 MW installed capacity in each of wind and solar. The MWh generated from wind turbines has been consistently averaging over a number of years only 16% of their installed capacity and solar even less at 12%. The addition of more and more wind turbines or solar panels with a larger geographical spread has not smoothed out their delivery of MWh's. In 2006 there were only 3 or 4 interventions to stabilize the grid, in 2011,1000 interventions and in 2014, 3500 interventions. They have had to import power from other countries to maintain the stability of their system as the renewables capacity in the system has increased. So, you can see that renewables are not reliable. Another problem with renewables is that their design life is shorter than both fossil fuel and nuclear, which must come into calculations of their lifetime costs. There is also the problem of waste when their life is finished which can be bought about by the heavy costs of maintenance. Currently in America thousands of tonnes of wind turbine blades are being buried as waste. In Europe it is estimated that 14,000 turbine blades will need to be replaced in the coming years. These blades are up to 50 metre in length and there is currently no recycling process developed to deal with this waste at this time.

Nuclear reactors would give you at least a 90% capacity factor. To replace the 4726 MW of current coal fired plants in Victoria would require approximately 5,900 wind turbines of 4MW each capacity, plus enough battery back up to last at least five days. The latter would be at an enormous cost (estimated at $7.7 billion based on $1600/kwh). Currently there are 4,296 MW of wind turbines operating or under construction in Victoria. In Australia the number was 9590 MW as of July 2021. A further 21,845MW is committed or proposed. We will finish up littering the countryside with wind turbines and solar panels if we continue with this renewable technology.

Passenger automobiles contribute 10% of the CO2 greenhouse gas. Intentions to reduce emissions by 2030 by 50% could require conversion of about half of the passenger vehicles to ev's so as to contribute there half share. An electric vehicle (ev) that travels 15,000 km/year will use 3,285 MWh of electricity per year. There are 20 million registered vehicles in Australia as of last year. Conversion to 50% of ev's would require 32.8 million MWh/year of electricity. With 9590MW plus 21,845MW of wind turbines available operating at a capacity factor of 16% will deliver a total of 44 million MWh/year. That is 75% of energy generated by the wind is needed just to power ev's. This shows that using low flux density power generation, apart from its unreliability, will create enormous problems in achieving energy solutions. High flux density fusion energy is the only alternative solution currently available if you outlaw fossil fuel generated energy.

There are over one billion passenger cars in the world and the actual ability of how they can be replaced by 2050 has not been addressed by those proposing this as necessary to 'save the world from a climate induced (byCO2) disaster'. Note here that CO2 content in the atmosphere is 0.04% and human contribution to this is 0.0016%.

It is worth noting a fact of physics regarding radiative heat transfer to the outer atmosphere. Karl Schwarzschild calculated the radiative heat transfer to the atmosphere in the early part of the 20th

century using the electromagnetic spectrum discovery of Max Plank of energy versus frequency of light waves. His results were the radiative heat energy from the sun on the earth radiated to the atmosphere is 394 watts/square metre without any greenhouse gas. With the greenhouse gases this reduces to 277 watts/square metre and that is why we have a liveable climate. He calculated that if you double the CO2 content in the atmosphere from 400ppm to 800ppm the effect is to reduce this transfer from 277 watts/square metre to 274 watts/square metre. This is a 3.5% change and note that 95% of CO2 comes from natural sources. This is why the so called 'climate deniers' can see through the claims of the politically controlled IPCC. You don't need your IPCC models. This is a fact of physics. The current head of NASA has just recently admitted the models are wrong after testing them against the climate of the recent ice age and said they are over estimating the temperature changes due to CO2. What we are doing is wasting trillions of dollars following the global climate (read warming) change scare on something that is psuedo science and the money being spent on reducing our carbon footprint will not have any measurable effect. In the process we are destroying the reliable electric power systems we had and doubling the price of energy. Any attempts to resurrect our manufacturing industry and to develop our infrastructure is being constrained by our attempts to have a competitive carbon constrained economy.

What this Senate Enquiry should consider recommending as first steps to redeveloping our manufacturing sector is the following:

· Change the existing financial system by establishing a national bank so money supply is not dependent on borrowing from external sources.

· Introduce glass steagall reform into the private banking system by separation of commercial banking from investment banking.

· Low carbon economy to consist of replacing most fossil fuel base load generation with nuclear in all Australian states and territories.

· Reduce the amount of wind farms and solar farms and house roof solar panels to no more than 15% of the power systems capacity so reliability of the system is protected.

· Start building the Clarence river project and the Burdekin dam project.

· Build the Iron Boomerang project by transferring coal by rail to steel manufacturing plants located close to iron ore mining. Then return rail the steel to the east coast. Include a line to Darwin for export of steel.

· Start building fast rail projects between all Australian main cities. Build the trains in Australia.

· Update our education system to concentrate on providing skills for the manufacturing sector.

· Provide a health system that ensures the population in all cities and towns receive appropriate health care.

The above will require a large increase in our manufacturing sector and this will also increase our housing sector and services industry. It will also provide adequate taxation income for the government to do its job of providing for education, health and social services.

Yours Sincerely,

Alex Walsh