INQUIRY into the AUSTRALIAN MANUFACTURING INDUSTRY

To Economics References Committee, Senate Standing Committee on Economics
Ph 6277 5340 economics.sen@aph.gov.au

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1 My background to comment

- I was a Factory Manager in petrochemicals manufacturing in the 1970s (appendix 3)
- I learned much from my father, who as head of some of our largest companies (mining & manufacturing) knew PMs Billy, Gough, Malcolm and Bob well. He had a vital role during WW2 in aviation & manufacturing so was forbidden to join the armed services.
- My 50 year mainly Engineering / Management career included 27 years in industry and 23 years in Gov't Depts (NSW & Canberra), including as Head of seven Branches, and as Chairman of an inter-gov'tal committee I chose 91 as the octane for Unleaded Petrol, and included work for 6 MPs (3 Canberra, 3 NSW) including a Senator and a Minister.

2 Overview Summary

- A good domestic manufacturing industry has national defence and security benefits
- Manufacturing in Australia has tragically been allowed to, or caused to, run down to seriously low levels by various misguided Govt policies that must urgently be reversed
- The ideologies of Free Trade, economic rationalism and 'import parity pricing' are flawed methodologies that have done a lot of damage.
- Tariffs need to be installed so as to provide assurance for longterm investments in manufacturing, especially 'import-replacement', food & electricity baseload
- Few Politicians have worked in industry. Few understand Productivity. They have been badly briefed by Treasury etc bureaucrats (I know – I was a bureaucrat for 23 years!)
- The legislative section that forbids nuclear power generation needs to be abolished
- Australia needs a nuclear waste dump and a facility to process the spent fuel rods that include our exported uranium so as to guarantee none is diverted to weapons
- We need to build a large baseload nuclear power station to guarantee electricity supply when the wind does not blow and the sun does not shine - Possibly it could pump its cooling water from the Gulf of Carpentaria to the northern part of the Darling River basin
- Australia needs to promote 'import-replacement' manufacturing of such items as ammunition, food processing, petrochemicals, medicines, vitamin C etc
- We should abandon the very flawed submarine contract, and the crazy uneconomic Snowy 2 project, and instead do the Bradfield scheme or similar
- It is sensible to quickly borrow money at current unprecedentedly-low interest rates (1.8% over 30 years) for building dams, factories etc before interest rates go up
- Farming can be regarded as part of manufacturing industry
- Sadly NO DAMS built since 1983 (i.e. no major ones) (appendix 7 is a good proposal).
- The Water Act 2007 is very flawed as it gives the environment priority over people & the economy. (Appendix 6) It needs to be urgently amended to give balance, not priority.
- The Murray-Darling Plan is bad since it is based on the wrong priority of the environment

Lex Stewart, [redacted]

3.0 Terms of Reference

The Australian manufacturing industry, with specific regard to:

a. what manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region;
b. the role that the Australian mfg industry has played, is playing and will play in the future;
c. the drivers of growth in manufacturing in Australia and around the world;
d. the strengths of Australia's existing manufacturing industry and opportunities for its development and expansion;
e. the sectors in which Australian manufacturers enjoy a natural advantage in energy, access to primary resources and skilled workers over internat'l competitors, and how to capitalise on those advantages;
f. identifying new areas in which Australian mfg industry can establish itself as a global leader;
g. the role that gov't can play in assisting our domestic manufacturing industry, with specific regard to:
    i. research and development;
    ii. attracting investment;
    iii. supply chain support;
    iv. government procurement;
    v. trade policy;
    vi. skills and training; and
h. the opportunity for reliable, cheap, renewable energy to keep Australia's manufactured exports competitive in a carbon-constrained global economy and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed.

4 BASIC PRINCIPLES that need to be kept in mind in all of these deliberations:-

1. A basic obligation of Commonwealth and State Governments is, due to the oath or affirmation that MPs take to swear loyalty to QE2 etc, to provide for the peace, order and welfare of Australia's citizens rather than trying to "virtue signal" at the UN or in other international forums
2. Economic efficiency and return on investment are important, but should not be regarded as sole or pre-eminent. These need to be balanced with social & defence considerations, and for the public good and in the national interest. I.e. people and social cohesion matter more than strict 'dry' economics or irresponsible MMT, modern monetary theory.
3. Free Trade has been proven to be bad by Prof Samuelson who in his 90s published an article full of data and equations; he was for 50 years a foremost worldwide advocate of Fee Trade, but as I show in appendix 2 he had the courage to be honest and 'recant'
4. It is a tragedy that there have been so few Engineers, Scientists and ex-industrialists in Parliament. Approximately half of all MPs and Senators are lawyers (we do need a few)
5. Very few lawyers, very few Canberra bureaucrats and very few Economists understand the basic laws of physics and chemistry which cannot be changed by Govt decrees or subsidies. They are like King Canute of old in hugely subsidising solar and wind.
6. One key example is the need to understand "economies of scale", as expressed in the equation that covers the construction and operation of chemical manufacturing factories, and of some other large manufacturing industries – refer to Appendix one, which therefore argues strongly for the need for tariffs in the national interest.
7. Unless it is deliberately managed, water availability in Australia is highly variable.
8. Australia has vast areas of fertile flood plain (often with a Mediterranean climate) which are ideal for increased food and fibre production, and attendant processing factories.
9. The resourceful, adaptive and productive people of Australia, especially in its rural and regional areas, can provide the workforce to implement more manufacturing & farming.

5 Discussion of Issues using numbering of Terms of Reference

(a) what manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region;

A1 Fuel – we need Fuel Security -- it is absurd that Govts of both sides have allowed/forced many of Australia's Oil refineries to close so that we import finished products made in Singapore, Persian Gulf etc rather than refining our own crude oil (which we export). Senator Jim Molan recently said that Australia possesses only 17 days of fuel supplies – so if war breaks out we will have within a short space of time insufficient ATK (aviation turbine kerosene) to fuel our fighter jets and most other aircraft; and will have insufficient diesel fuel for our army trucks and tanks, but also seriously not enough to operate trucks to transport food from docks to warehouses to supermarkets, causing widespread food shortages.

A2 Food processing – several years ago a newspaper article appeared stating the truth that Australia had become a NET IMPORTER of food. While Australia does export millions of tonnes of wheat, many thousands of live cattle or sheep etc, these are not food – they are bulk commodities which can become food ONLY AFTER processing, of which Australia does not have enough factories, canneries, abattoirs etc.
We need to promote the building of canneries, deep-freezing factories etc

A3 Defence equipment, including ammunition
A3.1 The one manufacturing industry that Australia should NOT be in is Submarine building! We should buy 'off-the-shelf' diesel-electric submarines from Israel, or nuclear submarines from USA or India.
A3.2 What we should do (and there are several existing boatmakers who could do it) is to build 100 fast Patrol Boats, equipped with torpedoes, a few missiles and a modest gun (say 3 inch calibre); these would be a high quality upgrade of the very successful MTBs (motor-torpedo boats) used by England and the E-boats used by the Germans in WW2.

A3.3 It has been a disgraceful indictment of both sides of politics that until recently almost all of the various types of ammunition needed by our defence forces has been imported, and its supply would therefore be disrupted in time of war. Appendix 5 mentions that in February 2019 the Federal Govt was supporting the building of a factory in Maryborough Queensland to manufacture artillery shells for the ADF to replace imports. There should be more factories like this so that Australia is totally self-sufficient in ammunition.

A3.4 The fairly recent govt announcement that Australia will look into the feasibility of making missiles here is very welcome, but should have been done 20-30 years ago. Let us not kid ourselves, it will require quite a few years for us to build missile factories and do all the sophisticated research and testing before we can get reliable missiles of many different types. This program should be expedited.

A4 A 'heavy' Chemicals industry, as well as Oil Refineries
such as I worked in during 1971-1976, as described in Appendix 3.
A4.1 These industries, provided that they have tariff protection to enable continuation in the long-term, have huge benefits for broadening the technological diversity of our workforce, and can shield Australia from supply disruptions if we import too much from overseas

A4.2 One argument against burning coal and crude oil is that these are very valuable complicated raw materials for use as inputs into a variety of heavy chemicals industries (handling many thousands of tonnes per year), as well as providing some sophisticated molecules as inputs into manufacture of vitamins and medicines – very small quantities of course (less than one tonne per year).

(b) the role that the Australian manufacturing industry has played, is playing and will play in the future

B1 Aust manufacturing contributed greatly to our economic expansion during the 1950s,1960s and 1970s and these were times of FULL employment!
BUT the unilateral and foolish decision of the federal Govt to slash tariffs overnight by 25% was the death knell of many factories including the one in which I worked as Deputy Factory Manager, a large petrochemical complex – refer to Appendix 3. Within a few years all of those factories in the photo plus many others shut down, not being able to compete with cheap imports, and the end result was that Australian consumers were NOT better off!

It was very sad that the skilled workforce that supported such a factory complex was disbanded – and those skills were not only top university-qualified Engineers and Scientists like me, but also welders, riggers, fitters etc who are trained at TAFEs or (Technical Colleges as they were then called) – i.e. these were good technology jobs for workers that these days have little options other than casual work in McDonalds or the dole.

B2 In future, if we do not rapidly revitalise Aust manufacturing industry then not only would our defence capability be undermined, but also our social cohesion in terms of providing technically interesting jobs for our youth would be diminished even further than the present unsatisfactory state of affairs.
B3 That is why it is vitally important that we restore apprenticeships and Cadetship programs so that Australian companies pay for young people to come thru TAFEs and Unis – the benefit goes both ways – the companies benefit too, and it is hard to understand why cadetships and apprenticeships have been reduced to almost zero over the last 30 years compared to them having been plentiful in the 1960s and 70s. It seems that companies have been too influenced by Accountants instead of by entrepreneurs and adventurous Engineers.

(c) the drivers of growth in manufacturing in Australia and around the world;
The drivers are to manufacture products that customers want and will pay for.

(d) the strengths of Australia's existing manufacturing industry and opportunities for its development and expansion
D1 One cannot have strengths until one gets rid of the weaknesses.
The current Aust manufacturing industry is weak because of decades of poor Govt policy. There would be huge opportunities for development and expansion if Govts would (a) reduce red tape and green tape, and (b) announce tariff protections and do it on a bi-partisan basis so as to assure an investor/manufacturer that they can build a factory and be assured that it will not get undermined soon afterwards due to a change of Govt.

D2 Let me give one example – Australia used to have in the late 1960s/early 1970s two fully viable and competitive makers of Diesel-Electric railway locomotives and many were exported, partly due to their high quality and reliability
My father was head of one of these two companies, and had a big export contract to supply locomotives to Thailand. The coalition Govt under PM Billy McMahon was foolishly using manipulation of the then FIXED exchange rates in order to suppress domestic inflation being caused by wrong federal government policies. (therefore it is wrong for conservatives to blame the runaway inflation of the mid-1970s on that nasty fella Whitlam – the 'rot' began under Liberal PM McMahon!). Suddenly the McMahon coalition govt announced a Revaluation upwards of the AUD vs USD to 1.15 (by memory) and it totally killed off that export contract and others too. A few years ago I was upset by some politician boasting that because of some initiative of his that one Australain company could PARTICIPATE to a small extent in the largely overseas manufacture of a railway locomotive – he had no sense of history and was probably unaware that we used to be able to manufacture COMPLETE locos.

OPPORTUNITIES – some are listed above in A1-A4, and B1-B3 and one in Appendix 7.
D3 Because of our vital need to develop fuel security, we need to both explore for oil/gas AND open up the various oil/gas wells that have been discovered but have been kept quiet, with a cork in the top, so to speak.

D4 AND we need to restore our lost oil refinery capacity so as to be able to refine Australian crude oil, of which we have plenty – but the closure of oil refineries means that in the event of war (or even if, far short of actual war, some regional tensions cause insurance companies to refuse to cover merchant shipping to and from Australia) then we cannot import finished product, and because we cannot use raw crude oil in jet fighters or trucks etc it means that our defence forces would be paralysed.

D5 we should plant lots of Pongamia trees on marginal agricultural land, and harvest the nuts to yield oil to be transformed into BioDiesel. It would be a far better idea than to encourage ethanol to be blended into petrol – that is also a worthy idea, but biodiesel is better.

(e) the sectors in which Australian manufacturers enjoy a natural advantage in energy, access to primary resources and skilled workers over international competitors, and how to capitalise on those advantages

E1 Surely the classic sector in which Australia enjoys a huge advantage is uranium mining/refining and nuclear waste disposal processing. We have over a third of world uranium reserves in our ground, but merely export what we dig up and then not we, but others, process the ores up to produce finished produces (usually uranium oxide).
My late father set up the ERA (Energy Resources of Australia) uranium mine and negotiated longterm contracts to supply nuclear power stations in Korea, Japan, Germany etc

He and I argue that it is immoral for us to sell uranium, requiring in the contracts that it not be used in weapons, but then we leave it to other people to process the nuclear waste from spent nuclear reactor fuel rods. And during that processing, of course some materials of various isotopes can be diverted into weapons and nobody would know the difference.

We should capitalise on this natural advantage by quickly choosing the site of a nuclear waste processing facility and waste disposal site. It is not difficult – we have millions of sq km of geologically stable bedrock in which to put nuclear wastes, and it would be many hundreds of km from the nearest human being. (n.b. the nuclear waste problem has been exaggerated. The total of all nuclear wastes in the world could fit into a few Olympic size swim pools)

E2 We have a natural advantage in having vast quantities of natural gas.
It is tragic that ignorant Canberra bureaucrats following the inappropriate "import parity pricing" doctrine killed off what could have been a very profitable and environmentally-advantageous project in NW Australia. My father was head of Hamersly Iron during most of the 1970s and wanted to develop the "HiMet" process that would use the hydrogen contained in natural gas to strip out some of the oxygen in iron ore, to create an enriched ore. Iron ore is mostly Fe_2O_3 which contains 70% iron and 30% oxygen. This means that a ship carrying 100,000 tonnes of iron ore is carrying 30,000 tonnes of oxygen bound up in that ore. By using the hydrogen from natural gas readily available off the coast and being brought onshore for purification then export to Japan etc, then much of the oxygen can be extracted from the iron ore, and you end up with a ship carrying many more tonnes of iron, and many less tonnes of oxygen within its 100,000 t carrying capacity. The scheme was killed off by the bureaucrats in Canberra, but it could have provided extra jobs and extra income for Australia.

E3 we have natural advantages in having vast areas of fertile land which lacks mainly water, which can be provided reliably if we build more dams. More agriculture means more food to export, and more food processing factories, which provide employment for Aussie workers. I present in appendix 7 one example of dam and irrigations scheme which would cost about $2billion to build, but would generate an income return on investment of about $1.66 billion per year. In other words it would pay for itself in less than 1.5 years!

(f) identifying new areas in which the Australian manufacturing industry can establish itself as a global leader

NIL – because we have not invested anywhere near as much as other countries (Germany, Japan, S Korea, etc) in research in pure science, and in engineering development.
And certainly not in space rockets etc – the recent initiative should have been done 30 years ago – now it is too little too late.

(g) the role that government can play in assisting our domestic manufacturing industry, with specific regard to:

i. research and development;
ii. attracting investment;
iii. supply chain support;
iv. government procurement;
v. trade policy;
vi. skills and training;

Two main things:-

G1 **Introduce Tariffs on imports**. Tariff is not a dirty word as economists and politicians have been saying for decades. A tariff is a tax on imports; governments need money and therefore need to levy taxes, and if they do not tax imports, then they need to tax something else!

G2 **get Governments off the back of manufacturers**.

President Ronald Reagan expressed it well by telling us the NINE most dangerous words in the English language (not that Americans can speak English correctly anyway!), and these words are:- "*I'm from the government. I'm here to help you*".

G3 R&D by industries has been too neglected in Australia, partly due to the lack of tariff protections providing security of product sales to enable long term investments, and relative to overseas universities (at which my son has done excellent research on cancer cells 14 years) our Australian universities have pathetically low budgets allocated to research.

G4 Supply chain support can include provision of decent railways, and in this regard the current coalition govt is to be commended (thanks to Barnaby Joyce) for investing billions of dollars on the upgraded Inland rail route passing northwards thru Parkes, and it needs to be extended to Brisbane port and to Gladstone.

G5 Supply chain support also means reliable baseload electricity generation, and that simply cannot be provided by solar and wind plus batteries. It means that we should build as quickly as possible not one but two or three nuclear power stations. Unfortunately 'asap' means **at least** five years, more likely eight, for design, procurement, construction and commissioning.

G6 Govt procurement has been a badly-managed mess for decades. Canberra bureaucrats either do not care or are incompetent or both, with very few Ministers smart enough or in the job long enough to cause improvements. I know, I was there in the bureaucracy for 23 years.

G7 In trade policy our negotiators have been hamstrung by the wrong delusion that Free Trade is a worthy goal to be pursued – refer to appendix 2 for proof that Free Trade has done more damage than good.

(h) the opportunity for reliable, cheap, renewable energy to keep Australia's manufactured exports competitive in a carbon-constrained global economy and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed

H1 There is NO opportunity for reliable, cheap, renewable energy because such a thing does not exist on the major scale needed to underpin manufacturing industries. Reliable, cheap renewable energy is an OXYMORON.
It does exist on the micro-scale for an individual house or two, but not on an industrial scale.

H2 The way to make Australia's manufactured exports competitive internationally is to reduce their costs of manufacture by getting rid of government 'red tape' and 'green tape' and by providing low cost reliable electricity, which means coal or nuclear.

H3 Australia used to have among the lowest cost electricity in the world, and now has among the highest cost electricity in the world, due to crazy government policies and wasting taxpayers' money in subsidising non-economically-viable wind and solar generation.

H4 Am I against renewable energy? NO. It does have some niche roles to play, but it needs to be economic and sustainable and not have adverse environmental effects.

Wind turbines are a disaster – they kill lots of eagles and other wild birds.
Governments can pervert the economic returns of Wind turbines and, by misuse of taxpayers' money, can cause good financial paybacks. BUT like King Canute of old governments cannot change the laws of physics and chemistry, and cannot pervert the energy aspects.
It requires many kilowatt hours of energy to manufacture the steel, copper, concrete etc used to build a Wind turbine, which then generates <u>for free</u> and over a period of time the kilowatts to 'pay back' the energy invested in building them.
Prof Ian Plimer in his book "***Not for Greens***" does the research and calculations (which I could also do, being a Chemical Engineer, but it would take me a lot of time). Prof Plimer concludes that a Wind turbine must operate for TWENTY YEARS before it has paid back the energy content that was used in building it. Of course some do not last 20 years!

H5 Solar-generated electricity does have a role to play in some niche circumstances, but it cannot ever provide reliable baseload power, not even with batteries (which of course are expensive in both dollar terms and in the amount of energy used to make them).
And it is no use appealing to the concept of adding batteries – the experience of South Australia proves otherwise – they had the WORLD'S BIGGEST battery. On a certain day, it provided 1.7% of SA's electricity and was empty by 4pm, thus being of no use to help in the electricity supply during the evening peak when people were cooking dinners etc.

H6 Largescale manufacturing also needs abundant water supplies at low cost.
I find it revolting that there is even a market in existence to trade water - the Concept of water being attached to farmland needs to be restored, and thereby abolish speculative water trading, and BUILD more dams (see appendix 7 for one possible proposal).

The Commonwealth Water Act 2007 needs urgent amendment because it lays a deficient and damaging foundation. At present in this Act, the Economy and the Australian community are "*subject to*" the Environment (refer to Appendix 6).
This is absurd.
The Act should state that these three factors should be balanced, rather than have one factor reign supreme over the other two factors.

The Economy and the Community can be described in quantitative terms (e.g. GDP, bushels of yield per hectare, tonnes of rice per year, population and its age distribution etc), but not so with "the Environment".
I was one of the co-authors of the very first "State of the Environment" report produced by the NSW State Pollution Control Commission circa year 1984, and there are indeed a few aspects of 'the environment' that can be quantitatively measured, and research in that regard is a good idea. However it must be scientifically accurate.

"The Environment" is a subjective term, at best only vaguely defined, and it has different meanings to different people, including among those bureaucrats who formulate and administer the flawed and counter-productive Murray-Darling Basin Plan.

Therefore we need to build more Major Dams, and divert plentiful coastal water inland into the Murray-Darling basin. Over the years many projects have been proposed, including the Bradfield scheme suggested over 100 years ago by the designer of the Harbour Bridge, and I present one example in appendix 7 (developed by my friend Ron Pike with colleagues).

H7 The long-term interest rates in the USA are 0.7% for a 10-year loan and 1.5% for a 30-year loan, and the respective figures for Australia are 0.87% and 1.79%.
The economic productivity of dam projects is far in excess of 1.79% per annum, and it seems foolish for Australian governments (federal and State) to not be borrowing money at that sort of rate for the dam projects, which like the Snowy River scheme, would yield massive benefits for our economy and community. (I mean the original Snowy scheme not the botch mess in Snowy 2)

5 Recommendations

1. Adopt a "Strategic Reserve" policy similar to USA. We need 6 months of fuel stored in Australia. (n.b. as a separate issue Australia's gold reserves should be within Australia not buried in vaults in London or New York!)
   (we also need strategic reserves of vital materials like cobalt, vanadium, chromium, rare earths, and other vital materials not made in Australia in sufficient quantities)
2. Encourage more exploration for oil and gas within Australia, and if this upsets the Greens and the communist-inspired advisers to Aboriginals then tough luck.
   (n.b. in the book "Red over Black" May 1982 the author Geoff McDonald describes how he worked many years as a member of the communist party creating turmoil in Aboriginal communities so as to thwart Australia's economic development).(n.b. I am passionately in favour of improving Aboriginals' conditions – at Uni I coached Aboriginals for free under the Abschol scheme, and as Road Safety Manager of the NSW Roads and Traffic Authority's western region, I dialogued widely with Aboriginal communities, leading me to create the very first two Aboriginal Road Safety Officer positions in Australia, and we, inter alia, helped many Aboriginals to get driving licences, often a precondition of getting a job)
3. Abandon the ideological and quasi-religious blind faith commitment to Free Trade, now that Prof Samuelson (appendix 2) has proved that the negatives outweigh the positives.

4. Get more Oil refineries in Australia – to guarantee fuel in times of war, as well as provide economic benefits – profits in Australia instead of in overseas oil refineries.
5. Get rid of, abandon, destroy Payroll Tax – it is a PUNISHMENT ON EMPLOYERS FOR EMPLOYING Australian workers! Insane – it should have been abolished long ago
6. Encourage Food processing factories – we used to have lots of canneries etc, but they have been closed down due to foolishly letting in cheap imports of for example orange juice.
7. Build defence equipment factories, including ammunition
8. Build facilities manufacturing medications and vitamins etc instead of importing mainly from China, from where supplies cannot be guaranteed (e.g. over 90% of the world's vitamin C is made in China; CSR used to make it in Australia from sugar in the 1960s)
9. Get more land allocated to State forests and less to National parks which have expanded in area hugely over recent decades disgracefully WITHOUT a commensurate increase in staffing and budgets of the various Depts like National parks and wildlife services.
10. Harvest more timber in Australia to make our own paper such as I refer to in appendix 4.
11. In order to improve the quality of policy advice and decision-making in Canberra, I suggest a policy (and commensurate allocation in the budget) for Rotation of bureaucrats (I was one for 23 years) into Industry so as to appreciate 'the other side' and make better decisions. One example is that I was ~1982 Chairman of the intergovernmental committee on fuel, and I was I who chose 91 to be the octane of the yet-to-be-legislated unleaded petrol. I had worked in the chemical industry (Appendix 3) and was able to dialogue with the Oil Refineries and car manufacturers to get data so as to make the best decision in the national interest. Car makers wanted a higher octane, while Oil refineries wanted a lower octane, and I, due to my industrial experience, was able to discern the technical issues.
12. I urge that the Concept of water rights being attached to land needs to be restored.
13. There are too many separate bits of legislation, with overlapping responsibilities, and this results in excessive burdens. We need less "red tape" and less "green tape".
14. The Commonwealth Water Act 2007 needs urgent amendment because it lays a deficient and damaging foundation, because, in it, the Economy and the Australian community are "*subject to*" the Environment, instead of there being a balance between the 3 factors.
15. BUILD MORE DAMS - Provide secure water supply for the Sydney region - hurry up and start construction on the Welcome Reef dam with a pipeline to Prospect Reservoir
16. BUILD MORE DAMS - The Clarence-Copeton project would divert water from NSW coastal rivers into the inland areas, yielding massive agricultural and economic benefits.

Yours sincerely

Lex Stewart, [redacted])

Index of Appendices:

Appendix 1 – Economies of Scale – i.e. Why Tariffs are needed

There is an equation that covers large manufacturing industries, especially the chemical industry (I did a four-year Chem Eng degree) - - It is that the **capital cost of a factory** goes up as the 0.6 power of the **production rate** usually expressed in tonnes per year..
This means that a factory of ten times the production rate does not cost ten times as much.

The reason for this is that such factories would contain for example a thermocouple to measure the temperature of a tank or reactor, and a computer to control that temperature by providing an output signal to call for more or less steam or other heating. Even if the tank or reactor is ten times the size, you still need only one thermocouple and one computer, and their cost is the same.

In the table below I present my memory of the confidential data re the chemical factory over which I was Manager during 1974 and 1975. It was hidden behind, and of similar complexity to, the factory (over which I was Deputy Manager in 1976) in the appendix 3 photo.

For the sake of the ease of arithmetic in the simple example below, I use the 0.5 power, which means the square root, which is concept most of us find easier to grasp. The difference between the 0.6 power and 0.5 power is small and therefore the mathematics is very similar, and my deductions are valid to illustrate my point.

Item	Factory in Australia	Some factories overseas
Production per year	10,000 t/yr	160,000 t/yr
	Supplied total Aust mkt	Sixteen times greater
		The square root of 16 is 4
Capital cost per tonne	$320	Divide by 4 = $80
Raw material cost per tonne	$40	$60
Wages per tonne	$60	$30
We / they can sell product at home for TOTAL	**$420**	**$170**
Transport cost	$50	$50
		Add in tariff $200 per tonne
	n/a	Therefore **$420** was the landed cost of imports
CONCLUSION 420 vs 420	We can compete	in Australia
Add transport cost if we do export to get a landed cost	$470	In an export market we at 470 cannot compete with $170/t
Whitlam cut tariffs 25%		Tariff became $150/t
So they landed product for		$370
CONCLUSION –	Our Aust customers	preferred 370 to 420
OUTCOME – we could not drop prices to compete and so we went out of business!	Factory shut down, sold the land for houses	After our factory closed, the importers with no competition put prices up to $500/t
The OUTCOME = Australia	***suffered, thanks to the***	***economists in Canberra***

Appendix 2 – Let me explain how Free Trade is adverse to Australia's interests

Unfortunately most people consider that Free Trade is a good thing. It is not.

Professor Samuelson was for 50 years a foremost advocate internationally in favour of Free Trade, and many Universities around the world for decades have used his textbook in their Economics 101 courses.

Few people are aware that Prof Samuelson "recanted" in his 90s!

Long retired and aged well above 90 he had the rare courage to honestly evaluate data and when it contradicted his long-held views he had the honesty to speak out!

He published a learned academic Paper in a Journal in 2004, full of equations and data.

In that Paper, he found that when one added up all the positive factors and negative factors, then the inexorable conclusion is that Free Trade had caused a NET LOSS to the USA economy!

Sadly this was not reported widely to economists and politicians, who remain under the delusion that Free Trade is a good thing.

PLEASE NOTE – I am not against trade! Trade is a wonderful thing, as it can benefit many people, provided that the conditions are decided on the basis of reality and not on blind ideology.

Some people (e.g a few MPs to whom I have spoken) oppose my urging of a slackening of the obsession with Free Trade due to their desire for economic efficiency regardless of the social impacts. My reply has been, "*OK, then you had better reform Australia Post, which would based on economics alone, charge residents of Bourke, Brewarrina etc $35 to post a letter, while you charge residents of Cremorne, Strathfield etc 5 cents to post a letter*". They recoil in horror at that suggestion – so I say, "*Well, there you are, economics is not the only thing – we do need fairness and social cohesion in Autralia, not solely economic efficiency*."

Appendix 3 – My manufacturing Background

I graduated Bachelor of Chemical Engineering with first class honours and the University Medal from Sydney University in 1972.

In 1974 & 1975 I was Manager of a chemicals factory hidden behind the factory in this photo using 40 tonnes per day of naphthalene derived in Newcastle from coal; then in 1976 I became Deputy Manager of this factory, making octanol and butanol from heptene and propylene respectively that were purified out of Crude Oil in the Kurnell Oil Refinery.

From March 1977 till Feb 2001 I had a variety of middle/senior Managerial positions in the NSW Public Service, then operated my own consultancy company to clients, large and small.

Appendix 4 – an example of a good manufacturing industry – there should be more of these Paper Mills using home-grown timber

For several years 2009-2013 I worked at the large Visy paper mill near Tumut which normally has 270 workers, and receives a truckload of logs every 15minutes 24hours per day, for 11months 3 weeks of each year. Then for one week they plan their annual shutdown, during which they brought on site an extra 1,000 workers. I knew the OH&S Manager well, and he brought me in each year in the role as his assistant, and I would walk 10 to 15 km every day in patrolling the site and dialoguing with the many work crews; I also investigated accidents/incidents then wrote reports recommending how to avoid them in future. Visy paid for my food, accommodation and travel plus $6,500 for one week of work.

Appendix 5

NIOA jobs boost for regional Queensland

SSAA Aust Shooter Feb 2019

The Federal Government has thrown its weight behind a new state-of-the-art forging and manufacturing plant in regional Queensland, in a joint initiative between Australian company NIOA and German counterpart Rheinmetall.

NIOA and Dusseldorf-based Rheinmetall plan to build the $60 million facility - manufacturing artillery shells and other munitions products for the Australian Defence Force - in Maryborough with the creation of 100 direct, long-term skilled jobs in the surrounding Fraser Coast region.

Their application for $28.5 million of federal funding was approved under the government's 'Regional Growth Fund' which supports projects in excess of $20 million investment, considered transformational to a regional economy. While final approval is still pending, the companies have also sought additional backing from the Queensland government.

An artist's impression of the proposed plant.

NIOA MD Robert Nioa said the plant would ensure future munitions supplies to the ADF will be Australian-made and create Australian Industry Capability for current and future contracts.

"NIOA is proud to partner with Rheinmetall to establish an important project that will create a sovereign military capability in Australia and hundreds of jobs in regional Queensland," he said.

Rheinmetall Defence Australia MD Gary Stewart said the facility would replace munitions imported into Australia and ensure the nation has a long-term sovereign capability to supply the ADF.

"The artillery made at the new plant will be delivered to the Australian Army and for export to selected Defence forces globally through Rheinmetall's Global Supply Chain program," he said. ●

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Appendix 6 – here is an extract cut-and-pasted from the commonwealth Water Act 2007, showing that the Environment takes priority over the economy and the community, which are thus both "subject to" environmental issues. This is insanity.

Section 3 Objects

The objects of this Act are:

(a) to enable the Commonwealth … to manage the Basin water resources …

(b) to give effect to relevant international agreements …. (c) etc

(d) without limiting paragraph (b) or (c):

(i) to ensure the return to environmentally sustainable levels of extraction for water resources that are overallocated or overused; and

(ii) to protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin (taking into account, in particular, the impact that the taking of water has on the watercourses, lakes, wetlands, ground water and water-dependent ecosystems that are part of the Basin water resources and on associated biodiversity); and

(iii) subject to subparagraphs (i) and (ii)—to maximise the net economic returns to the Australian community from the use and management of the Basin water resources; and

(e) to improve water security …

Appendix 7 - - The Clarence-Copeton Dam Scheme

OVERVIEW OF THE CLARENCE - COPETON DAM SCHEME

This Scheme is the result of the thorough and thoughtful analysis of all of the previously presented schemes to divert water from the Clarence basin through or over the Great Divide to the vast flood plains westward. Following is a summary of the basics of the Scheme.

Water from the Mann and Boyd rivers are impounded in two large reservoirs created by dams north and south of Newton Boyd, joined by a connecting canal. A dam below the junction of the Blicks and Nymboida rivers would collect water from the upper tributaries from where it would be diverted to the Guy Fawkes Valley via a tunnel, 29 km long which after flowing through the Marengo Creek power station, would conduct waters to the Boyd and Mann river storage dams.

A dam on the Timbarra (Rocky) River in the Glen Elgin valley would be connected to the twin Newton Boyd storage reservoirs by a series of large pipes supplying water to the turbines of a large power/pumping station under Hales Creek. On and off-peak power generation is thus available every day while any available water from the twin Newton Boyd reservoirs, surplus to coastal needs, would be pumped up to the Glen Elgin Dam storage reservoir for western diversion as needed.

For the inland diversion, water in the Glen Elgin Dam would be released into a 85 km tunnel and would then gravitate under the Great Dividing Range into a 50,000 ML reservoir on Copes Creek, east of Tingha, via a hydro-electric power station at the tunnel outlet. From this regulating reservoir, water would be released into the Copeton Dam on the Gwydir River.

WATER MANAGEMENT SUMMARY Like most rivers in Australia, the Clarence basin rivers and its catchment go from huge destructive flood events to sometimes long periods of little or no flow.

It is the practical management of this variability that makes this project so attractive to all users of water from this great basin. In high rainfall events runoff that could cause

downstream flooding is impounded in the large dams detailed above. When appropriate some of this water is pumped to be diverted into Copeton Dam. Water capacity would always be maintained in these major storages to ensure adequate flow in the lower Clarence, even in prolonged dry periods.

It is calculated that as well as timely environmental flows, there could be over 200,000 megalitres of extra water for irrigation in the Clarence valley which would vastly increase agricultural production. The Clarence/Copeton Dam Scheme improves river flows on the Clarence by regulation, produces large amounts of Hydro power and in most years could deliver over 1,000,000 ML of extra water westward. This project manages a natural renewable resource to the benefit of man, our environment and the critters we share it with.

The Clarence/Copeton Dam Scheme would release over 1,400,000 ML for productive use annually, producing this wealth:

- Value of production at farm gate. $1,316,000,000
- Total value of flow-on economic activity. $2,856,000,000
- Total number of new jobs. 10,400

GOVERNMENT INCOME

- Sale of low head Hydro power: $7,700,000
- Sale of high head Hydro power: $1,316,000,000
- Sale of water: $65,000,000
- GST receipts $168,000,000
- PAYG tax receipts: $120,400,000
- Annual return to Government from Project $1,661,100,000
- Estimated cost of project ($2 bil) $2,000,000,000

STORAGE DETAILS STAGES 1 AND 2

- Nymboida-Blicks Dam 680,000 ML
- Guy Fawkes Valley Dam. 25,000 ML
- Newton Boyd Twin Dams 3,800,000 ML
- Glen Elgin Dam 2,050,000 ML
- Copes Creek Reservoir 50,000 ML
- Total new storage capacity 6,555,000 ML

A second stage of this project could connect Copeton Dam to Split Rock Dam and thence flow into Keepit Dam on the Namoi River. This would provide for some highly desirable controlling grid-link between the Gwydir and Namoi River Catchment.

IN SUMMARY the CLARENCE/COPETON DAM SCHEME

- Increases State productivity.
- Produces clean hydro power.
- Generates productive jobs in regional areas.
- Reduces the damage of Clarence flooding
- Provides better environmental outcomes both East & West.
- Assures permanent water supplies to the Darling River.
- Provides for better management of fishery industry on Clarence