(This is the third of a three-article series. Follow these links for Part 1 , Part 2 , Part 3 .)

In opposing "an emissions trading scheme", do you mean ALL emissions trading schemes or just the CPRS ETS in particular?

There are fundamental problems with the trading mechanism for determining the price of emissions. These relate particularly to price volatility and the long time delay between a price signal sufficient to stimulate private sector investment and large scale clean energy becoming readily available on the grid.

When markets need to adapt, grow, or change, faster than their internal feedback mechanisms can respond, they cannot operate benignly - there is no time for "equilibrium" to develop. That is why most markets are suspended during times of emergency (war-time rationing) and some markets are overridden just to get things done.

In 1947, competing businesses had made such a mess of SA's electricity systems that the industry was "nationalised" by a Liberal Party premier and incorporated into the Electricity Trust of SA - mainly to bring order to the chaos, confusion, bankruptcies and customer distress. The rate of change was greater than a chaotic market could cope with - the feedbacks were broken - no equilibrium could develop.

The task before us is to build a huge, high priority national infrastructure project far bigger than the Rudd government's tiny broadband rollout. That “major national purchase for the common good” did not arise out of a *Bit-rate Trading Scheme* which set a price to transform the telecommunications system through a price mechanism - it resulted from a decision to act according to a recognised need. Creating a carbon price does no more than provide an incentive for chaotic evolution by trial and error. Given enough time, beautiful solutions may evolve - but this is urgent - we do not have the seventy to ninety years the Rudd government

thinks we have to eliminate carbon emissions.

The need for speed determines the natural selection of intelligent design over market evolution.

The benefits of a carbon tax are many, but there is one potential disadvantage. Like the Reserve Bank board setting interest rates, they might get the price a bit wrong occasionally. On the other hand, an ETS will get the price wrong 95% of the time.

I have often mentioned that the Reserve Bank Board setting the price of money, by controlling the overnight cash rate, is analogous to the Carbon Authority setting the price of carbon (emissions). Perhaps you wonder why the price of money is not controlled by a Cap & Trade scheme. I can inform you that cap & trade was tried in the USA from October 1979 to September 1982, but it was abandoned because the price of money became so volatile that it played havoc with the US economy. Thus it will be with an ETS, if we fail to prevent it from happening.

The boom-bust of grape markets can be shown to be related to the delay between planting and the first harvest. No signal to say “more” or “enough” occurs until it is too late to moderate over planting or ripping up varieties in current oversupply. Time delays in “high gain feedback systems” (or inelastic markets) are always a recipe for destructive instability. These are examples of a universal law of nature which is well understood by engineers at least, if only a minority of economists.

The essential problem with any Emissions Trading Scheme is the time delay between reaching a price signal threshold which triggers new investments and the eventual response that produces a "stabilising" feedback, such as an increase in the supply of clean energy. The time gap of several years of construction and increased energy consumption will mean the market price will continue to rise while the emissions cap continues to tighten. During that time there will remain little alternative to fossil energy, except freezing in the dark. Expect a political backlash.

To avoid economic consequences worse than the stagflation which followed the oil shocks of the 1970's the carbon price must be stable - not volatile, as it will be with any ETS. When the

price is high, it cripples the economy and stifles essential investment in the renewable future. When the price is low, clean energy projects go bankrupt. The risk of volatility, of itself, is a deterrent to essential investment in the survival of civilisation. The "magic price incentive band" occurs where the carbon price makes fossil energy cost almost the same as clean energy.

If the market failure had been addressed some decades ago, the rates of change required over a longer time frame might have been sufficiently slow for further intervention to be unnecessary. But that did not occur, so now we seek to transform our entire energy system, both rapidly and cheaply. This project requires intelligent design rather than the slow trial and error of market evolution. The market will still decide the mix of the most cost effective solutions, but the carbon price will be related more to the slowly changing price of balanced, reliable clean energy systems than to the fluctuations in demand caused by random weather variability under an ETS.

What about hypothecated carbon levies where the proceeds are re-directed back into carbon reduction measures such as renewable energy, public transport etc?

What happens to the carbon revenue is even more important, in my view, than choosing the most appropriate pricing mechanism. With the pricing mechanism, I merely want what will work best to achieve the a rapid transition to a zero carbon economy - but who owns the remaining quota of anthropogenic emissions is a matter of deep ethical principles, human rights and social justice.

Only the "owners" should have the right to decide what happens to their share of the free gifts of nature. I believe the atmosphere belongs to every individual, although it may be managed for the common good on their behalf by "the state", or some form of collective governance such as a World Climate Authority. I also believe the state should serve the people, NOT that the people should serve the state. The money derived from rationing the atmosphere's ability to absorb GHG emissions belongs to the owners of the atmosphere - the people, not the state. I believe every individual has a right to an equal share of whatever emissions capacity is available for human use. Therefore, any money derived from selling their share must be returned to them. This means everyone receives an equal dividend from carbon revenue.

If the state requires additional revenue, for whatever purpose, it may raise taxes. But I wish to make it very clear that refusing to pay the carbon dividend to citizens is the equivalent of imposing a regressive poll tax. Social justice demands that we oppose regressive forms of taxation. The Carbon Dividend should be paid to the people. It does not remove an opportunity to "do good" by spending a regressive tax wisely - it actually doubles the benefits.

That is enough of the sermon about principles. Let's just look at the practical results.

The phrase "...redirected into carbon reduction measures such as renewable energy, public transport etc" clearly advocates subsidising green energy - actually making it cheaper. I disagree strongly with subsidising green energy - mainly because it is self defeating - but also because it is the worst sort of government intervention. It attempts to pick winners and remove responsibility from the community. It resembles micro-management, where macro-control is what is called for. As Senator Milne likes to say, "This is not the Soviet Union".

The only useful purpose of having a carbon price is to make fossil energy cost as much as green energy - so that green energy systems will displace carbon based fossil energy. So, if we make green energy cheaper, it follows that fossil energy will be cheaper too - subsidising green energy will lower the carbon price, reduce carbon revenue and effectively subsidise the price of energy. Cheaper energy means more waste, and reduces the economic viability of energy replacement and efficiency measures. Whenever price is subsidised, the most dollars go to the biggest users.

Of course, we want energy to be affordable, but subsidising it can only increase consumption. The best way to make energy affordable is to recycle the carbon revenue back to the people who have to pay the increased expenses – to the individual owners who are entitled to a dividend sufficient to pay for an average amount of carbon emissions, however high the carbon price needs to be. This system recycles carbon revenue again and again, until it is "...redirected into carbon reduction measures such as renewable energy, public transport etc" - by the people.

Because average carbon emissions are currently high, the Carbon Dividend will be high at first, but it will decline as the community swaps to green energy and efficiency. At the end of the transition, carbon revenue will be practically zero, because emissions will be close to zero. The public will be exposed to the full price of green energy without the Carbon Dividend to help them. Fortunately, it is reasonable to expect a mature and mainstream green energy supply to be cheaper than at the beginning of the transition.

Do not subsidise the product. Win friends and influence voters. "Subsidise" the people! After all, they already own what you are charging them for.

There is another important aspect here: - do not confuse subsidies with investment. I advocate major government investment into national infrastructure, particularly when the investment can be repaid through the sales of valuable products such as energy. At the appropriate price for energy, these investments become self funding.

Especially in times of reduced money supply, it is important that government finances ventures which will pay for themselves. When a bank creates new money by making a loan, the debt is called an asset. National Government can also act as a bank, after all, it grants private banks their special powers, not the other way around. If this is not true, then government is merely the servant of banks and we should proclaim that democracy is a complete farce.

Can you please provide links to the "Carbon Tax with 100% Dividend Scheme"? Is there a particular scheme you want us to consider or are there a range of models?

The "*Green Energy Transition Scheme*", which we propose, incorporates a Carbon Tax with 100% Dividend. This scheme has five essential elements:-

Energy Strategy - A well funded practical energy infrastructure strategy, tightly coupled to a specific carbon budget, but which is capable of acceleration when new scientific evidence, political will or economic reality demands a tighter target.

Carbon Price - The economic mechanism which drives the rapid growth of clean energy infrastructure industries and the transition to 100% clean energy, by closing the gap between the prices of fossil energy and zero emissions energy.

Carbon Dividend - Ethically based dividends provide maximum incentives while keeping energy affordable. Domestic carbon revenue is distributed equally to adult residents (half for children).

Carbon Authority - Adjusts the carbon price, keeps our zero emissions energy strategy on track and acts as project manager to coordinate the green energy transition.

Border Tax Adjustments – (as economists call them) de-couple our national economy from economies with different carbon prices. Such provisions are necessary until we have a single global carbon price with equitable global distribution.

The Green Energy Transition Scheme*

Phase 1:

(a) The Government develops and commits to a plan to replace all of Australia's GHG-emitting energy systems (including electricity generators and transport and industrial systems) with ecologically-sustainable and renewable (green) energy systems. Such a plan is closely bound with the target trajectory that is determined for carbon emissions reductions, but retains the flexibility for more rapid emissions reductions if new scientific evidence reveals this is necessary.

(b) All subsidies and tax breaks for carbon-based fuel production are abolished.

(c) Major upgrades of Australia's technical and vocational training systems and study payments provide the skilled workforce required for a major restructuring of the economy from 2010 to 2020.

Phase 2:

(d) The Government implements a Carbon Tax with 100% Dividend scheme to motivate the development of green energy sources and reduce greenhouse gas emissions. The carbon tax is imposed on the carbon content of fuels at their initial point of supply into the economy, with the

net revenue of the tax, being paid as equal dividends to all resident adults (with half shares for minors).

(e) An independent Australian Carbon Authority is empowered to set the carbon price and act as project manager for the transition to a zero carbon economy. The carbon authority will monitor emissions, infrastructure developments and all aspects of energy and the carbon economy to inform a mid and long term view about the appropriate carbon price, particularly to ensure there is sufficient public and private investment in new green energy infrastructure to meet future emissions targets.

The Carbon Authority will announce a minimum carbon price five years in advance. This price shall be designed to close the gap between the prices of energy from fossil sources and reliable zero emissions systems and will remove impediments for large private and public investments in green energy systems. During the initial five year period, the carbon price will ramp smoothly towards this first minimum price.

(f) The Government installs measures to decouple the Australian economy from the effects of unequal carbon prices. These “Border Tax Adjustments” prevent a competitive race to the bottom for international carbon prices and avoid “leakage” of both money and jobs. An essential principle is that carbon revenue should derive from the same population which receives the dividends. These trade measures implement the following principles:

i. Carbon charges shall be imposed on imported goods & services, but refunded for exports. (Export refunds will become a topic of international negotiation, towards establishing a global scheme.)

ii. The information provided in claiming export refunds shall be made available to importing jurisdictions for the purposes of carbon accounting.

iii. Accurate carbon accounting information must accompany all imported products. If reliable emissions information is not available, a potentially higher amount of emissions will be deemed for calculating carbon charges.

iv. Emissions associated with exported products become the liability of the importing nation.

v. Focus on consumption. It follows from the above that national targets should be calculated and specified to include only emissions generated in the provision of goods and services consumed by the citizens of that jurisdiction. Therefore, imports must be included and exports excluded from national emissions targets and assessments. (When local, imported and exported emissions are known, conversion between gross or domestic emissions is a simple calculation.)

(g) An energy investment fund and an associated organisation are established to assess, design and finance economically viable energy saving, energy substitution, and green energy systems for households and small businesses. Proposed installations or modifications will be funded if they are assessed to have a high probability of paying for themselves through energy savings. To ensure that rented premises are not excluded, responsibility for payments will remain with the consumer of energy services and be included with energy utility bills.

Phase 3:

(h) The Government facilitates and invests in the rapid growth of green energy infrastructure industries for the construction of energy harvesting, storage, distribution, management and related infrastructure. Investment loans are created by the government acting as a bank. The government retains ownership and control of these assets. Private investment in infrastructure is welcome and will co-exist with public enterprises.

(i) The rate of the carbon tax is revised periodically by the Australian Carbon Authority.

(j) All commercial manufacturers or importers of machines that use electricity or combust carbon-based fuels are required to incorporate minimum regulated energy efficiency standards, consistent with world's best practice in design and manufacture - including embodied energy amortised over the product lifecycle.

(k) Payments to undertake study, skills training and job placement are increased and made

more readily available. Workers and students training for skills in high demand, such as for the expanding energy related industries, are paid well above pension rates. To facilitate the economic transition and reduce social stress, displaced workers from all sectors should no longer fear unemployment.

I hope the above responses help to illuminate the issues.

Richard Corin

*Special thanks to Mark Andrews for undertaking the codification of these ideas developed during our dialogues on climate change policy and for naming the GETS.
