1. Reducing Australia's Greenhouse Gas Emissions

1.1 *A framework to avoid the Tragedy of the Commons.*

In Professor Garnaut's recent speech http://www.henrythornton.com/article.asp?article_id=4937 he discusses the issue of mitigating greenhouse gases as a global "Tragedy of the Commons" problem.

This submission argues that a solution to the problem of global warming lies in creating a trading system to trade infrastructure technologies in such a way to overcome the "Tragedy of the Commons". Note the trading system is not in energy or emissions or carbon but is trade in technologies to reduce greenhouse gases.

There are three related areas with respect to reducing greenhouse gases:

1. developing infrastructure to generate energy without producing greenhouse gases;

2. developing strategies and infrastructure to save energy consumption; and

3. developing carbon sinks.

The problem of global warming can be resolved through investing money with these goals in mind. The issue – at both international and national levels – is in finding the most efficient, yet fair way to allocate resources to infrastructure to reduce greenhouse emissions.

We know that the best way to allocate resources is through fair and free markets and this submission concentrates primarily on developing markets in greenhouse-reducing infrastructure rather than on the question of collecting money. An approach that results in a fair and reasonable expenditure of money will get wide acceptance and adoption. The following outlines an answer to the question of resource allocation (expenditure of money) with a proposed international infrastructure marketplace between nations. It also outlines how greenhouse reducing infrastructure market places can be established within nations. The details of how the internal market place can be established and run are available on request. The approach is an example of a cooperative economic system as mooted in http://www.ted.com/index.php/talks/view/id/216

1.2 *An International Market Place for Greenhouse Reducing Technologies*

Money to be used in the international market place for infrastructure comes from nations according to their current net per head greenhouse emissions. Large per head emitters supply more money than low per head emitters. Each country who signs up is required to supply a minimum "deposit" but can supply more if it wishes. Each country also retains ownership and control of the money they provide while it is in the global fund.

All money from this fund must be used for investment in greenhouse-mitigating measures or infrastructure. The money is deposited with the UN and interest on the money, while it is not used, accumulates in the fund and is distributed in inverse proportion to the per head emissions of each country for use on greenhouse-mitigating measures.

Any country can propose projects to use the money within their own country. The proposing country sets out the conditions of the project such as how the project is developed and what happens to the profits generated from the investment.

For example, India might propose a thermal solar farm in the Indian desert to generate base load power for the Indian grid. It could also propose that a percentage of the income from the generated energy be returned to the supplier of money. Countries with money in the fund now bid, with the fund monies they have deposited, for the right to build and profit from the thermal solar farm.

There are some additional rules with this market. It requires an independent group to determine if projects are allowed in the market place. There is a rule that each year every country is allocated a certain amount that may be invested in their country through the fund. If in any year the money is not spent then the amount accumulates. Thus a country with very low per head emissions and with a large population will have a large allocation in terms of investment. A country with high emissions and a small population will have a small allocation. Another rule is that a country cannot invest in a project in a country with higher per head net emissions. The purpose of this rule is to stop countries colluding along the lines of - you invest in mine and I will invest in yours - and to influence investments towards the countries that have the greatest need for investment in energy sources.

Because the market is open and competitive it will be seen as fair. In terms of reducing greenhouse gases it does not matter where money is invested but investment in energy infrastructure does offer extra benefits to the country in which it is built. In addition, the countries contributing funds will receive a return on their investment.

All buyers and sellers have a choice in which projects to propose and which projects to support. All countries will see advantage in reducing their own net per head greenhouse emissions as this will determine the amount of money to be invested and contributed.

The market is completely voluntary, with each country deciding for itself whether to join or not. Those that do must obey the rules of the market. Those that do not join are not permitted to propose projects or to contribute money to any other fund-approved greenhouse reducing projects.

1.3 *A National Market Place*

Countries that join agree to set up an internal, national market place in greenhouse reducing technologies within the country. The rules of this market place are as follows.

There could be a Pigovian tax imposed on the emissions of greenhouse gases, or the money could be raised from the sale of emission permits or it could be obtained from carbon credits. A proportion of the money collected is distributed to individuals in inverse proportion to the amount of greenhouse producing energy they consume. The money received has to be spent on any approved infrastructure project that will reduce greenhouse gases. It could be used for solar hot water heaters, to buy new shares in a geothermal company (not buy existing shares), to purchase a bicycle etc. Implementation of this strategy requires a communications infrastructure such as a mobile phone network and a mobile phone network could classify as an infrastructure project under the international fund. See Edentiti Rewards for ideas on how a national market place can be implemented.

The national infrastructure system will encourage individuals to reduce their carbon footprint because they will pay more for greenhouse-generating energy, receive money for reducing their consumption and are required to invest the money received for reducing their carbon footprint in technologies to reduce greenhouse gases.

1.4 *Will the approach work at the international level?*

This approach does not require any global agreement. Countries can join of their own free will and there is no penalty for not participating. If countries break the rules then they are simply excluded as donors or as recipients for a period.

The system can be implemented immediately and is relatively simple to administer.

It is a system whereby each country wins. Countries contributing to the fund have the opportunity to earn money through investing and they can propose technologies developed in their own countries. This encourages them to invest wisely and to get a greater return on their own home grown technologies.

Countries receiving money benefit from new infrastructure that will help supply the energy needs of their own country. They will also be encouraged to keep their rain forests and other carbon sinks as these help reduce their greenhouse balance sheet and increase the amount invested.

By making it advantageous to both donor and recipient countries to join we escape the prisoner's dilemma and solve the Tragedy of the Commons. By using a market for allocation of resources we get the best return on our investments in both greenhouse reductions and in wealth derived from the investment.

The system does not preclude or interfere with any global emission targets, carbon trading schemes, or other measures. It stands on its own.

1.5 *Will the approach work at the local level?*

The local level infrastructure market is established by paying people Rewards in inverse proportion to the amount of greenhouse gases their lifestyle generates. Individuals are not required to receive Rewards and if they cannot think of a way to spend their Rewards they can sell them to others. Participants who break the rules of the market are excluded from the system for a period of time.

The Rewards must be spent on infrastructure that reduces greenhouse gases. This approach will work because it is seen as a "fair trade" and like all good trades both sides win. It is important to note that the market is in infrastructure not in carbon, nor in emission permits, nor in energy. It is a direct way of addressing the problem - not an indirect way.

The system is easy to understand - If I generate less emissions then I am rewarded but I must spend my Rewards to reduce emissions. This solves the Tragedy of the Commons as the funds I receive is spent on infrastructure that benefits the whole community as well as myself.

The system is easy to implement but the details will depend on the communications infrastructure available in the country. Systems can be implemented with mobile phones but more complex systems can be implemented if there is a widely available broadband Internet.

The cost of implementation is low and running costs are expected to be less than a percentage point of investment dollars spent.

The system leads to stability in prices and is guaranteed to work. Emissions targets can be set and can be achieved for a known amount of investment which is determined by the size of the Pigovian tax.

1.6 *How much money do we need to invest?*

The following calculations are indicative but with ongoing development in renewable energy technologies the figures are conservative.

Each Australian, on average, consumes for all reasons about 75,000 kwhs per year of energy. It costs $3,000 to build a solar powered or geothermal power source capable of generating 1 kw continuously for a year (or about 9,000 kwhs). Thus an investment of $25,000 will produce all the energy needed for an Australian to be greenhouse neutral. This equates to a total of $500 billion for the entire population at current prices. If this amount is spread over 10 years, it becomes an investment of $2,500 per person annually. The running costs (excluding financial costs) of renewable energy sources are about 1 cent per kwh or half the running costs of coal fired stations. The capital cost of coal fired stations is about $1,000 so the capital on greenhouse free energy investment is repaid in 22 years with today's prices. At the end of 22 years the nation has an energy source fully paid for and generating energy at 1 cent per kilowatt hour.

1.7 *Summary*

As stated at the beginning it is not the focus of this submission to suggest how the money for such a fund is raised. However, numerous solutions have been canvassed in recent years, including Pigovian taxes, selling emission permits or through generating carbon credits. This proposal supplements rather than replaces these suggestions. It addresses the problem of spending the money through a market in sustainable infrastructure rather than through the energy market itself.

The problem of global warming is not ultimately one of funding. On such a critical issue the money can be found when needed. The question is making it worthwhile for countries to agree to participate and then allocating the resources efficiently so that we do not waste time or dollars in addressing the problem. Creating an international market place in infrastructure projects supplemented by more efficient local resource allocation through Energy Rewards will achieve this.