



# The Sustainable Engineering Society

*...engineering in harmony with ecology*

## COMMUNITIES OF PRACTICE STATEMENT FROM SENG

### THE CRITICAL CHALLENGE OF OUT TIME – ENERGY AND SUSTAINABILITY

Making our society sustainable is probably the most challenging aspect of our times. Fundamental to the notion of becoming sustainable is addressing the idea that current rates of consumption, economic growth and population growth can continue indefinitely within a finite system (earth).

Abundant 'cheap' energy is probably the single biggest factor that defines our civilisation, and fully underpins the economy, yet is also the major cause of environmental degradation and unsustainability. As a result, energy needs to take centre stage in the political debate to ensure that we have the type of society we and future generations can enjoy.

Australia has set a renewable energy target (RET) of 41,000 GWh (about 20% of electrical generation; and 3% of total energy) to be achieved by 2020. Note that this is a target, and it is very easy to foresee that when 2021 arrives, we will hear words to the effect of "We tried, but it was only a target". We thus require tangible legislative action be implemented on energy policy to ensure that not only is the RET achieved, but mechanisms are put in place to increase the target in accordance with the prevailing science.

In addition, it is even more imperative that we reduce consumption. The embodied energy in products typically accounts for 4 times direct household energy consumption. Furthermore, the associated waste generated when disposing of products would require further energy if it were to be totally cleaned up or recycled, however it invariably ends up as landfill. Thus we need an incentive to reduce energy usage through energy efficiency, recycling or simply reduced consumption; with controls in place to ensure that it is not simply replaced by an increase in imports, which would effectively export the problem. Indeed we need to reconsider our thinking, our practices and our designs.

One way of adjusting human behaviour is through taxes, refunds or incentives. A fixed price on carbon was introduced, which unfortunately was sold on the basis of personal tax benefits (and a bit about climate change) rather than as an imperative to a sustainable society. This is likely to be replaced by an emissions trading scheme (ETS), however is there not a benefit in having a direct tax which is in fixed proportion to pollution from energy sources? Additionally, the tax should be extended for activities, including transport (accounting for over one third of Australia's energy consumption) and imports, (if the imported goods are not subject to carbon pricing of their own). All revenues could go directly back into a sustainability 'sovereign' fund. The choice is nothing at all, a tax subject to the risk of bureaucracies or an ETS subject to the risk of manipulation by traders?

Another energy aspect to consider is diesel subsidies. As an example, the subsidy currently received by the mining industry is roughly equal to that which was meant to be raised by the mining tax - around \$4Billion. Would it not be simpler to drop both the mining tax and the subsidy, thereby reducing bureaucracy, levelling the playing field and targeting a key impediment (ie non-renewable energy) to sustainability?

A key requirement of EAs code of ethics is that engineers act in the interest of communities and a sustainable future. Thus, does it not follow that society should encourage 'good' (sustainable) behaviours such as renewable energy, energy efficiency, recycling, reuse, quality products, local produce, and a stable economy rather than short term profits?

Given the significant impact (both positive and negative) that energy has on our society, economy and environment; what should the future energy mix look like and how should we manage it?

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