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SUBMISSION TO INQUIRY INTO THE ENERGY SERVICES INDUSTRY

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Introduction

I have worked on energy efficiency issues with government, the private sector and non-government organisations since the late 1970s. I am convinced of the very large social, environmental and economic benefits from capturing the enormous energy efficiency potential that exists. Indeed, most of the projects and programs I have worked on have delivered large cost-effective savings, for example:

- design of a drink vending machine that used 60% less energy
- office buildings and houses that use 60-80% less energy
- industrial processes where savings of 30-50% have been achieved

Yet energy growth continues unabated, because our efforts to improve energy efficiency are being outstripped by actions that increase energy waste. So, while we are now making homes more efficient in thermal terms, retrofitting of central heating to older thermally poor homes, increasing new house size, wider use of central heating, inefficient low voltage halogen lights and other features seem to have more than balanced the savings.

The fundamental problem seems to be that our efforts to promote energy efficiency are piecemeal and limited in scope. If we are to actually reduce total energy use and greenhouse gas emissions, more comprehensive approaches that change the basic signals to business and households, and which tackle existing stock as well as new stock, are needed. This certainly involves making energy markets work towards (instead of against) sustainability. But many markets that are seemingly unrelated to energy actually drive energy growth, and must be influenced.

These comments relate to this Inquiry because we not only need to build the energy efficiency services industry, but we need to transform many existing industries into energy efficiency services businesses. In the same way as Interface Carpets now see themselves as providing a service with a lifecycle perspective, builders, plumbers, electricians, lighting advisers, appliance manufacturers and many more must redefine their roles. While this is certainly a challenge, it is also feasible with appropriate government leadership.

Some context

Energy efficiency is an intangible feature. Our society is structured around simply structured businesses delivering tangible products and services: I buy an airconditioner from an appliance shop if I'm too hot; I supply more energy if there is a shortage, and so on. Indeed, we live in fear of not having enough supply infrastructure – for both energy supply and products that use energy. Further, most people and businesses complain if the obvious solution to their crudely

specified problem is not provided. If there is too much congestion it means we should build more roads; if buildings are uncomfortable we should install bigger heaters or coolers. And so on. This approach is a key driver of our unsustainability.

Experience over the past few decades shows that humans need to be more sophisticated in their analysis of problems, to find different solutions, and to set up new systems of delivering those systems. So there is now plenty of evidence to show that building more roads simply creates more traffic and doesn't solve congestion problems. Installing a bigger heater increases energy bills and makes a building more vulnerable to energy supply interruptions, as well as increasing environmental impacts.

The solution to the congestion problem, and many others, is to reduce the need for people to travel by organising cities better, locating things closer together, using non-transport means of delivering some of the services previously reliant on transport, and so on. The solution to the heating problem is to design buildings so they need little energy to be comfortable. But these more sophisticated solutions require co-operation across organisations that have traditionally ignored each other or see themselves as competitors. It means changing our specialised organisations (eg appliance stores) into more complex businesses (or networks of businesses) that sell a wider range of products (eg shading and insulation as well as heaters), provide services (including information) and look at lifecycle outcomes instead of selling as much product as possible.

Unfortunately, competition policy, as it has been interpreted in regard to energy, has increased conflict and encouraged firms to externalise costs. It is a major part of the problem. Australia now needs a *National Co-operation Policy* agenda to achieve what competition policy has failed to deliver: a positive triple bottom line outcome.

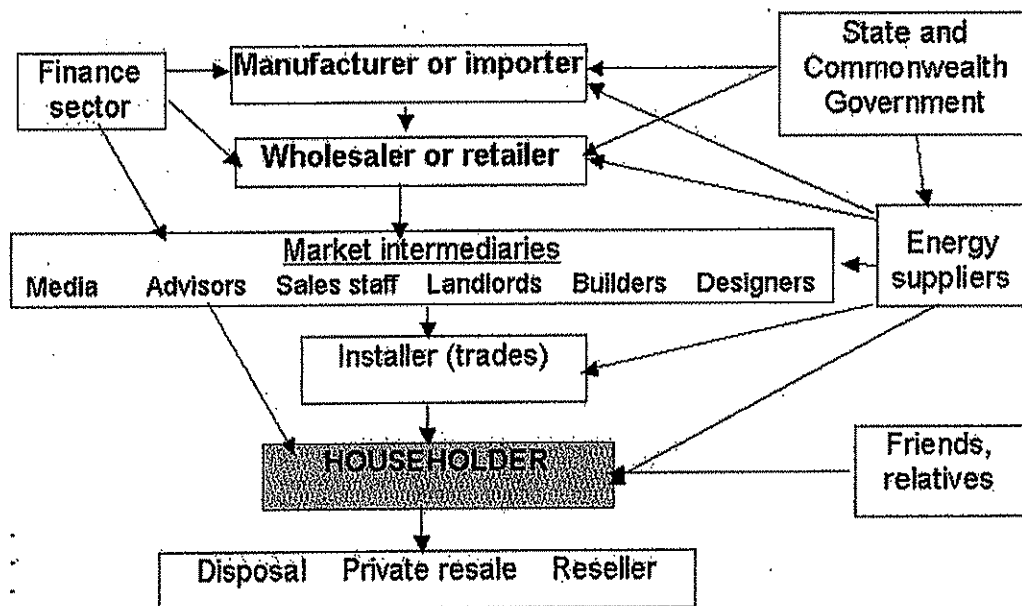
Non-energy markets that influence energy efficiency services

Most energy analysts focus on the role of energy markets, but fail to acknowledge the variety of non-energy markets that drive energy efficiency – or lack of it. For example, the building industry drives building energy efficiency, the appliance industry and its retailers and equipment installers drive appliance and lighting efficiency, and so on. If energy efficiency potential is to be captured, these other markets will have to be modified. A key issue is that, in many cases, it is in the short-term interests of these non-energy markets to discourage energy efficiency. Consider some examples:

- One electrician the author spoke to explained that he encouraged his customers to install energy wasteful halogen lighting because it meant there was much more labour for him in each project – so he made more money from each house he worked on
- It is common practice in the building industry for the budget allocated to heating and cooling design engineers to be based on a percentage of the projected capital cost of the equipment. So there is no incentive for the engineer to help the architect and client to reduce airconditioning plant cost. And any extra time spent on the design process to optimise efficiency is lost profit for the designer
- Appliance and equipment sales people aim to maximise profit from each sale and develop the simplest, quickest sales techniques. It is easy to encourage people to buy a bigger (and more expensive) item of equipment by raising concerns that a smaller model will not be adequate under extreme conditions. Oversized equipment often runs less efficiently most of the time. Sales people often receive higher commissions for selling particular products, which may encourage them to undermine the credibility of energy labels or buyer concerns about running costs.

- Appliance retailers usually do not sell insulation and shading. So they are not in a position to profit from sale of an integrated package of measures that cuts heating and cooling costs.
- Designers of buildings and equipment systems often focus on non-energy objectives, such as aesthetics, to the detriment of function and ongoing operating costs. For example, architects receive awards for new buildings, even when they may later be found to have operating deficiencies.

As an example, consider the following diagram of the appliance market. Then ask which of the players in this market have a financial interest in encouraging a householder to buy a more energy efficient appliance. Until that question can be answered positively for all the major players, we will struggle to achieve the full potential for energy efficiency, because they will place other objectives ahead.



Overview of household appliance market system – each link in the chain of decisions must be considered

An interesting issue in this area is that many of the manufacturers, retailers, advisers and installers of equipment who are now barriers to energy efficiency could, with the right signals, become part of the energy services industry. An electrician or plumber skilled in energy-efficient solutions, and confident of being able to make more profit from them, should be part of our sustainable energy future.

This challenge is not easily overcome. A variety of tools including information, incentives, regulation, certification, performance standards, innovation and education/training must all be applied.

Economic, employment and other implications of energy efficiency

Many studies have shown that energy efficiency leads to a net increase in employment. In broad terms, the direct effect is simply that an increase in activity in the employment intensive services and light manufacturing sectors (the kinds of activity involved in energy efficiency)

more than offsets any reduction of employment in the relatively low employment intensity energy supply industries due to reduced demand for energy.

Where investment in energy efficiency delivers a given service cost-effectively, the overall cost of delivery of that energy service is reduced, so the economy benefits.

A number of indirect effects can enhance these benefits, including:

- Reducing demand for energy below business as usual can reduce energy prices (due to the link between demand and price) and, hence, reduce the cost of energy as an input for all businesses and households. This is a societal benefit that cannot be captured by individuals who reduce energy consumption that can justify public intervention.
- Shifting from capital intensive energy supply to energy efficiency can reduce pressure on capital markets, freeing capital for investment in areas of the economy that deliver higher rates of return on investment – which means almost anything else (can refer to ABS data comparing energy supply return on assets etc relative to other sectors – it's poor)
- Where environmental impacts are presently under-priced, substitution of energy supply by energy efficiency is beneficial, even though it may not be visible within the economy. Where it is likely that a carbon price may be introduced at some point in the future, early investment in energy efficiency reduces the likely future carbon price by reducing competition for a limited number of permits.

Evidence of these effects includes:

- A 1993 study of energy-related externalities for the Victorian Government estimated the socio-economic benefit (due to employment creation, income, property values, infrastructure, trade, etc) of demand-side programs at 0.2 cents/kWh in comparison with 0.06 cents for a gas turbine and 0.03 cents for a coal fired power development (RCG/Hagler Bailly et al, 1993)
- The 2002 Allen Consulting study (with the Monash modelling group) of the proposed 5-Star building energy regulation used economic modelling that showed the above effects contributed around half of the total economic benefit: indeed, these broader effects meant that the 5-star level of stringency was economically superior to a 4-star stringency even though the 4-star level was more cost-effective for the individual.

Energy efficiency improvement can also provide a variety of 'spin-off' benefits such as improved productivity and product quality, reduced noise and improved health. A paper prepared for the Insulation Council of Australia and New Zealand by the Gilmore Group, as a submission to the recent Productivity Commission Inquiry into energy efficiency describes a variety of additional benefits that can be gained from improved building energy efficiency.

These issues mean that the overall economic, social and environmental benefits of energy efficiency are generally understated. This, in turn, reduces the pressure for strong action to support their growth.

Recommendations

Some actions the Committee could propose that would help to build the energy efficiency services industry include:

- Build the information base on the characteristics and performance of the energy efficiency services industry and raise awareness of firms that could potentially be part of that industry
- Expand training, certification, product performance information (beyond existing energy labelling schemes) and support their use with incentives
- Conduct major reform of energy market frameworks from narrow 'economic' to 'triple bottom line' so that all participants have clear incentives to promote energy efficiency solutions over supply-side solutions where they deliver a net societal benefit – and keep reforming until they act in those ways
- In the short term, provide targeted incentives and support to energy efficiency services where existing energy market frameworks under-value the societal benefits they deliver
- Develop a *National Co-operation Policy Framework* to replace the present National Competition Policy

Conclusion

This submission has not focussed on the arguments for stronger policy action to support energy efficiency improvement. Such information could be provided on request. Instead, the submission has highlighted some of the barriers that block the growth of the energy efficiency services industry, and has provided some information on the employment and flow-on economic benefits of energy efficiency that would deliver triple bottom line benefits.