

Submission

To the

Productivity Commission's

Inquiry into Energy Efficiency

What follows is basically some comments & personal observations regarding the History of the Technology & it's relevance to the present & future.

Most energy technologies have taken decades to evolve to the levels that we know today.

In some cases this has been an evolutionary process e.g.

The power industry has gone from the 5 to 10% of Parsons time to the current 35 to 40% of today.

For some however it has been revolutionary.

An example here is the Railway Locomotive, for up until the 1960's, The technology had changed little from that of the 1840's. Then diesels started to take over.

Ironically in the Marine & Power Industries, also using steam technology, energy efficiency did evolve over time.

This could have been due to the Management & Political culture of the various organizations and the mix of Private & Public ownership.

Public organizations tend to be more conservative. Risk aversion policies become well entrenched, resulting in a not thought of here mentality.

Private organizations on the other hand where genuine competition exists cannot afford this approach.

Unfortunately they also take little notice of energy efficiency improvements as a way of reducing operating costs.

Another problem with many organizations is there belief in Infrastructure monopolies, even the Productivity Commission has fallen into this trap.

Reference your comments in Box 3 of Sept 2004 Issue Paper.

Electricity distribution networks do not have to be owned by one organization, managed perhaps. It can be owned by many, built by many, maintained by many & considerable number of suppliers and consumers can be interconnected to it.

They are basically an infrastructure system similar to Road Networks, Rail Networks, Gas Pipeline systems & Telephone systems.

The belief that they are a monopoly natural or otherwise is more a traditional perception than reality.

Again in the case of the electricity network, deregulation which was supposed to effect the whole system was then cut short due to political expediency.

However even under the current semi-regulated system changes could be made that could improve efficiencies.

Example :

Much smaller sized generators could be dispersed throughout the high demand areas either in Cogeneration systems or stand alone units whether in customers premises or at sub-station facilities.

With quick start ability and potentially a higher thermal efficiency than that of the base load power stations themselves, these units responding to pricing signals from the wholesale market or controlled directly by the network management, would allow the base load stations to operate at their most efficient levels.

This concept can be applied even further down the supply chain all the way to the home, small office & business premises using U.P.S. (Uninterruptible Power Supply) battery storage systems capable of storing 6 to 10 hours of electrical consumption.

These would supply the premises from the batteries during high cost peak periods and then recharge during off peak periods.

This benefits both the supplier and consumer. The supplier can better level out the highs and lows of the generation and distribution systems.

Again contributing to improved thermal efficiencies at the base load generators and allowing the distribution system to be designed and operated more into the average transmission load band than the peak load band.

The consumer would gain immediately from reduced power costs and improved security against blackouts.

As for the technology in these systems it has been around for many years. Modern Smart meters and controllers can be used, but older technology meters and control switches that have been used for off peak hot water previously can also be used for the battery storage systems.

Even though many of these technologies have been available commercially for many years their uptake in Australia has been woefully inadequate.

No single standout cause can be identified apart from a general ultra-conservative **don't rock the boat** reluctance to question the way things are being done, until of course something dramatic occurs.

Such as :- A lack of water or perhaps power blackouts & rising fuel prices. Panic over and everything returns to normal until the next time.

This stop/start approach where R & D programs are picked up then dumped on nothing more than a political whim are definitely not helpful.

*Particularly when they often require in some cases decades to go from the initial **Go Ahead/ Research** Stage through to there eventual Commercial development.*

For anybody who has studied technical history of the last 150 years or so, will notice the long gestation periods and there reliance on either the Government, Military or Wealthy individuals for financial support.

Examples abound of technical processes and their long and continuing developmental lead times, in many cases they are now major industries.

Energy Efficiency covers a huge range both in the Technical and Administration areas. Many good ideas, concepts and technical systems and solutions have been developed over the years.

However the major hurdle appears to be how do you convince all those decision makers from the very top to the individual household to take Energy Efficiency seriously enough to adopt it. Much of the equipment, systems and concepts are either initially expensive, complex or simply beyond their comprehension.

When was the last time an energy efficiency program appeared on television or as articles in the press ?

Example : *Try telling the public that Brick, Tile and Carpets are not good materials for house construction.*

When are the railway organizations going to develop R & D programs for there Locomotives and trial ideas such as Hybrid Transmission systems.

Whatever happened to programs promoting Co-Generation and Tri-generation.

In conclusion I don't believe an increase in R & D would be necessary of itself, this may occur as a result of other actions.

However we must step up programs to educate and make aware to the decision makers at whatever level, the benefits, systems, concepts, approximate costings, risks and rewards of Energy Efficiency. With the added benefit of interlinking with the Wholesale Electricity Market.