Hi, my name is Tosh Szatow. On behalf of CUAC, thank you for the opportunity to present today.

This morning I'll give you a brief look at who we are and where we see the value of energy efficiency investment. I'll spend most of my time talking through how we think the Stage 2 measures could be enhanced, focusing on capturing a value of energy efficiency not currently recognised.

That value is 'upstream value' or avoided energy supply infrastructure cost and having a mechanism which captures that value would be complementary to all Stage 2 measures. I will take a look at what these costs are, some examples of how energy efficiency investment avoids electricity supply infrastructure costs and what the value of this is.

Finally, I will look at some basic principles we believe are a good starting point for capturing that value, a hypothetical model for how this could be done and what the benefits would be.

CUAC represents Victorian consumers, focusing on low income, rural and disadvantaged consumers, in policy discussions and debate on electricity, water and gas.

We concur with the discussion paper in that we see the value of energy efficiency as a means to reduce emissions at least cost, and in many cases, for profit. In a broader social context, we see energy efficiency as a critical way of managing increases in the cost of electricity and gas, allowing greater utility to be gained from the same volume of energy consumed. Energy efficiency is really the cornerstone of the equity response to climate change.

For low income households, energy efficiency frees up significant income for essential goods and services such as health services, food goods and rent or mortgage payments. The value of this cannot be understated as on average, low income households spend 5% of their income on domestic energy despite typically constraining consumption. i.e. consuming less than they need.

Low income households are typically shut out of making energy efficiency investments, particularly upgrading existing appliances, as they don't have the spare income or savings required to justify the cost.

Despite the significant gains made by having minimum energy performance standards, building standards, education programs and so on, many consumers will remain shut out of energy efficiency investments due to this financial constraint and due to split incentives – for example landlords may not have the incentive to invest in efficiency improvements on their tenants behalf. Capturing the value of avoided supply infrastructure costs is a way to overcome this and so enhance the Stage 2 measures.

The value of energy efficiency investment in avoiding or delaying capital spending required on supply infrastructure is not currently able to be captured by us, the consumers, who ultimately drive supply infrastructure investment.

This is important to consider because the capital cost of supply infrastructure is ultimately paid for by all consumers in their energy bills, but consumers do not have these costs reflected in their purchasing decisions up front. Consumers can only capture operating savings from efficiency investment. This limits the circumstances under which consumers can recoup the full value of their efficiency investments.

Recognising avoided supply infrastructure costs could change appliance purchasing decisions quite dramatically and so increase the range of circumstances in which efficiency investment is viable.

Supply infrastructure costs are not easy to pin down. The office of Energy in WA estimates that each 2kW air conditioner costs around $6,000 to supply, regardless of how often it is used. i.e. the cost of peak supply infrastructure is around $3M per MW. The QLD government estimates a higher cost per air conditioner but this is not qualified with a kW value.

If we take the WA value, and based on our investigations it seems a reasonable estimation, a $1,000, 2kW air conditioner receives a hidden subsidy of $6,000 at the point of sale or $3,000 per kW

Because supply infrastructure investment is primarily driven by capacity requirements, not capacity utilisation, it doesn't matter how often or rarely that 2kW is used, the infrastructure cost remains the same. This means it is highly unlikely for a consumer to spend $4,000 on a more efficient 1kW system, which might make sense from the perspective of supply infrastructure costs, as they are unlikely to recoup the $3,000 difference in operating costs alone.

I'll just quickly take you through some examples of efficiency upgrades which are more cost effective than building new supply infrastructure, remembering supply infrastructure costs around $3M per MW. In all cases I am assuming these appliances would run at peak times.

Switching from the standard 50W halogen down light to the new 11W CFL down light has an installed cost of around $55. Factoring losses in the halogen down light, this is about $1.20 per W of freed capacity or $1.2M per MW.

In many buildings, twin 36W 8 fluro's can be delamped, with the remaining lamp being replaced with a more efficient T5 quad phosphor lamp combined with a reflector. This works out around $1.5M per MW of freed capacity

35W Incandescents can be replaced with 11W CFL's at a cost of around $500,000 per MW.

Given the variation in refrigeration and air conditioning sizes, costs and efficiencies across manufacturers, it is more difficult to quantify specific examples, but you would expect many examples where an upgrade to a more efficient appliance could be done more cost effectively than building new supply infrastructure. The significance of this is that efficiency upgrades can be made cost effective even when the operating savings from that investment cannot be captured by the asset owner. This overcomes the split incentive issue which hinders a significant amount of energy efficiency investment

The value of avoided investment in supply infrastructure is not as straight equation as the $3M per MW suggests. Because investment in supply infrastructure is most likely to delay capital spending, not replace it, the $3M figure needs to be discounted somewhat.

In discounting, you need to consider peak demand growth rates, supply capacity headroom, cost of supply infrastructure, capital discount rate, scale of the energy efficiency deployment relative to supply capacity planning schedule and so on.

Assuming 15% capacity headroom, 2.5% peak demand growth rate, $3M per MW for supply infrastructure and a 5% discount rate, any energy efficiency investment which has a material impact on supply planning schedules can be valued at around $2.1M per MW.

It is worth remembering that this is a best estimate figure based on data we have managed to pull together and so does not represent a definitive figure. It is also worth noting that the adjusted $2M per MW figure still captures the energy efficiency examples highlighted previously.

In capturing avoided supply infrastructure costs gained by energy efficiency investment we would recommend the following principles as a good starting point

- Funding should be proportional to the value of deferred supply infrastructure where the Energy Efficiency investment occurs, noting this can vary across regions significantly
- Funding mechanisms would be required to capture both individual and community energy efficiency investments
- Any energy efficiency investment that receives funding would need to demonstrate ‘permanent’ reductions relative to existing conditions. I have said ‘permanent’ because their may be issues around maintaining a reduction in load volume once an initial energy efficiency investment in made. However in most instances, once the initial investment in energy efficiency is made, it is easier to maintain than to undo.

Hypothetically, energy efficiency investment could be funded in this way:

- A pool of funds could be made available by the federal government
- These funds would be administered by an independent expert board
- Funds could be allocated to means tested grants which target low income households who could otherwise not afford efficiency upgrades

- Funds could also be made available for community projects i.e. large scale efficiency upgrade projects within communities
    - Projects would receive government funding matched by network business, recognising that reductions in network supply capacity costs benefit network businesses
        - Any mechanism involving networks in such a scheme would require consideration and inclusion in future regulation of network business's nationally
- The formula for allocating funds could be adjusted to suit circumstances where the energy efficiency investment occurs. For instance, supply costs to a region may be $5M per MW, while for others it may be $1M per MW and this should be reflected in funding allocations

The benefits of this model is that you would have a relatively simple to administer scheme which helps overcome capital cost barriers to energy efficiency investments, particularly for low income consumers. This would form the cornerstone for an equitable response to climate change and more generally, enhance the value of existing mechanisms such as MEPS, star rating schemes, building standards and so on.

The model would help overcome split incentives, where the operating savings from efficiency upgrades can't be captured by the owner of the energy assets, as operating savings may not be necessary to justify making an efficiency upgrade. The model also allows for large scale energy efficiency investments that can have immediate material impact on network and generation planning to be captured. Lastly, adjustments can be made to funding criteria to accommodate location specific characteristics of energy efficiency investments