ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into energy services industry

Bendigo — 6 February 2006

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton

Ms J. M. Lindell
Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell
Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr V. Koops
Research Officer: Mr D. Benjamin

Witness

Mr T. White, Executive Officer, Central Victorian Greenhouse Alliance.
The CHAIR — The committee welcomes Terry White, the executive officer of the Central Victorian Greenhouse Alliance. Thank you very much for your time again, Terry. We hope you were as happy with our last report as we were. We were very pleased that it all came together in the end. Certainly, our trip to Bendigo last time was very productive for us, and hopefully we can get the same input from you again. I just need to remind you that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review, but if you go outside the precincts of the hearing your comments are not protected by parliamentary privilege. Hansard is recording all evidence taken today and you will receive a proof version of the transcript in a couple of weeks. I will hand it over to you to give your presentation and then we will have some time for questions.

Mr WHITE — I am hoping that you have the paper that I photocopied this morning.

The CHAIR — Yes, we all have it.

Mr WHITE — Good. I want to say before I start that I am impressed with this sustainable communities report. It is not often I read a government publication and get as much out of it as I got out of this one. It seems evident to me that this committee enjoyed its investigations. It put into this document some material that is really very relevant to where we are as an alliance. Looking at some of the recent Victorian government pronouncements and the committee’s recommendations, I imagine that this might have been very effective early on. Recommendations and press releases that I have read seem to correlate pretty closely in some cases.

I want to start by saying that I think that we have never needed an energy efficiency industry more than we need it now. I simply introduce my comments by saying that I think we are in a state of contradiction. We are a state which relies heavily on brown coal, which we know now is a toxin. It is an economic advantage at the moment, but it also is an economic disadvantage at the same time. We are in an historic phase change from one era to another. We know a lot more now about what we are dealing with than when our coal-fired plants were installed, so I believe we are making an historic transition from one system to another. The rapidity or the speed with which climate is changing and becoming unstable is such that every government — international, national and local — must take on this imperative of using the old regime to fund the transition to the new regime. I see the new regime as a distributed, carbon–neutral energy system that is based on distributed energy, energy efficiency, energy conservation, renewable energy, and biosequestration.

We are between a rock and hard place. The greenhouse alliance views this as an extremely serious issue which is being trivialised worldwide. The political responses are nowhere near matching the scientific consensus on the size and scale of the problem, and the speed with which we are making the transition from one era to another is nowhere near the pace which the situation requires. As an analogy, when a country the size of England or America declares war, everything changes. People do not ask whether we can afford things; they get on with it and do what is required. This is an historic situation that requires the same degree of urgency.

In the year 2000 four people formed the Central Victorian Greenhouse Alliance. Today we have 13 municipalities as members, and 9 large regional organisations. We involve every municipality from Bendigo and Ballarat, up to the Murray. All of those cities are now also members of Cities for Climate Protection; all of them have done energy audits and formed energy plans; all of them are spending money each year on retrofitting their operations; and the same can be said for the non-government members.

I have documented the membership in the information you have, and it includes Origin Energy, Bendigo Bank, La Trobe University, the catchment authority and so on. Our goals are based on scientific consensus. We believe we must attempt to reduce greenhouse gas emissions in central Victoria by 30 per cent by 2010; and aim for zero net emissions by 2020. That is the implication of the scientific consensus. That does not mean we know how to get there, but it means we must start trying to get there. You can see from the chart that we have an energy efficiency target of 15 per cent by 2010, and 30 per cent by 2020; a renewal energy target of 20 per cent by 2010 and 80 per cent by 2020. And biosequestration — that is, fixing carbon in the ground using trees — of 10 per cent by 2010 and 20 per cent by 2020.

We have been involved in a whole range of projects which I have not put down in the papers. If the committee is interested, we can possibly discuss them, but the two most relevant are, firstly, the fact that this year we will be managing a 500-household energy efficiency trial in a town in central Victoria. The town has not been chosen yet but it will be a town of between 5000 and 10 000 people. We will be looking to hire consultants who are aware of
The world best practice and how we might change the behaviour of householders, and we are looking for an emission reduction from those households of between 15 and 30 per cent; in concert with our own aims.

The other issue of relevance is that we are short listed in the Solar Cities Residential Project being run by the federal government. We are hoping to be one of the four projects that are chosen nationally to trial a range of new energy efficient technologies in the household and commercial building areas. We are looking at smart meters, photovoltaics, solar hot water systems, and model financial packages. It is significant that we have Bendigo Bank as a major partner in that bid. Bendigo Bank is also a member of the alliance. Powercor is our major distributor, Origin Energy is our major retailer, and Bendigo Access Employment is a major innovator in terms of the energy task force which it manages. In addition, St Lukes Anglicare has done a lot of community development work looking at energy efficiency in low energy income homes. We think we have a bit of a dream team there, and we are busy beavering away on our detailed business plan.

I have looked at the terms of reference and I think it is best for me to focus on what I believe are the barriers and opportunities. I might skip over some of the terms of reference and just go straight to those. I have given a bit of detail in the paper, and in this verbal presentation I just want to touch on the major points. Firstly, there is the cheap price of coal-fired electricity, which is second only to South Africa in terms of costs. That makes it extremely hard for people to get serious about saving energy, because it is such a minor percentage of the household budget or the commercial budget. In other jurisdictions governments have seen this as an opportunity. They have taken a percentage of the income stream from a one-off resource and made sure that that percentage stream fuels a future scenario which is going to profit future generations. I believe we have been slow off the mark, in terms of government, at looking carefully at those market policy options. In the past we have perhaps squandered that opportunity.

Our recommendation would be to quickly review those opportunities. The committee did extensive reviews and saw instances in other countries of the sort of progress that can be made with those sorts of market instruments. We are really anxious that the Victorian government rapidly implement its 10 per cent MRET and its cap and trade emissions trading scheme as soon as possible. We see that as a major driver for energy efficiency industries. The industries will come in if the opportunity is there for them. At the moment there is very little in terms of economic drive. That could be transformed by government.

Secondly, we believe the design of the Victorian regulated electricity market and the role of the Essential Services Commission is far too limited. Environment is not part of the job description of the Essential Services Commission, and there is basically no regulatory requirement for the distributors or retailers to behave in an environmentally responsible way — in an economically responsible way, yes; but not in an environmentally responsible way. For a government that has a responsibility to look at the triple bottom line outcomes of its policies, there is a gap here. There needs to be an immediate review of the terms of reference of the Essential Services Commission. There needs to be a close scrutiny of the regulatory frameworks which are in place in other jurisdictions that do take the environment on board.

The committee has in its report pointed out the fact that some inappropriate tariffs can be used by retailers in Victoria. We have noted that inefficient airconditioners can be sold by retailers in Victoria. We have noted that there is no real advantage to buy an energy efficient, renewable energy route rather than a poles and wires route. In fact they are rewarded for the poles and wires solution over the renewable energy or energy efficiency route. This should not be. This government has attempted to work by a triple bottom line outcomes policy, and it is falling short in terms of the regulatory environment. The CVGA has retailers; we have associations with Powercor and with Origin. We know from our conversations with them that it is difficult to do things we want to do because they are answerable to their shareholders, and the regulatory environment does not favour innovation and the direction of the renewable energy, energy efficiency track. I believe that is the framework that the committee is talking about in its document — it is talking about changing the framework. That basically comes down to reviewing the way in which the Essential Services Commission does its business.

The Victorian Public Lighting Code is another regulatory document which has no energy efficiency imperative. Our 13 councils combined spend around $3 million a year on public lighting. Public lighting burns 100 per cent all through the night while we all are tucked in our beds. In Europe and in North America the public lighting regulations allow for flexibility. They are dynamic codes in that a council can do a traffic or pedestrian survey and find out when the people are on the roads and therefore what lighting is appropriate at what times of the week. I
would regard our lighting code as a static code, so that there is not the flexibility. We estimate that with sophisticated dimmers we could chop 30 per cent off our costs for public lighting.

With sophisticated technologies we could drop the emissions by 65 per cent. We have two trials in the area; a 30 per cent reduction for one lighting technology and a 65 per cent reduction for another. We would like to implement that lighting technology as soon as Powercor is satisfied that it will stand up technically. However, there is no lever and no assistance from the Public Lighting Code which would draw the attention of our distributors and our retailers to the necessity to answer to government against an environmental outcome.

Another issue is airconditioner use. Airconditioner use is putting real pressure on our network across the state. At the moment it is unregulated, so you can buy a cheap and inefficient airconditioner from a retailer with no questions asked by the regulator. You can install that airconditioner and basically have its costs smeared across the entire market. As a householder who buys an airconditioner, you are not subject to the real implications of your purchase. There really needs to be a change to cost-reflective pricing. Our recommendation is that nobody should be able to buy an airconditioner that is not top of the range in terms of its efficiency. Nobody should be able to buy an airconditioner that does not come with a smart meter attached so you actually know the implications of its use and you can time the use. Nobody should be able to buy one that is not load equipped so that the distributor can electronically reach into the home and turn the airconditioner off if the network is stressed. Airconditioners are such a stress on the system that it should be part and parcel of the deal that, if you buy an airconditioner, you buy it on the condition that it is capable of external regulation and it is subject to time-of-use tariffs.

I believe there is a lot of scope for the regulation of airconditioners. The fact that we have allowed a very clunky generator to be retained online is possibly a result of airconditioner pressure. We would argue that there is another option; we could have handled that airconditioner pressure in another way.

The essential services commissioner has mandated the rollout of interval meters, starting in 2006, for households and small businesses. The opportunity is to roll out smart meters rather than dumb meters. We would regard the interval meters as dumb meters. They are useful to the distributor, useful for the retailer but not useful to the householder. We believe that what is happening now is that we are driving our households without a dashboard. We would not drive a car without a dashboard, but there is no equivalent of a dashboard in the house at the moment. Consequently we can have 10 lights on and be unaware of that. If we had an in-house dial which registered by colour — red, amber or green — the load on our household system and which registered audibly, by a beep or an alarm system, when we have the system on overload, then we could potentially have households that were far more sensitive to their consumption and use of electricity and the price.

There are indications from California, which, as you know, is a far more stressed jurisdiction than ours, that the installations of smart meters can make drastic impacts on household behaviour. If we are talking about energy efficiency behaviour, psychology tells us that the more rapid the feedback, the more likelihood of a change in habit. A bill that comes three months after the event is not going to have very much impact at all, as compared to an audible or visual signal at the time when your behaviour needs to be changed.

Mr DRUM — Is that like a smoke alarm, Terry?

Mr WHITE — Exactly; it would have electronics such that we could have, by regulation, smart meters installed — in-house meters with programmable audio cues. Just as we program our answer phone with our own voice, we could program our smart meter with our own voice, saying — —

Mr DRUM — ‘Turn the lights off’.

Mr WHITE — ‘Please turn that light off, you idiot. There are two lights on again. Angie, turn off your light’.

Regarding the statutory planning of councils, you mention in this report that Moreland is looking at targeting higher standards than five-star for new houses. We had a British expert from Woking call our five-star ranking the equivalent to a Danish dog kennel. Basically he was saying that our standards here are far below international standards. You may have found on your visit to Europe that that is their perception.

This is basically a question — and I should ask this of Sustainability Victoria — but you mention in the document, or it is implied, that the statutory planning regime in Victoria is different from New South Wales in that councils

6 February 2006 Environment and Natural Resources Committee 131
are not able to raise the bar beyond the five star. I do not know whether that is true or not, but that is the implication there, and I guess the import of my recommendation would be that the Victorian government not discourage councils that want to raise the bar higher. We would really love to see our 13 councils, which represent 20 per cent of Victoria spatially, lifting the bar so that solar hot water systems are obligatory and not optional when any new house is built. We believe the economic and environmental case for solar hot water is such that if that were done, we could save the government, the distributors and householders an enormous amount of money in terms of deferred augmentation. Solar hot water is quite competitive at the moment.

Lastly, on the treatment of carbon dioxide, if you are not a licensed premises in Victoria, you are not penalised in any regulatory sense for your emissions of carbon dioxide. In America excess CO$_2$ is coming onto the pollutant register. I believe that if we were to treat excess CO$_2$ as a pollutant, the public perception would change quite rapidly. I will give an example. This might seem to be pedantic and just fiddling with words, but in Western Australia, where I was working in a salinity control program, I was working in an estuary that was subject to high water tables, and it was poorly drained. Drains had gone in — engineering drains, straight lines — across the dairy areas, and those drains were very efficiently taking phosphates into the estuary and causing algal blooms and stinking right throughout the tourist season.

The response was to turn the drains into sinuous creeks so that the phosphate was captured by vegetation, and basically the vegetation used the phosphate as a sink. The major public change occurred when main drain 31 was re-signed Jacksons Creek. So all of a sudden what was unacceptable for a drain was not acceptable for a creek. Immediately the public started to complain about the deplorable state of Jacksons Creek, because the framework they built with one set of words was different from the framework for another. I believe it is very important that we recognise that CO$_2$ is now a pollutant, that coal is a toxin, that the enhanced greenhouse effect is not actually the enhanced greenhouse effect but the excessive greenhouse effect or the malignant greenhouse effect. Words are enormously powerful. I might leave it there and allow time for questions. I wanted to get through that rapidly, and I hope I have not been too long.

The CHAIR — Thank you very much, Terry. I think you must have read that report more times than even we did as we wrote it. I was thinking, ‘Yes, we did, too. Yes, we did that, and we did that’. We did say in that report, though, that our five-star ratings were very low by international standards. We did not want to be too derogatory of them, but we accepted they are quite — —

Mr WHITE — It is far better than two stars, isn’t it?

The CHAIR — That is right. It is a step forward but only a small step, which makes you wonder why the development industry is so against them in that sense.

Mr DRUM — It is fantastic listening to you with your knowledge and forthright opinions. Can we get right back to the start where you said we have just got to change a whole range of issues. You have mentioned renewables as part of that, that we have got to look at savings, our use, and biosequestration. Have you got an opinion on a couple of others such as drying brown coal technology and geosequestration?

Mr WHITE — I have certainly got an opinion on that. I believe that we are going to be relying on coal production for some time yet. Obviously we cannot just drop that and go into the new era. I guess my disquiet is that we should not be maintaining coal; we should be capping coal. We should not have recommissioned Hazelwood. We should have taken increasing energy consumption as a challenge to fill that gap with renewables, and we should have been using that income stream I talked about that coal represents as the financial driver for those innovations and narrowing the gap between the cost of coal and the cost of renewables.

If coal is more expensive and that expense goes on to renewables, the more we narrow the gap the more we are going to drive the alternative, and that is not what we have been doing. I am appalled that the commonwealth has taken the route that it has in terms of going fully down the geosequestration route for an option which is perhaps 10 to 15 years away and has therefore taken money out of renewables’ research and development. I think the CSIRO is going to lose about 200 of its workers who are working in renewable energy, because they are going to focus on that priority in their energy transformation program for geosequestration. I believe a smart government covers all the bases. Certainly we need research in geosequestration, certainly we need to be involved in drying brown coal and to be cleaning coal as much as possible, but simultaneously we must be introducing into the market existing technologies and also funding research and development in technologies to come.
Mr DRUM — Jeff Bothe who was in here earlier today alerted me to the fact that there are no regulatory restrictions on the quality of the engines that are out there driving industry, and yet we make a big song and dance, and you have also made a big issue about what we need to do with airconditioners in the domestic market. Would it be fair to say they are a small, albeit important, percentage of the overall users in our national market here in Australia compared to what industry is using with inappropriate, ill-fitted and poorly manufactured but nevertheless cheap engines that are driving industry? So effectively the argument is between industry and domestic households.

Mr WHITE — Domestic households represent about a third of our energy consumption, so they are not insignificant. In terms of households, refrigerators and airconditioners are major consumers, as are electric motors in industry. They are all instances of the same class, I think, that our minimum energy performance standards need to be turned over faster. I think you have said three years is the time in which our minimum energy performances need to be refurbished. The fact that you can buy cheap and inefficient engines or cheap and inefficient fridges or cheap and inefficient airconditioners is a reflection on us. We should not allow those into the market.

In fact the manufacturers that presently supply our fridges are way behind manufacturers of fridges you can get, for instance, in Turkey. So we have been thinking: let us look at international best practice; let us look at where these technologies are in the globalised economy; let us see whether through Bendigo Bank and the company that we are setting up with our Solar Cities bid, the zero net emissions company, whether we can introduce better performance into the market. That would go for electric motors as well. But the relative contribution between the electric motor and the airconditioner, I am not sure of that. But what I know about airconditioners is they are the technology which is driving distributors up against the wall in their ability to maintain supply at times of peak. So they might be relatively insignificant but they are hugely significant in terms of the stress they put on the system. That stress might only be for three days a year but they are three significant days, so we have a huge amount of inefficient investment in base load plant and peak loading plant which the solar cities project, I think, is designed to address in terms of ‘Can we do this more cost effectively through behavioural change and by smarter packages of innovation including cost reflective pricing — —.

Mr DRUM — Just to finish, the technology in relation to these audio beepers and sounders that can be fitted — is that anywhere near a reality?

Mr WHITE — Yes, Country Energy has a trial in New South Wales where they are using meters that are in-house, in your kitchen showing red, amber or green. I am not quite sure whether the beeper exists, but the beeper should exist. The text here is that the interval meter that we rolled out will not be smart, and I am saying, ‘Okay, this is a one-off opportunity. Let us ensure that the interval meter is a sophisticated one and perhaps designed for purpose’. We had instances in Britain where Lancashire council wrote a brief for public lighting dimmers and went to the market and had that designed for it. I think too often we look for what is on the shelves at the moment instead of, ‘What is the function required for this situation?’. We could write a brief, put it out to market and with the bulk, the volume of sales, we would get in Victoria, we could roll out these meters to every house; then the unit price should come right down.

I believe that sort of investigation of functionality is taking place at the moment. I have quoted the recommendation that there be trials of those smart meters. Basically I have put up the alliance’s hand to say, ‘If you are going to run those trials, run them on top of our 500 households’, so we start with energy efficiency and then we add the technologies. So we have got a control group, basically, for a year; we trial only energy-efficiency strategies, then we put a smart meter in the houses and we see what more we can get. Then we put a cost-reflective tariff in to see how much more we can get, and so on. With that degree of coordination I believe that would be a cost-effective strategy as well. I personally see the smart meter as an innovation whose time has come. If we could have that device in a home, I think we would all behave differently, particularly children.

Mr DRUM — You might be right.

Mr SEITZ — How is your organisation funded?

Mr WHITE — It is funded from membership contributions of between $1000 and $3000 so the large are $3000 and the small are $1000, then we have about three individual members at $50 each. But basically we are a peak organisation, so for our first three years we ran completely on membership subscription, but three years ago we had our first funding from the state government under its regional partnerships program, and they provide us with the equivalent of a full-time salary plus some seed money for projects which would amount to about $10 000
per each of five projects. But it is our intent never to become dependent on government, so we accept that money gratefully and we are very thankful for it, but we are also aware that we really need to walk the talk and be completely responsible for our own decision-making and our own future. We are confident that if government funding were withdrawn, we would continue to operate. We are still recruiting members. At our last meeting, last week, we had Bendigo Community Health join us. They have over 160 employees in five centres in Bendigo and they are starting straight away with an energy audit. It is our intent to recruit the major organisations of central Victoria and have them sign on to this ‘walk the talk’ ethic where they all clean up their own act before they talk to others.

Mr SEITZ — Are you aware of other similar organisations in other parts of Victoria?

Mr WHITE — Yes, there are four such alliances. Since we began the government has adopted this model within its regional partnerships program, and I believe there are four alliances now. We have strong communication with them, and we see real synergies and efficiencies. A lot of us are interested in biodiesel; we all have council fleets. We could employ one consultant to run across the four alliances. We are all interested in public lighting and we all see the benefits there. We are all interested in school energy use; we have done a lot of innovation with that. We can roll that out and vice versa — we do not need to do everything. One of the alliances can do something and we can cross-fund them. That is what we are talking about with public lighting. We are talking about one consultant running across the four alliances.

We would see the desirable future as being similar to the evolution of catchment authorities. We started with salinity as the reason for regional planning, then we had the blue-green algae bloom right down the Murray and algae, or nutrients, was added to the package. And then the penny dropped that we were not just talking about salinity or algae, we were talking about natural resource management. These organisations can operate for natural resource management, so we formed our alliance within the natural resource boundaries of the North Central Catchment Authority. I think we should not stop until there are greenhouse alliances made up of this cross between government, non-government and local government participatory management organisations in every catchment region in Victoria. That is the desirable future as far as I see it.

Mr SEITZ — Would you mind elaborating further on your Solar Cities proposal?

Mr WHITE — Yes. The federal government, I believe, does not know what to do about this looming energy crisis. They put out $75 million to the Australian public to come up with packages — new business models are an essential part of this — that will accelerate the uptake of energy efficiency and renewable energy within the Victorian public. We put together our major players and we met every fortnight for six months to develop our first approach, which was a proposal saying that we would retrofit 2500 homes spread on a per capita basis across 13 municipalities, with winter-stressed environments down at Ballarat in one part and summer-stressed environments in Bendigo in the other part, so we will be able to demonstrate across those 2500 homes all the stresses which the Australian public generally is subjected to. We will get good information out of this.

We also put in the pack 100 businesses, also spread on a per capita basis, and we promised that we would demonstrate to businesses, probably as Jeff and John exemplified, that there are simple strategies and simple ways in which businesses can save money and save energy. We also had in the pack a photovoltaic installation at Rochester — a 0.5 megawatt solar system established there — and we had the agreement of Murray Goulburn that it would take that power. We invented a special energy tariff called RETZ to make that possible. We also had in the pack a 600-household greenfield site at Melton managed by Powercor where the state of the art could be demonstrated in terms of the orientation, fittings and appliances in the home. That got through. The pack of 23 has been cut down now to 11, and we are one of the 11 so we will know in July whether we have been selected as one of the four.

Now we are working very closely. We have our writing team installed. We have our project manager who is the chairman of the regional stock exchange, Michael McCartney, in harness at the moment working on our second bid, and we are hoping that our second bid will be more innovative and virtually irresistible. That means that every tick that we got first time round has to be three times better, I think, to get across the line. We are hoping that package we put together will outlast commonwealth funding if the Central Victorian Greenhouse Alliance which is a not-for-profit organisation has registered a for-profit company in which people can buy shares.
The Central Victorian Greenhouse Alliance, which is a not-for-profit organisation, has registered a for-profit company into which people can buy shares. So the Zero Net Emissions Company — we are calling it ZCO2e (pronounced ‘zedco’) — will continue after Solar Cities funding finishes as a commercial one-stop-shop venture that the public can approach for energy advice, auditing and zero emission technologies. We believe that fits perfectly with the commonwealth criteria. They want to see something that is going to last in the long term.

We are really trying at this stage to get Powercor, Origin Energy and the Bendigo Bank to think carefully about the potential synergies that might occur between their businesses so that we can get to a win-win formula. Our project manager has approached Rob Hunt of the Bendigo Bank to ask, ‘What is your interest, Rob, in this venture, and how committed are you to it?’ He will then go to the CEO of Powercor and the CEO of Origin Energy and have that same conversation to get institutional sign-on early in this period so that the expertise within those organisations can be delivered to us in a multi-disciplinary fashion to design the appropriate tariffs and to design the appropriate technologies. That is the way we are going, and it is quite exciting.

Mr SEITZ — Should the government have a different approach and thinking to, say, regional areas specific to the Melbourne city population in relation to the whole aspect of sustainable living and energy saving?

Mr WHITE — I do not think so. I think it should be regarded as one system. Basically we are the only distributed bid in the Solar Cities pack — that is, all the others are concentrated in largely urbanised areas. Ours is the only example of a distributed bid, and that was conveyed to us by the commonwealth as a potential weakness in our bid, a vulnerability. We prefer to regard that as a strength because we believe that many Australians live in regional areas, and we have the advantage of covering those different climatic zones and those different demographics, from poor to wealthy. The more we can learn from that, the more use it will be to the peri-urban fringe and the urban areas.

The CHAIR — I am going to talk about the lighting code — probably not the code, but public lighting as it is. I would have thought that if you had an amalgamation of all local council areas and were going to put solar technology onto every street light, the unit cost would take a dramatic dive. I am wondering why we are not seeing that real move to solar street lighting?

Mr WHITE — The dive would not be dramatic enough for councils to afford it. This is because if you can see the solar street lights, then you are involved in a pole, a photovoltaic cell, batteries and the usual luminare and lamp. If every pole has that, then you are up for a cost of maybe $5000, $6000 or $7000 per pole. But there is no logical reason why every pole should carry a photovoltaic cell and batteries. The same logic could be applied to a photovoltaic array or solar farm down at Kerang, which is harvesting the equivalent amount of power and just feeding it back into the grid. So you have conventional lights running from a solar input. Then again the cost of photovoltaics is such that a business case could not be mounted against coal. Coal is far cheaper. So we are looking at lighting efficiencies, as I said, of 65 per cent more. We are also looking at dimming and looking at cutting as ways in which we can cut it right back. Certainly solar lights make a lot of sense when you are a long way from the grid, and in fact our councils are installing those on bridges and on settlements.

The CHAIR — Thank you very much.

Witness withdrew.