CORRECTED VERSION

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into energy services industry

Melbourne — 5 December 2005

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Mr M. Zammit, Managing Director; and

Mr R. Fraser, Chairman, Energy Response Pty Ltd.
The CHAIR — I welcome you and thank Michael Zammit and Ross Fraser of Energy Response Pty Ltd. All evidence taken by the committee today is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, if you make comments outside the precincts of the hearing they are not covered by parliamentary privilege. All evidence given today is being recorded by Hansard and you will receive a proof transcript in the next week or so. I will hand over to you to make your presentation and ask you to leave a few minutes for questions at the end.

Mr ZAMMIT — Is it worthwhile giving you a 60 second run-down of who we are?

The CHAIR — Yes, that would be lovely.

Mr ZAMMIT — Ross is our founder and also the project manager for the implementation of the national electricity market, so the market is his responsibility and you can kick him around later if you want!

Mr FRASER — Michael and I have very long-term involvement in the electricity industry in Australia and quite a bit overseas as well, so we feel we have reasonable knowledge in this area. We can always learn a lot more, and we are trying to learn more as we go.

Energy Response has come out of a national trial run by the Energy Users Association of Australia in conjunction with three major electricity retailers plus NEMMCO, supported by the Victorian, New South Wales and federal governments. A trial was an independent assessment of a model that would provide a demand-side response (DSR); an effective process whereby electricity consumers could respond to price signals, physical demand signals and so on in the electricity market. The market had been running for about five years at that stage and there was negligible demand-side response. Unlike signs outside petrol stations where we can all make decisions, the price in the electricity market is actually set 5 minutes after the event has happened, so you cannot actually see it but you can predict it, and that is one of the tasks we do.

We have developed a model that enables and empowers electricity consumers, ultimately 8 million of them, through a web-based process to pre-arrange a response to certain circumstances. We have been running for one year and we have something like 250 megawatts already registered with us nationally, of which about 120 megawatts is in Victoria. We are based in Victoria, mainly because we got better support from the government here than from other governments, but other governments are catching up fast. The New South Wales energy savings fund has about $20 million a year towards demand-side response projects.

We are a small company. We have a substantial bid with NEMMCO for its reserve trader. You might not know, but this week every state of Australia is short of reserve safety net for contingencies; and as far as we are aware NEMMCO is taking no further action about that; but after Christmas, starting 10 January, NEMMCO should have contracts out for reserve provided by the demand side, which is pretty much a first, so we are really pleased with how we are going.

Overheads shown.

Mr ZAMMIT — That probably went further than we intended. I will now go through the presentation.

Basically this presentation addresses the key points that you asked us to cover. What is demand-side response? Basically, Ross summed it up. It is getting electricity consumers to either curtail the load or alternatively shift their load to another time or switch to any onsite generators they may have. They are the three main ways. We must remember that they would be paid for it: they dispatch when we ask them to and then we would pay them.

We were also asked to highlight the difference between load shedding and interruptability loads versus demand-side response. Load shedding is something that the networks tend to do. It can be quite automatic. If the frequency goes up too high or too low it will happen automatically. However, if there is a very tight situation the networks can be asked to shed load, and they will do that by switching off a feeder or a whole substation and there will be a blackout for that particular locality.

Interruptability clauses appear in most retail contracts. They are usually optional, and customers are very rarely asked by their retailers to exercise those unless they are a particularly large customer. So if you are SA Water and you have 60 megawatts of pumping, you might be asked to shed load, but generally speaking, very rarely. What we do in demand to response is shed; we will ask electricity customers to turn off or curtail their load at various times.
While what they offer to us is up to their discretion, we will test it, make sure it is available at those particular times and see how hard it is for them to do that. We are not about changing the amenity of their operations; we do not want them to stop their production; we do not want them to work without any lights or anything like that. There are no safety issues in these situations.

Mr FRASER — We are probably only reducing about 5 per cent to 10 per cent of their demand if they do not need it at that time.

Mr ZAMMIT — This is how we work. This slide represents the electricity market. Looking to the left, the black arrows are the financial side. The generators generate electricity through the spot market or through hedge contracts directly with retailers, and the retailers sell it to the 8 million customers — that is, you and I, this building, whatever. The other way is the delivery of those electrons to the market.

We sit as a broker in that market, so all those red arrows show how we are picking up demand-side response from various types of customers, and then we will sell it back to whoever needs it. This is an open access type arrangement. We do not restrict anybody from using our system. We can sell it to retailers for wholesale price peaks; we can sell it to NEMMCO for reserve trader and to the FCAS market; to generators as hedges for them, or where there is a local issue within a network area we can sell it to the network as well.

A lot has been written over a number of years about what is the capacity for the market to develop for demand-side response. A report was done by Charles Rivers Associates that indicated there were about 700 megawatts in Victoria of which 200 megawatts should be easily gotten to. Also, as we were looking to commercialise our business we also did a survey of what we thought was a likely amount of DSR that was able to be got from the market in general, and we came up with a figure of around 3000 megawatts for all of Australia. We find that most of those figures are fairly conservative. We have put together fairly easily — in a matter of a couple of weeks — a response to NEMMCO’s reserve trader. We have itemised 167 megawatts with letters of intent or interest from various companies, and about half of that is from Victoria.

There are literally hundreds of electricity consumers that have the DSR capacity. It is relatively easy for them to make that capacity available to us. We are the only DSR aggregator in Australia. At this point of time there is nobody else doing what we do.

Mr FRASER — That does not mean that there will not be in the future.

Mr ZAMMIT — That is right. There are specific niches where we have competitors, quite clearly. There are overseas aggregators — one of them out of the US has actually had a look at us. They are quoting better reliability than a gas generator for their demand-side program. It is literally very quick and very reliable.

I am going through these very quickly and I apologise for that, but you do have the slides.

The CHAIR — We had them earlier.

Mr FRASER — Have you all read these before?

The CHAIR — Yes.

Mr FRASER — We will go through them even quicker!

Mr ZAMMIT — The next slide shows the status of DSR strategies in other jurisdictions. New South Wales is clearly a jurisdiction that is doing a helluva lot in this area with their energy savings fund. We have projects there worth a total of $40 million over five years — through that fund that we have applied for. We are quite hopeful of at least getting some of those projects through. There is also a regulatory environment that encourages demand-side programs as well, which is called the ‘D-factor’. However, in our opinion, demand-side response is actually quite commercial. It does not really need anything like that; it needs other things.

Also, the South Australian regulator has put into place an incentive program of $20 million over five years for demand-side. This is actually through their local network service provider, so it is very difficult for third parties such as ourselves to gain access to that money. We believe there are also going to be some opportunities here through interval meter rollout in terms of garnering demand-side from residential consumers.
Mr FRASER — There is no reason why residential customers — and there are about 7.6 million of them across Australia — cannot provide a small amount of demand-side response: respond to price signals through an orderly process.

Mr ZAMMIT — There is at least 2000 megawatts of DSR in residential customers throughout the NEM.

Mr FRASER — For example, swimming pool pumps do not have to be on at times of peak. Even the domestic refrigerator’s compressor could be turned off for short periods of time — as long as we know it is coming back on again.

Mr ZAMMIT — Certainly the USA has got DSR provisions through some of their ISOs. The ISOs are similar to NEMMCo — independent system operators. They have got quite a few areas within the US that have capacity bidding for demand side and quite a few companies do that. The price of oil and the price of gas in the US seems to be fairly high; therefore, they tend to price the capacity for demand side much higher than we do here, but we are hoping it will go that way in the future.

Advanced metering innovations that primarily target residential DSR are in many states of the US, Canada, Scandinavian countries, France, China, India, Thailand, Vietnam and other countries. The reason they have gone into those systems is not primarily for demand side, but, clearly, if you put those systems in then demand side is an option that you have available to you.

There are other systems as well: there is a system in France, Belgium and Germany that uses huge transmitting antennas. Basically if we had one of those here — it is for remote switching and various items — it would be situated in Wagga to look after all of Victoria and just south of Sydney.

Mr FRASER — It is about a kilometre high.

Mr ZAMMIT — Yes, these things are huge, but they do have a large coverage. There are many others that we have not looked at, but certainly that is something that could keep us going for the next six months if we wanted to; everybody seems to be getting into these things.

The next slide is a fairly important one which we update quite often. You may have seen something like this from us a few months ago. We certainly try to keep this updated because people tend to ask us this question all the time: what are the key barriers to an effective DSR program? Hopefully they believe, as we do, that DSR is very important. Customer or user education is extremely important. People do not understand it, or they find it very difficult to understand.

It is important that they understand that they can get paid by responding to signals about the market. They also need to understand that we purchase electricity, and we do not give a second thought about that electricity. However, what we really need to do is unbundle it. You need electricity to run your house, to run your business — whatever. You also need to look at unbundling it for energy efficiency. You want to make sure that when you are using electricity, you are using every kilowatt wisely. As well as that, you need to unbundle it in terms of demand-side response, because that is of value to you: it is something that can help overcome the cost of electricity.

There is also confusion about energy efficiency and demand management and their impact on greenhouse gas emissions, and we will talk a little more about that later on. Few really understand the value of that DSR, so I think that is important.

There is also a need for education in terms of resolving some technical issues. A lot of city buildings have the capacity to generate electricity, but they cannot export it. As a matter of fact, a lot of commercial industrial buildings need to have a blackout before they can turn their generators on, which seems absolutely stupid. How do you test these things? How do you make sure that your risk management strategies work if you have to wait for a blackout before you can start your generator?

Mr FRASER — In fact 70 per cent of standby generators fail at the first attempt to start them.

Mr ZAMMIT — That is incredible. Think about the counter terrorism issues that that brings to mind as well — if we cannot guarantee that our buildings will come back on if there were, heaven forbid, a bomb in the middle of a Melbourne. We would want to see as many of our city buildings come back on as quickly as possible to
make sure that there would be a minimal impact of that terrorism act. There is also a need for overcoming the fear of uncertainty.

We have had said to us many times: ‘If I switch over to an emergency or standby generator, how do I know that I can go back onto the main system?’ But there is no blackout; when we ask for demand-side, there is no blackout and there is always the availability of going back to your mains. This is something that we need to get across to people. We have actually even had a network operator say to us that they could not switch over to our generator just in case our control centre gets blacked out momentarily. It is incredible.

There needs to be a fair deal — a fair price at a fair risk pass-through. We have seen contracts where buyers of demand-side want us to take the risk — if a generator goes down in the Latrobe Valley, they are not going to be sued. So we do not see any reason why we should be carrying any risk in that situation either.

Mr FRASER — The customer who is providing the demand-side response should not be carrying the risk either, by the way; the generator is protected by national electricity law and yet the customer would not be.

Mr ZAMMIT — Moving on, we really do need interval meters with two-way communications as the most ideal — hopefully they are going to be coming in for one reason or another. Until recently there was very little or absolutely no demand-side response in the market, and there is really no viable mechanism to trade demand-side into the pool.

We are having discussions with NEMMCO about this at the moment. There seems to be quite a good deal of interest in that area. Often DSR providers are not recompensed for their efforts or it is limited to selling DSR to their retailer. That is really underselling the value of that demand-side. It is not a situation that we should perpetuate.

More barriers to DSR are that there are some regulatory and policy issues that I think need to be overcome. When we wrote this document there was no encouragement for DSR from the Regulator. We note that in the recent determination there has been $600 000 provided to each of the NSPs for demand-side programs. It will be interesting to see what they do with that money. Even those that did not apply for it got it — so that was very interesting.

Generally speaking, the regulators seem to be focusing on penalising networks rather than encourage DSR. We, in conjunction with all the NSPs in Victoria, ask the regulator for a three-year holiday in those localities where they are using demand-side to overcome local issues. And we have been offered three months, which is just silly. There seems to be a lack of government policy around support of DSR facilitation. This could well be around the fact that it is little understood — there needs to be greater awareness from the government side as much as anywhere else.

Mr FRASER — I think what we are facing here is that there have been 80 or 90 years of electricity supply and no-one has really ever tried to respond back the other way, and yet there are now mechanisms to do that. We are providing one, and others overseas are providing others. We are working out how to do it. This will enable consumers to do so and make them much more aware that they can turn things off, use electricity at different times and get rewarded for it. This is a market after all. If total price is not regulated, they can respond.

Mr ZAMMIT — That is the last point there, but getting back to that government one, what we would really like to see is for the government to show a bit of leadership here. We know there are at least 45 or 50 megawatts tied up in government facilities. We would like to see the government show a bit of leadership and say, ‘Here you are, this is the government’s demand side. Let us put it up and make it available and use it for Nemmco’s reserve trader’, and whatever else.

Mr FRASER — Of the 45 megawatts we are aware of, we have only been able to get 5 megawatts registered so far.

Mr ZAMMIT — Ross has been at this for the last four to four and a half years, and I can tell you now that it has been very difficult to get major investment funding. It is ridiculous. Demand-side response is one of the few sustainable energy-type projects that has commercial viability, and yet we have been really penny-pinching to get to the point we are at now. We would like to see the government put its hands in its pocket and show a bit of leadership there too. We know there are some provisions through VENCOrp, for example, for demand side. However, that is really targeted at transmission network level only and it has very little resourcing for anything.
When you look at the CEGT web site, you think that is it; that is exactly where the government money is to be channelled to us. We have tried on a few occasions to use that vehicle and it is just impossible. It is really a “widget” investment organisation and should be identified as such.

Mr FRASER — We just do not happen to have widgets in this. We do not need them, so there is no opportunity for raising the funds through those sorts of channels.

Mr ZAMMIT — What we would really like to see is a more balanced approach that includes not only the traditional supply-side options that Ross talked about, but also demand side.

The CHAIR — I am struggling with CEGT.

Mr FRASER — It is the Centre for Energy and Greenhouse Technology. It has about $14 million of Victorian government funds. It does allocate those out on the basis of good commercial business cases. In our case we found that it was interested in physical things you can see rather than things you cannot see.

Mr ZAMMIT — It was concerned about us creating a market. What are the key opportunities? I think it is important to keep this uppermost in your minds. DSR really does reduce the cost of electricity. In particular it reduces the cost of electricity to those who participate in our program. It also, without great difficulty, limits the long-term increases in electricity.

We have a chart at the back of those presentations that shows that we can keep electricity prices down to their current levels, even though there is going to be something like $37 billion having to be spent on electricity infrastructure over the next 15 years, through the use of just 1000 megawatts in Australia of DSR in an active program. Retailers can manage their own risk a helluva lot better than what they do now. It also relieves stress on electricity networks at times of peaks. It also defers the cost and improves the efficiency of spending. Generators can sell more energy. If you think about something like Loy Yang, they have four generators there. The fourth generator has to be held back a little bit because they have to make sure that it is not fully committed, to make sure they have enough reserve capacity within their power station. If they had demand side, they could fully commit all four generators, so it is quite clearly of value to generators as well.

We can do it a helluva lot cheaper than building another gas power station. It costs something like $600 000 per megawatt to build a gas power station, and that is the cheapest form of power station out of all of those that are available. We can find demand-side response, have it registered and ready for about $20 000 per megawatt — a significant reduction. It reduces the cost of reserve requirements and reduces greenhouse gas emissions — greenhouse gas minimisations from fewer line losses. Do not forget, this is at the place where you want to use electricity, so it is at the factory, it is at the home site, and there are no line losses. As Ross will tell you quite clearly, it is equivalent to something like the consumption of 300 000 homes. That is the saving in greenhouse gas emissions.

Mr FRASER — The losses between the generators and the usage point is equivalent to 3 million homes. DSR could reduce 10 per cent of that, which is 300 000 homes worth of consumption.

Mr ZAMMIT — As I mentioned before, there are also counter-terrorism benefits. As to the effect of power purchase agreements, I think the important thing here is that because the generators are buying retailers, there is a growing trend for there to be anticompetitive behaviour between them. We had a case like that a couple of weeks ago when we went to see a retailer, which I can tell you about in a bit more detail later.

Mr FRASER — This is the vertical re-aggregation debate that is going on. The original intention of the market was that there be no more vertical aggregation. It is being enabled to happen. ACCC is trying to stop it but it still seems to happen.

Mr ZAMMIT — Most of the things that I have mentioned are forcing the price of the power purchase agreements up. We have also sought funds unsuccessfully from the customer advocacy panel on three occasions to investigate market rules because it would be very helpful to be able to have demand side bid directly into the market. However, we have been unsuccessful. Now we are dealing with NEMMCO directly to see if we can do it that way.
As to opportunities to develop DSR strategies at household community level, we are working with one interstate network to do that on 200 homes and 20 small businesses. We are hoping to be able to use that experience here in Victoria as well. There is certainly a lot of opportunity locked up there.

**Mr FRASER** — We are well and truly at the stage where we know our DSR model works. We just want to demonstrate it and get the hard evidence that the appropriate technologies do work.

**Mr ZAMMIT** — The interval meter rollout here in Victoria does present an opportunity. We have not seen the final report, but what we are concerned about is that the DSR will be locked up within the networks. They will not let anybody get a hold of that demand side, and that will be an absolute tragedy because they have had 80 years to do something with demand side and they have not done a damn thing, and when they do it is usually just for themselves.

**Mr FRASER** — They did not even apply for any money from the regulator to do it, and then he gave them $600,000 each.

**Mr ZAMMIT** — As to the impact on a national emissions trading scheme, there is a great deal of confusion in our minds, and certainly in a lot of other people’s minds, in terms of greenhouse gas abatement programs and the trading scheme. If you have a look at the programs that are available in some of the other states and federally, you see they do not seem to be going too far. As to the peak load reduction programs, as I said before, we could certainly do a helluva lot here with that demand side, equivalent to the consumption of 300,000 homes per annum. There is also a great deal of confusion around the use of onsite generators. Again, that is something we can take on notice in terms of questions. We can tell you how that could be of value to you as well. It is not known how a national emissions trading scheme actually benefits or will consider demand side, but we think it unlikely at this point in time that they have considered demand side at all.

A very good point to keep uppermost — this is the last slide — is that an effective demand-side program can save something like $2 billion nationally. That is about $700 million to the Victorian economy. Why would we not do it? Also, our head office is here in Melbourne. DSR is imperative to keep electricity prices down and to improve efficiency. A viable DSR market will return something like 33 to 1 in terms of benefits. Supply-side generation has been supported by governments for the past 80 years. Why can we not get that support as well?

The Victorian government should lead by example, as I said to you before. Victorian industry can be more competitive by having an active DSR program. Almost no other country has really gone this way — not the way we are going — not even the US. We are really in a leadership situation here with demand side. Allowing generation companies to purchase electricity — retailers — is making the market more inefficient and some of these companies are exhibiting anticompetitive behaviour. That is a strong point that we would like to make to you. Demand-side provision is a sustainability service with substantial greenhouse gas benefits and efficiency potential. DSR should therefore be encouraged and incentivised. DSR can improve counter-terrorism strategies. I think that is it.

**Mr FRASER** — There are a few extra slides, but we will deal with them under questions, if you wish.

**Mr HILTON** — You said there is potential at the household level. If I am a house owner and I am interested in signing up with your scheme, what do I need to do, if anything? I was going to ask what sorts of benefits I would get in respect of my electricity bill?

**Mr FRASER** — Let us assume that your electricity bill is around $900 a year. You do not have to say whether it is or it is not, but that is a fairly broad range; some are very low and some are much higher. It depends on what appliances or devices you have in your home. Swimming pool pumps are definitely discretionary in their time of use, as long as they run for 5 or 6 hours a day or whatever, more in summer and less in winter, that sort of thing; refrigerators are the largest single energy consumer in the home because they run 24 hours a day. Because of the thermal mass in the refrigerator and its insulation there is no reason for it not to be turned off for half an hour or an hour and cycled with other refrigerators. There are 12 million refrigerators around Australia and they add up to about 1500 megawatts of demand-side response once they are controllable.

There are other devices that could be inhibited, such as your tumble dryer at certain times. All of this operates under a voluntary set of rules that you can override at any time. There would be a device in the home where you
would press a button and say, ‘I do not want this to happen now. I want to use my tumble dryer right now’. You just opt out of the scheme.

Our early estimates are that you would get at least $70 off your electricity bill a year. It could be as high as $100; in the United States it is over $150, but their prices are higher.

Mr HILTON — What sort of capital investment would I need to make?

Mr FRASER — You would not make any.

Mr ZAMMIT — The program would pay for it.

Mr FRASER — We would do it for you. The program would pay for it. That is where we are aiming. We are a little way off that because, firstly, we need to have the interval meters in the home. We also need the type 4 meters with two-way communications on them. Alternatively we would use an Internet connection instead of the two-way communications on the meter. There are different ways of doing it, and there are enough alternatives to choose from to make the communications competitive so that people get the best price — minimise the cost and maximise the benefits to you.

Mr HILTON — The energy services industry, as such, is there to provide advice to consumers on how they can become more efficient in their use of energy. In your view, is that industry sufficiently sophisticated at the moment to understand the technologies that you are talking about?

Mr FRASER — I think some of the advisers are. A lot of them go along to the various forums that are run. We talk to them at those and they hear the presentations we are doing. The Energy Users Association of Australia has been a significant supporter of what we are trying to do, and some of these advisers are members of the association, but I am sure there are a whole heap of them out there who still do not know anything about it at all, so I would say there is a long way to go.

Mr ZAMMIT — There is still a fair bit of confusion out there — for example, if you are using a demand side for one purpose, can you use it for a second purpose? If it is being used by a retailer, for example, to reduce a wholesale price peak, can you use it for a NEMMCO reserve trader? If so, how? There are some intricacies that certainly would not be known by a lot of the energy services consultants. But that is a matter of sophistication. We are now at a stage where we are probably at the cutting edge in terms of bringing in demand side, therefore there needs to be a lot more information promulgated.

Mr DRUM — I am a little bit lost in relation to what you actually do when you save electricity from one site. You say you have people who are reasonably heavy users and they work out ways where they can use less peak electricity and they make various savings. Do you actually store that electricity and keep it?

Mr FRASER — No, it is just a register.

Mr ZAMMIT — Let us take a physical example. You might be in Murray Goulburn, for example, and you have coolstores in country Victoria. You might have a small standby generator, as they do. You have a large coolstore with a big mass, and you also have dairy food production associated with that with aerators that are treating waste and so forth. The generator can come on for a short period and take some of the load, reducing the overall demand of the site. You can switch off the power to the coolstore compressors.

Mr DRUM — I understand all that.

Mr FRASER — They keep working; that does not stop them working.

Ms DUNCAN — What happens to that energy?

Mr DRUM — That is saved electricity.

Mr FRASER — That is saved electricity. It has been turned off; it is not used at that time. Electricity is instantaneous; this is one of the big differences between electricity and everything else.

Ms DUNCAN — Someone else is then using it; you are selling that back to the grid.
Mr FRASER — No, the main generator is backed off instantly, reducing the output.

Mr DRUM — It is not used. It is back at Loy Yang; it is not produced.

Mr FRASER — That is right. We take 4 megawatts off at Murray Goulburn’s Cobram store and the generators automatically back off by 4.4 megawatts.

Mr DRUM — At Loy Yang.

Mr FRASER — At Loy Yang, or wherever.

Mr ZAMMIT — This is happening while demand is increasing. Because Murray Goulburn is reduced by 4.4, it has had to come about because somebody has increased by a helluva lot more. Otherwise we would be trying to sell a lot more than we currently have. Therefore you could have a situation where you could have a blackout, you could have a frequency dip, you could have a brownout, or you could simply have the price going through the roof. It is normally an average of $34 per megawatt but price peaks can reach $10 000 per megawatt.

Mr FRASER — What Michael is saying is that there is a reason we have turned it off. We might have 100 companies like Murray Goulburn. They are all coordinated through our computer system and they all come off or reduce their demand at exactly the same time, so we might end up with 100 megawatts or 200 megawatts of production. But we do it because there is a very high price on the market and the retailers that are exposed to that price and are paying a lot in hedge contracts, or are at risk of spending $10 000 per megawatt hour when they are only going to get $70 for it, would rather cut it down. We organise all that for them, and that is one reason why we would turn off at a particular point in time.

Mr DRUM — So you could use it somewhere else.

Mr FRASER — Yes, and it might stay off while the peak price occurs. At another time a local network might have a problem because one of its transformers has failed. It normally operates at N–1, which means that two transformers out of three should be able to service all the load. But one has failed and it now cannot meet that N-1 requirement. We help them by turning off local area demand — from the same database, just sorted differently.

A third way of doing it is what we are facing right now in Victoria, New South Wales and Queensland — shortfall of reserve; we have available an amount of demand-side response that could be turned off if something serious happened on the national grid. NEMMCO is willing to pay for that availability, so long it is available when it is actually required — if it is ever required; it may never be required.

There are three basic ways, and all of those add up to well over $2 billion in savings per annum for electricity consumers. Does that help a little bit?

Mr DRUM — That helps a lot. We just cannot store it at the moment, can we?

Mr FRASER — We cannot store it. Someone will come in here one day and tell you that there are batteries. We have a commercial agreement with Pinnacle VRB, which is an Australian company that makes large batteries; not car batteries, huge, megawatt-sized batteries. It is one way of storing electricity, but you can only store limited amounts and it is very expensive. We think they are so good that we have formed a commercial arrangement so that we can store it when the price is low and whenever these price hikes occur we send it out again.

Mr DRUM — How far away do you think we are from small businesses making themselves independent of the grid with their own little PV unit or their own little windmill? Are we far away from that?

Mr FRASER — I am an advocate of this, and I have done quite a number of independent solar schemes around rural Victoria. I think we are a helluva long way from getting entirely free of the grid. The grid operates at about 60 per cent capacity, on average. Sometimes it is absolutely loaded to the hilt, and at other times it might only be 25 per cent loaded. On average it is 60 per cent. We can do a helluva lot better by not building any more grid and using a demand-side response to flatten the demand — take the peaks out. That will also reduce prices. We just cannot spend that extra capital. We will have to spend some, but heaven only knows how we are going to get approval to ever build the next transmission line from the Latrobe Valley to Melbourne, and with the next power station down there that is what we will have to do if we do not have demand-side response.
Mrs COOTE — Who regulates you?

Mr FRASER — The laws of Australia. I did not mean to be flippant.

Mrs COOTE — You spoke about the ACCC.

Mr FRASER — It regulates us, yes. We also come under the Trade Practices Act.

Mrs COOTE — That is what I wanted to know. Apart from the pricing, what are the other incentives? You spoke about a $700 million saving to a government, for example.

Mr FRASER — No, to the people of Victoria.

Mrs COOTE — So the incentive is price driven? What about greenhouse gas emissions?

Mr FRASER — I think it is fair to say that we would not have a demand-side response that would work unless people were paid for it — that the overall business case was good enough for them to actually be bothered changing the time of use of their electricity, because they have widgets to make and services to provide in high-rise buildings. Why should they bother? Their clients pay for the electricity anyway. But amongst the people we are talking to there is a motivation to be greener. These days most corporations have green policies. They certainly see this as part of meeting their green policies; they are going to write it in the bottom line of their annual reports: we are involved with this. A very large telco we have contracted is going to do exactly that. That is one of the reasons that motivates it.

Mrs COOTE — So you are seeing a shift within industry in this country towards actively providing green alternatives?

Mr FRASER — Yes, wherever they can. I think they will add up the little bits and eventually what they would like to say — as Michael was saying about the slides — is that there is not a clear signal about what the value is commercially of doing this, using less energy and so on. I think big corporations that we have spoken to are worried about two things. If over the next 15 years we have to spend $35 billion on electricity infrastructure, that will put up the price of electricity by at least 20 per cent above inflation and that will write off a number of our exporting businesses. The only advantage they have right now is cheaper energy. They do not have cheaper labour and they have all sorts of taxes to pay. That is life — no criticism.

Mrs COOTE — In the chamber we have just debated and passed two bills on this issue.

Mr FRASER — They are really keen to know that they will hold onto that advantage of cheaper electricity prices. That is the no. 1 thing they are interested in.

The second thing that would probably be driving them really — we are talking about the hard commercial world here — is that they cannot sell very easily into some countries unless they meet certain green requirements. So their products that they are sending overseas will not be bought unless they meet green criteria. First they have to get the price right — keep the cost down — but countries like Japan have certain constraints and they have to have met certain green targets. They are keen to do those things; they want mechanisms to do them and they see ours as one way to help.

Mr ZAMMIT — I think you have a really valid question, why did we get into this? Ross often says that when he was a project manager for the implementation of a national electricity market he saw that there were inefficiencies in the market. When you start looking at it from the inefficiencies, it then starts to open up: why is there not an opportunity for a demand side? Why is it a supply-only market? Why do we encourage supply only? If you want computers, airconditioning and all the rest of it in the home, we have to build the infrastructure to support that. But if we do not have to build — if there is an alternative — why should we not look at the alternative? I think it is an excellent question and one that we should all ponder.

Mr FRASER — At the domestic level, we are moving into an era where over time in the home we will have a fuel cell that will provide our hot water and electricity. At the moment they are pretty expensive and at the small end. Ceramic Fuel Cells Ltd, here in Victoria, is one of three organisations in the world that will make a successful fuel cell. It is hardly known but it has one of the best options. I was its original marketing manager — I do not work for it now — so I know a little bit about it. I see it as part of what we do.
Customers suddenly become aware that they can do something about their energy use at work or in the home. The first thing might be to turn off something when the price is high and be paid for it. The second thing might be thinking: do we really need those lights on? Perhaps it could be through education in schools and then kids going home and telling their parents to turn off the lights, instead of the other way around.

We use far too much electricity in the home. We should use more gas, and we would get a much better greenhouse gas result. If you want to see something, I have a model on that. We just do not think about these things — the swap over between fuels. We use electricity because it is convenient. We do not use gas because it is not quite so convenient and the appliances are not made for it — for example, tumble dryers. Why do we take high-grade electricity and stuff it into a tumble dryer to get it to 40 degrees to dry the clothes? Gas can do that just as safely and easily, and with much less greenhouse gas.

Ms DUNCAN — The sun can do it better still.

Mr FRASER — That is spot on — absolutely!

Ms DUNCAN — Earlier you talked about some threat of liability and why you should have to bear that; is that if you cannot make the demand reductions that you claim you can? Is that what they are saying?

Mr FRASER — That is what they are basically saying. It is a commercial world.

Ms DUNCAN — What is the time lag between saying we want reduction and we get it?

Mr FRASER — That is a very good question. Generally speaking, the retailer who might want this demand reduction leaves it to the last minute and says, ‘Now!’.

Mr ZAMMIT — The market does operate in 5-minute intervals, so you do not really know what the price is going to be until just about that time. For a network it may be a little bit more predictable: it is a hot day today, therefore if it gets to 30 degrees, switch off.

Mr FRASER — The cool change is not forecast until 7 o’clock, so there are some pretty good signals.

Mr ZAMMIT — It just depends, but certainly the faster the better. The guys from the US who were here talking to us have built a national operations centre that gives real-time control over a large amount of demand side. That is really where we would like to be in 2, 3 or 4 years.

Mr FRASER — Instantaneously — it is all pre-arranged.

Ms DUNCAN — Did you make a presentation to the business council’s environment — —

Mr ZAMMIT — No, I do not think so.

Ms DUNCAN — They were showing some technology and talking about demand reduction required now. The reduction in demand was 10 to 15 minutes — it was just extraordinary.

Mr FRASER — It could be much quicker than that. We can do it in less than half an hour.

Ms DUNCAN — Do you see a time when a simpler way would be to just have maximum load on, say, a household — let us get down to residential issues — and when it hits that peak demand, and flick?

Mr ZAMMIT — For other reasons, yes.

Mr FRASER — We actually have to think of the customers here because they have decisions to make. I think the best thing we can do is empower them to make those decisions and provide the mechanism for them to do it. I have heard the South Australian minister say that he will pay householders $10 — once, I think — to turn off their airconditioner whenever there is a peak price. They will never do it. Adelaide is hot — I have lived there — and they will not do it. We should not be attacking the amenity. As Michael said before, we are not going to any businesses or homes and saying, ‘We want you to reduce your amenity’, or, ‘Stop making widgets’, but, ‘Anything that you can, turn off, that you just do not need now, for whatever reason’, like a quarry can stockpile early and not crush rock at the time; Murray Goulburn can turn off its chillers — there are hundreds and hundreds of megawatts in coolstores that could go off instantly and we are not tapping into it yet. There is a long way we can go. By the
way, we can turn off the instantaneous ones now, automatically, and they can come back on a bit later, and the ones that take half an hour or an hour to get going we can do over time and we can get 4 hours out of them.

Mr ZAMMIT — That is the beauty of our model, because we are an aggregator so we are aggregating all that. If one lot of DSR takes a while and another is instantaneous, we will bring one on first and allow the other to ramp up.

Mr FRASER — That is what is called an aggregation.

The CHAIR — I am trying to think of the person who gave us that presentation.

Mr BENJAMIN — Origin Energy was talking about the rollover in Queanbeyan.

Mr ZAMMIT — Was it Cathy Zoi, on the Country Energy trial in Queanbeyan?

The CHAIR — Yes, it was.

Mr FRASER — That is a good model. It does not actually aggregate. It is one retailer doing it for its own customers, so it would not be used for reserved trader, for example — that sort of thing. It relies on having smart meters and other technology.

Mr ZAMMIT — The problem with that one is that it is about critical peak pricing only.

The CHAIR — So it is substantially different from what you are doing.

Mr FRASER — Yes, it is, and Cathy will tell you — and I can show you a slide of hers that actually shows that — there is a better version; that is, having centralised, remote-controlled, pre-arranged signals. She might have actually shown you that. She admits that that is the better answer.

Mr ZAMMIT — My parents are in their 80s. They would not go for that system. They would be absolutely scared to turn on the light, or whatever, because it might incur a huge cost to them. Whereas if it was something totally transparent and they would not know about it — it would just turn off the pool pump for 15 minutes or the fridge, but when you open the fridge door the light still comes on — that is a far better alternative. So there are better alternatives.

Mr FRASER — The remote-control version is the best.

Mr ZAMMIT — It is the best.

Mr FRASER — And around the world people are talking about that. There was an international energy agency conference on demand side here a few weeks ago. We presented at that, so that is another scene. That supported remote control, the high-speed switching via broadband or whatever, different mechanisms, is probably the best way to go. But you have to have some simple rules so the customer knows about what is happening and agrees.

The CHAIR — But with the interval meters, that shows me a light when I am paying peak price. Is that how it works, so I get a red light or a — —

Mr FRASER — It is not the standard.

Mr ZAMMIT — Not necessarily.

Mr FRASER — No. Cathy’s version doesn’t. It has a separate box on the wall in the kitchen.

Mr ZAMMIT — Do you really want a light there? If you are not home — if you turned the washing machine on and you have gone to do your shopping you are stuck with it. If you are out, that is it.

Mr FRASER — It is better to have an automatic control.
Mr ZAMMIT — It is better to have an automatic control that really does not affect your amenity at all — you know, turning things off that you have already said you can turn this off whenever you like, these things here I want to know first and so forth.

The CHAIR — I have a question on emissions trading. Would an emissions trading scheme have much of an impact on what you are suggesting, or does it influence or affect it at all?

Mr FRASER — It will enhance it, and I think it will be another factor that encourages people to actually make decisions to go a certain way, to buy a cleaner appliance. I am a little bit worried, though, that the emissions trading benefits get locked up in the retailers and the networks and they are just going to grab all the brownie points out of it. If we represent anyone, we represent end users because they are our bread and butter and we would like to see them get a fair slice of the benefit.

I will leave you with one last thought on greenhouse emissions trading: One thing that is being left out of all the debate on emissions trading is the losses in the electricity transmission and distribution systems, and we have raised them here before today. About 10 per cent or 18 000 gigawatt hours of electricity a year disappears between the generator and the consumer. The consumer pays for it but the consumer has absolutely no power to do anything about it because they do not know anything about it. There would be an opportunity to reduce that by 2 or 3 per cent by substantially clipping the peaks and moving the electricity consumption into the valleys because the electricity losses are proportional to the square of the current. Sorry about the engineering terminology. It is an exponential relationship. If you would like me to I can send you a paper on it.

Mr DRUM — The higher the peak the more we lose?

Mr FRASER — That is right, and disproportionately higher. The steeper the peaks, the worse it gets, and it doubles. If the peak goes up by a factor of 2, the loss goes up by a factor of 4.

Mr ZAMMIT — What I might add, if you do not mind, is I think that the whole greenhouse gas argument, as Ross was saying, does not consider the peaks, and it also does not consider a situation where if I am a coolstore and I turn off at 4.00 p.m. every night for 4 hours, that is really a greenhouse gas saving.

Mr FRASER — Absolutely. We would like to see them get some credit for that.

Mr ZAMMIT — That is right, so until that happens, until there is credit for those sorts of things, it is really pretty hopeless.

The CHAIR — We know the cost of building another generator et cetera. What are the costs of the interval meters? What are the costs of the demand side?

Mr FRASER — There is a cost for the interval meter and the problem is that it is probably going to be smeared over 10 years and hidden in the electricity bill. It is roughly about $30 per household per year. That would be the increment. If it is comms-ready, in other words if it has smart comms going to and from the meter to remote readers, it will be more like $100 a year, and that is just not a good business case because they will not alter their behaviour by having that interval meter to save $100. So there are some significant costs in putting interval meters in, and I think the customer ought to know about them, quite frankly. They ought to have them separated out on their bill, and then they can start doing something about it.

Mr ZAMMIT — Your question was a bit more than that, though, than just the interval meters. The interval meters are a cost but the Victorian regulator is mandating that they be put in anyway, so if they are going to be put in, what are the areas that can actually make some return? Demand side has the greatest opportunity for return. In terms of the other devices, such as perhaps a switch in the fridge or on the pool pump, that could be anything from about $50 to $70 or something like that.

Mr FRASER — The current prices of those that we reckon work quite adequately — that are IP addressable — would be about $30 to $50 now. One we know of is $38. When they come out in hundreds and thousands they will be a lot cheaper.

The CHAIR — Thank you very much.

Witnesses withdrew.