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TRANSCRIPT OF PROCEEDINGS

PRODUCTIVITY COMMISSION

DRAFT REPORT ON ENERGY EFFICIENCY

DR N. BYRON, Presiding Commissioner
PROF M. WOODS, Commissioner

TRANSCRIPT OF PROCEEDINGS

AT MELBOURNE ON MONDAY, 6 JUNE 2005, AT 10.29 AM
Continued from 03/6/05 in Canberra

DR BYRON: Good morning, ladies and gentlemen. Welcome to the public hearings for the Productivity Commission's inquiry into energy efficiency following the release of our draft report in April. My name is Neil Byron and I've been appointed the presiding commissioner for this inquiry, and my fellow commissioner is Mike Woods.

The inquiry began with a reference from the Australian government on 31 August last year. It covers the potential economic and environmental benefits offered by measures to enhance energy efficiency that are cost-effective for individual producers and consumers. We're very grateful to the many organisations and individuals who have already participated in this inquiry. The purpose of these hearings is to facilitate public scrutiny of the commission's work and to get comment and feedback on that draft report. Hearings have already been held in Brisbane, Sydney and Canberra, and following these hearings today and tomorrow we'll be working towards completing a final report for the government by the end of August, having considered all of the evidence presented at the hearings and in written submissions as well as other relevant information.

Participants in the inquiry will automatically receive a copy of the final report, once it's been released by the government, which may be up to 25 parliamentary sitting days after completion of the inquiry. We always like to conduct our hearings in a reasonably informal manner but I remind everybody that a full transcript is being taken. So for this reason comments from the floor are not helpful. But at the end of the proceedings each day we provide an opportunity for anybody wishing to do so to make a brief presentation.

Participants are not required to take an oath but are required under the Productivity Commission Act to be truthful in their remarks. Participants are welcome to comment on issues raised in other submissions or by other speakers here today. The transcript will be made available to participants for checking the transcription - will be available from the commission's web site following the hearings, usually within a few days. Copies can also be purchased using the order form available from the staff here today. Likewise, submissions are available on the web or by order form.

To comply with the requirements of the Commonwealth Occupational Health and Safety Legislation I have to draw your attention to the fire exits, evacuation procedures and assembly points. In the unlikely event of an emergency we evacuate past the lifts that are in the lobby and towards the reception there's a fire exit there, just to the right, just in front of the reception area. The assembly point is downstairs and out Collins Street onto Fitzroy Gardens. The facilities - toilets - are located just near the reception; the ladies to the left at the end of that hallway. Finally, can I ask anybody in the audience to turn their mobile phones either to off or silent. I think that takes care of the housekeeping for today.

I'd like to begin the hearings by welcoming Mr Tony McDonald from the Building Products Innovation Council. Thank you very much for coming today. If you'd just like to take a seat anywhere, make yourself comfortable. When you're ready you can introduce yourself for the transcript and then summarise the main points in your written submission which Mike and I have both read, and then we'd like to talk to you about it for a while. Thank you.

MR McDONALD: My name is Tony McDonald. I'm a chief executive for the Building Products Innovation Council. Thanks to the commission for taking the time to hear our reiteration of some of the points that we've already made in our written submission.

You'll note that our organisation is a somewhat narrowly focused organisation if you look at the broad terms of reference for the inquiry. We are only interested in issues that have a direct impact on the building and building materials sector - sorry, I shouldn't say we're only interested in; that's our only area of responsibility. So having said that, I suppose the commission staff did offer me 40 minutes to talk this morning. I said I don't need anywhere near that sort of time, so I'll just quickly touch on some of the points but happy to answer any questions that you might have.

Stepping back a little, the Building Products Innovation Council has three major areas of activity. One is for national consistency in building regulations. The second is a focus on sustainable development and the third is for independent third-party product certification. This inquiry actually covers across the first two issues because draft recommendation 11.1 regarding the scope for local governments to erode uniformity of minimum standards is an extremely important one. We would fully support the commission's recommendation there. And it applies not only to energy efficiency but all sorts of regulation across the building industry.

The commission is well aware from its work in many areas of manufacturing that the efficiencies that can be gained from a nationally consistent approach cannot be undervalued. A lot of those efficiencies, of course, don't appear on the product cost sheet but they are areas that you don't have to concentrate on which releases resources to a lot further, perhaps research and development and all sorts of other areas. So that BPIC, as we refer to ourselves, certainly do strongly support recommendation 11.1.

The next point there that we commented on was draft recommendation 7.2. We're perhaps a little bit sceptical about the ACT energy rating system for different reasons, probably from personal experience. Our organisation is based in Canberra. A lot of the people we deal with are there. So we all had houses there that were rated when this scheme came in, and I dare say we all got zero and we sort of wondered, "Well, why did you bother doing that?" But, anyway, we do support any efforts to clarify what you're trying to achieve in terms of energy efficiency.

It would seem to us that in this particular case there's some value in pursuing an examination, an independent examination, of that ACT system and see if it is going to return some value to the wider community, or indeed if it's going to have an effect on - I think from my recollection the commission couldn't draw any reference to housing price correlation with energy ratings. That sort of work needs perhaps to be ongoing, given the existing housing stock in Canberra when this rating system was introduced compared to the housing stock that's been built since, which probably had to comply with different energy rating systems under the Building Code.

The next area was draft recommendation 7.3. It would be fair to say that within our membership we've got coverage of nearly all building material suppliers, and this recommendation certainly caused some interesting discussion amongst our members. We have come to a conclusion that, really, there is value in ensuring in any system that there is an accuracy in terms of the mechanics that you're relying on to determine outcomes. Here in this case we've got a situation where there's no feedback into the system to check that the outputs are in fact achieving what they were designed to do. So from that perspective we would probably have to say we support the commission having a look at what is the appropriate - or the measures that are measuring energy efficiency, are they in fact working as they were initially set out to do?

I also understand from some discussions with the Australian Greenhouse Office that they may have provided the commission with subsequent information that was not available to you at the time of your draft report that can assist in this area. So if that's been - and it's a moot point, I guess. But we do say that - I think you can see there how I've approached this particular recommendation. I don't see any negatives in proceeding down the path of introducing the standards as proposed by the Building Code of Australia at the moment, but obviously I suspect you might have some queries there and we're happy to talk about those.

In terms of draft recommendation 8.2, which is the commercial building side of things, it is a very different area in most instances in commercial because of the split incentives about - compared to the cost versus the benefit and the fact that at this point in the commercial, non-government rental market I don't think there's any correlation between rental returns and energy efficiency, but people like the Property Council would be in a much better position to respond to those sort of things in detail. But we don't suggest that there should be inaction in terms of recommendations for Class 5 to 9 buildings, which is currently passable for the Building Code of Australia or the ABCB.

I also just draw your attention to the fact that there seems to be in my reading of some of the draft discussion a hesitancy to move down a certain path because you couldn't control people's use of a system that was designed to be used in a particular

way. I think that if we are to approach energy efficiency we should be providing the optimum benefit, how people intend to use those facilities, because commercial building management and even your own housing operation can - your energy efficiency outcomes - the potential is always there but how it's actually operated, I probably would suggest, is a little outside of our scope of influence.

But it seems to me that that might have been taken into account in some considerations, and I'd just like to say I think we have to focus only on the design and the build and provide the opportunities, what people then chose to do. You could argue you could manage that through your electricity tariff or gas tariff, but in terms of the actual build, which is where we come from, build it how it's meant to be.

I suppose really that's all I wanted to say. As I say, we had a fairly narrow focus on the draft report. You covered a multitude of areas, but in terms of building regulations that's where our organisation would like to stand.

DR BYRON: Thank you very much, Mr McDonald. It was very helpful actually - a number of the comments you've made there and in the submission. Maybe if we can start with the comment you just mentioned about the ACT rating scheme for existing houses and the sale of premises, et cetera. We didn't attempt a thorough independent critique of that but simply suggested that it might warrant an independent rigorous evaluation before it was rolled out nationally. But subsequent to the release of the draft report there seems to have been an awful lot of conversations, including radio talkback, et cetera, in Canberra about this. We seem to have touched a bit of a raw nerve.

Do you think that the public concerns about the energy efficiency rating relate to the idea, the concept of it, or just to the way it's been implemented in practice? Do you think it's basically a good idea but just could have been done differently?

MR McDONALD: I suppose it depends why it was introduced, and there's no doubt that if you look at the history of energy efficiency measure across Australia, some are political, some are environmentally driven, so you can come at it from two different areas. But in the ACT I guess I'd have to say that it's got a very diverse climate summer to winter, and both the demands for energy use and the scope to save a lot of energy in ACT is more so than in a lot of other areas in Australia because of its climatic extremes. So there are all sorts of opportunities there.

What we're saying is that when it was introduced, it was introduced probably a little quicker than would normally happen in such a serious sort of measure. We're just saying that if you want to assess an energy outcome, it's part of a sustainable development. Energy efficiency is a subset of that and you should make sure it's based on pure science, and at the moment we're not convinced of that, so we'd welcome the inquiry.

DR BYRON: If we move on to your comments about recommendation 7.3 and the proposals in the Building Code. If I understand what you're saying correctly, you're saying there's no need to defer the increase in the standards such as moving to five-star housing by May next year. Even if it was found that the policy-makers - the benefits and costs of that have been miscalculated, are you suggesting some sort of continuous feedback process?

MR McDONALD: Yes, I am, because what I'm sort of saying is that it doesn't matter what the outcome is, you should do the examination but you should also move to five-star, because all you're doing is recalibrating the whole system when you find out what your answers are. Two are the outcomes from any inquiry. One is that you underestimated, the other is you got it right, then the third outcome is the only one that really matters. "We overestimated," therefore, "Are we increasing costs more so than we thought to?" or things like that is where the real analysis needs to happen.

There are other reasons behind this. I mean, this inquiry doesn't stand alone, as you've well noted in your draft report. It's so closely linked to the building code, and the building code now is only amended once a year. If you miss this five-star in this next coming one, then we've got another 12 months to wait, and that's a long time in terms of the time frames that we're trying to achieve, the energy outcomes we're looking for. So, yes, I am suggesting that continuous feedback is necessary in any system, and you rightly pointed out it hasn't got it.

DR BYRON: Would it be correct to say that most people in the building - people who do construction and people who produce the material that they use are basically anticipating the next changes to the building code and they've already factored that in, and to change it or to defer it at this stage would be disruptive?

MR McDONALD: You've got the HIA, and the MBA obviously present separately. They can speak for the builders. I know the HIA is on this afternoon. The organisations might be well aware of what's going on, but the owner-builders or the builders out there in general mainstream Australia, I'm not too sure they're quite focusing on this issue. The building material suppliers certainly are, but the builders themselves I couldn't answer. To hold back, it has different implications for different materials, and again you've picked that up in your draft report.

DR BYRON: Basically the line that we've been taking is that before new measures are introduced we should be reasonably confident (a) that they work, they'll be effective, (b) that they're not going to produce any perverse or unexpected negative results, and (c) that they're reasonably cost-effective. I would have thought that those three things would be fairly obvious for any sort of regulatory changes. For us to change now, we'd have to be persuaded that enough is already known to say that, yes, these measures will work and that they won't have unanticipated or perverse

consequences, and we're reasonably confident that they're either going to produce net benefits or only very small costs.

MR McDONALD: Again, there's no doubt no-one would argue that better insulation or better glazing or window systems is going to save energy.

DR BYRON: Yes, I think we all agree with that.

MR McDONALD: That's easy, but depending on what time period you measure your net benefit over and whether you focus only on private net benefits, which I think you do here, as opposed to community net benefits and private, then you're going to get a different answer. Whether it's cost-effective is probably the hardest one at the moment, because I suppose as materials suppliers we can over-engineer anything in some senses. We can provide whatever you like that will give you a very, very well maintained building envelope in terms of energy efficiency, but it might not be affordable in terms of either operating or build costs in the current environment - and I'm talking housing probably more so than commercial there. Commercial has got all sorts of other criteria that might apply to it.

I suppose what I'm saying is, "Okay, yes, I agree with you. You should be sure that what you're doing is going to work," but what you're doing is saying moving to five-star, we shouldn't do that till we make sure it's right. What I'm saying to is I'm not even sure what we've got is right, so let's build in the system to review it from now. That doesn't mean you stop moving forward; it just means that you build that system in. So I think from that perspective we support the approach to check what you're doing but we don't support the approach to stop improving, and that's the thrust of our argument.

PROF WOODS: That's a useful distinction that you make, and it helps clarify some of the comments that you made in your submission. What's the capacity of the building product manufacturers to respond to these increasing levels of stringency in the codes? Sure, some large manufacturers would have a range of product, including materials at the top end of energy efficiency, but when you think of the building industry as very dispersed across Australia, obviously, and a lot of regional centres might have some glazing capacity but if you introduce double glazing, that's not in their product range and the like. So is some of this move up the scale of increasing energy efficiency going to lead to consolidation in the industry as only a few larger, more innovative manufacturers can supply?

MR McDONALD: I think in some instances, and picking up on the one that you mentioned, the double glazing, we actually see an expansion of people getting involved in it, and with different types of profiles. Instead of aluminium and timber, PVC is coming into play, but also the building materials market is becoming increasingly global in its own sense in Australia. Our manufacturers are continuing

to invest in strategic manufacturing decisions, but there is a glowing import penetration and that helps in one sense drive concentration of local manufacturing, but there are also more little people springing up because, as the commission would well know from a lot of its other work, if you've got a global market often what's picked off is the bottom fruit. It's the commodity-type products which we now stop making, and we lift ourselves up in the littler companies to manufacture more high value added products.

PROF WOODS: Picking up the niches that the mass producers can't easily cope with.

MR McDONALD: That's right. A three-mil standard glass panel out of China at the moment, they come in pretty cheaply. We won't go into that here, but there are lots of other things that we can do as manufacturers to keep moving up the chain. Our individual associations I think have also made submissions to the commission. I think you'll get a lot of value out of asking that question to them. They're much closer to their membership than perhaps I am.

PROF WOODS: Yes. We understand and have some submissions from some of those parties. You talk about strong support for our approach for national consistency. Again, is that an area where yourselves or maybe some of the individual associations could help us with some quantitative information to demonstrate the merits of national consistency compared to not so much even the states diverging in their approaches but individual local councils, which is part of the trend at the moment to go beyond what are the mandatory requirements of the building code? Your strong support is understood, but any underlying quantitative support for that would be helpful.

MR McDONALD: Basically I don't have that at the moment but, yes, we can certainly look at providing it for you.

PROF WOODS: Some individual manufacturers may have, for other reasons, done case studies that demonstrate the costs of having to not only comply with variations in code across their market but also the costs of administration, of tracking those changes and understanding them and incorporating them into their manufacturing processes and the like.

MR McDONALD: Yes, I'll take that on board and perhaps provide the commission with a separate submission. But the interesting thing there is it leads to duplication of administration, which is one cost. The other cost, which you won't find in the books but it is a cost, is it leads to you probably oversupplying each of your distribution centres because you cannot cross-supply perhaps they won't comply with perhaps the local requirements in another sector. So your stock control is probably not as good as it could be. Now, you're right: some of these guys probably have

done some fairly detailed work on this, and I'll have a look at it and get back to you.

PROF WOODS: If you could encourage any of them to provide that information, even if the information at the higher level is able to be put into the public arena, and if the underlying supporting material, does happen to be commercial-in-confidence, then we would acknowledge and accept that. But clearly the more that's in the public arena, the better.

MR McDONALD: That same sort of philosophy applies to building as well as to materials.

PROF WOODS: Yes, absolutely. Your point about the separation of the performance of the building fabric from the use, it's an area that has attracted a lot of response to our submission and we take on board your clarification of that particular issue that a family that operates inefficiently might operate a bit less inefficiently, at least if the fabric itself is performing well, compared to a fabric that is not well constructed. So your comments there are quite helpful to us.

DR BYRON: Can I just come back to the point, the second-last point we were discussing, about the variations between states and even, in turn, local governments. Does your organisation or your members see that sort of fragmentation as a serious problem, and if so, I guess I'm assuming, what, if anything, might be done about that. How can it be handled, apart from through the Building Code, or is that the way to handle it?

MR McDONALD: Yes, they do see it as a serious problem for a variety of different reasons, for different companies and different areas of manufacturing have different perspectives of it but all want national consistency. In terms of how can we handle it, well, our view is that the Building Code is the appropriate way to handle it. We're looking forward to the final outcomes from the recent ministerial meeting where the Minister for Industry, Tourism and Resources, Ian Macfarlane, discussed with the state counterparts reinforcing the rigour within the Building Code and there are a few suggestions to limit any variance from that code at state or local level and that is, in our view, the best way to tackle this problem.

It is something that we do know we have to think through a bit further because we've got the BASIX energy system in New South Wales. We've got ideals coming in here, five star, whatever, all sorts of different things. So how they fit into this whole new arrangement - given that the Building Code of Australia is also looking at introducing sustainability as one of its goals and energy efficiency being a subset. So yes, it's a hard one but we still believe the Building Code is the appropriate area to have it regulated, supported by independent state legislation.

DR BYRON: So that would mean, in effect, that a building design that met all the

requirements of the code, if it was legal to construct it in one place it would be legal to construct it anywhere else in the same zone.

MR McDONALD: In the same climate zone, yes. That's the important distinction.

DR BYRON: If the owner wants a higher standard of energy efficiency or amended or anything else, then they're quite free to negotiate that with the builder?

MR McDONALD: Yes. That's our view, yes, very much so.

PROF WOODS: So you make the distinction between a mandatory minimum standard that applies throughout and then let the market take care of those who wish to pursue some further or more innovative approach to energy efficiency beyond that.

MR McDONALD: That's right, yes.

DR BYRON: I'm just trying to be a devil's advocate. What reasons should I be able to think of, why would a local government say, "Well, we should apply a much higher minimum standard than" - well, even a slightly higher minimum standard to what applies in the rest of Australia or the rest of this climatic zone in Australia, because I'm - - -

MR McDONALD: They want to be leaders in green, some of the councils, and they therefore - like one council, anecdotally for me but apparently in fact, banned the use of steel because they didn't like the greenhouse gas emissions from a blast furnace. Now, they didn't know what they did in technical terms when they put through their motion but effectively you could not use steel in buildings in that council any more, that council region, and when it was pointed out to them of course they rectified it. But what I'm getting to is, councils - and we all like to promote ourselves as being environmentally responsible and that will always happen, and I think this is what - the interesting thing is that you will have councils perhaps and state government, and even the federal government, encouraging performance above the mandatory minimum set through the Building Code of Australia. This is my heaven, if you like.

But, you know, the thing is you can have all sorts of encouragement in local areas and, yes, it might cost money or it might give you a better rating system or something in terms of your council rates. But they're the sort of incentives that you could input to have and encourage people to perform above, and we'd live to see those sorts of systems. Obviously as materials suppliers we would encourage them but we're also conscious of the fact that bit by bit you've got to get this right and that's how we've approached this report. So yes, there's all sorts of reasons people might want to pursue above the bar performance. Most of them link back to trying to do the right thing for the environment.

PROF WOODS: And promote their shire area which is good for their property values and - - -

MR McDONALD: It can be bad for the property values too, but yes, it can. Yes, it can slow down a bit of development so - - -

PROF WOODS: A couple I know personally actively promote it and they seem to be doing all right in the economic stakes as a consequence of it, except as ratepayers.

DR BYRON: Anything else? No, I'd just like to thank you for that, particularly the idea of, you know, continuous improvement and having feedback systems. Regular evaluation of the regulation, I think that's a useful suggestion.

MR McDONALD: Well, I think, you know, in essence it's an element of what our organisation is about, which is sustainability, which is embodied energy, operating energy and end of life consideration. So full life-cycle analysis is the way to determine your ecological impact and this is a part of that. The whole chain has to be done on a very, very sound basis with continuous review and feedback and, if you like, audit and this part is no different. It's a very important element of that whole consideration, so hence that's why we have that view.

DR BYRON: All right, and if you do find any of your members who have some data on the cost imposition of the fragmentation of mandatory limits and standards, that would be helpful.

MR McDONALD: Yes, certainly.

DR BYRON: Thank you very much, Mr McDonald.

MR McDONALD: A pleasure.

DR BYRON: Next up, Mr Blanchard. Thank you very much for coming, Mr Blanchard, and thank you for your submission, and obviously the trouble you've gone to in preparing this PowerPoint presentation for us today

MR BLANCHARD: No, actually, I must admit that's a copy from somebody else's slide but it's relevant.

DR BYRON: Okay, good.

MR BLANCHARD: First of all I'll introduce myself. I'm Clive Blanchard; I'm a professional engineer. I've worked in the airconditioning industry for 25 years. I've worked in all aspects of the airconditioning industry for consultants, manufacturers and contractors, and of course as a user. I've developed an innovative wall or window evaporative cooler which is the lowest energy way of cooling an area up to about 45 square metres in a climate like Melbourne or Adelaide, and I've got a web site on airconditioning which is arguably Australia's best and most popular independent web site on airconditioning, and also gets a lot of hits from overseas as well.

The draft report raises a number of important issues. However, some of the data on which the recommendations are based have alternative explanations not considered in the report. I also felt when reading the executive summary that it didn't truly reflect the contents of the report. Further, the terms of reference of the inquiry are narrow, restricting it to a report on improvements that are cost-effective for individual producers and consumers.

The main subject of my talk will be on airconditioning and airconditioner efficiency as critical for economic efficiency, not just to reduce energy use but to minimise peak electrical demands which are forecast to have a huge implication on infrastructure costs over the next few years. Adequately addressing the electrical infrastructure costs will encourage alternative technologies and reduce cross-subsidisation of wealthy people's electricity bills by poorer people.

My submission shows that building rating software does model future building energy use, although current energy use for heating and cooling may in many cases be more related to the size of the heaters and coolers rather than the house construction. The increasing penetration and size of airconditioners means that building rating software predictions of future energy use are likely to be accurate. Without improvements to the building fabric, residential greenhouse gas production from heating and cooling will soar.

Airconditioner energy use is much more significant than the fact that currently 2 per cent of household energy use is for cooling. Its future contribution to household greenhouse gas production is more likely to be around 13 per cent or

25 per cent when other heating methods are included. Currently only around half of all Australian households have airconditioning, but within 25 years this figure will approach saturation. This graph here shows past growth and projections for the next 10 years, and since the top is 100 per cent you can see there's quite a spread but they are all heading up and that's only 10 years' projection. If you project it out 25 years, which is obviously a bit riskier, you're going to go quite close to saturation, certainly for the hotter states.

Building energy use can be considered a function of appliance efficiency, building rating, usage factor and floor area. The usage factor is a combination of the percentage of floor area heated or cooled and the percentage of time that airconditioning is in use. The percentage of floor area heated and cooled is growing. Airconditioning has a huge impact on the cost of electrical infrastructure. In New South Wales $3.5 billion is projected to be needed for electricity infrastructure over five years, largely to support airconditioning. Similar problems occur throughout Australia. This is a classic split incentive as a person can spend as little as $500 on an airconditioner that draws one kilowatt, then the electricity supply and distribution companies have to spend up to $2800 for the infrastructure to power that airconditioner.

Because airconditioning energy efficiency is critical to reducing energy use, greenhouse gases and electrical infrastructure costs, we must take vigorous action. The minimum action is a tougher minimum energy performance standards. A preferable alternative, in my view, would be a levy on the purchase of airconditioners. I would apply the levy based on the rated power draw measured at the energy labelling conditions and this would automatically penalise less efficient airconditioners because an airconditioner which takes one kilowatt to do two and a half kilowatts' cooling is going to pay a higher levy than an airconditioner which takes three-quarters of a kilowatt to achieve two and a half kilowatts of cooling.

I have previously published a paper which shows that evaporative coolers typically use 80 per cent less energy than refrigerative coolers, as shown on this slide. The full size of the bar is the energy used for cooling by refrigerative airconditioner and the dark part at the bottom is the energy used by an evaporative cooler.

DR BYRON: That's Adelaide, Melbourne and - - -

MR BLANCHARD: And Perth.

DR BYRON: Perth. Sorry, I couldn't - - -

MR BLANCHARD: Sorry about the poor quality there. Although evaporative cooling is not applicable to all of Australia, over 7 million people live in areas where

evaporative cooling is very suitable. The reduction in cost of power station construction could easily amount to $460 million per year Australia-wide. Other low energy strategies in milder climates include the use of ceiling fans and attic ventilation.

Moving onto building standards, when assessing the effectiveness of building standards we need to look at the medium to long-term situation, not the current situation. I've already demonstrated the comfort expectations arising. The life of a building is long and changes to the building fabric after initial construction tend to be expensive. For instance, if you wanted to add wall insulation, that's very expensive. So for those reasons a long time scale is appropriate when considering the building fabric. The majority of heating and cooling appliances in Australia are too small to heat and cool all the occupied areas of the house.

So there is a population of what I call capacity constrained houses, and the smaller population of capacity unconstrained houses. So an unconstrained house would be, for instance, a house with ducted airconditioning, and a constrained house would be a house with an airconditioner in just the lounge or something or other like that. The proportion of capacity unconstrained houses will increase and hence this means that the usage factor will rise and approach the value used by NatHERS, the energy rating software.

So if we move onto the next diagram. This is reproduced from Dr Terry Williamson's submission. Basically, this diagonal line here is the predicted NatHERS heating and cooling energy consumption which should be - yes, that's what the prediction is. So the point should fall on the straight line. These points here would appear to be outliers. So if you remove those from consideration, then you put a best-fit line through there, you get a line which is comfortably close to that line and certainly of the same slope. Given the fact that we know that on average the usage factor for most households is less than the NatHERS assumptions, which more closely represent future expectations, then the best-fit line is certainly comfortably close to what the prediction is. So whether house rating schemes correlate strongly with current energy use or greenhouse gas production is arguable, but the evidence suggests that they certainly will reduce future energy use below growth expected without them.

Moving onto the terms of reference of the report, I feel that restricting the report to improvements that are cost-effective for individual producers and consumers is a bit limiting because this means that changes which might have a small cost but which result in substantial benefits are rejected. Doing nothing implicitly economically penalises some people. I think that the negative economic efficiency consequences are small. An approach which is, say, economically advantageous to around 70 per cent of the population should be considered acceptable.

Another issue I had with the report is that when I read the summary I got a different feeling from when I read the body of the report. The executive summary didn't seem to reflect the body of the report and given the size of the report, very few people are going to wade through the whole document. Thus most lay people will probably hear about the report from newspaper articles written by journalists who have just read the executive summary. Thus an incorrect impression could be given. In my submission I suggest a number of modifications to the report findings and recommendations.

In conclusion, the draft report should be modified to incorporate the issues raised in my paper. The executive summary should be modified to better reflect the contents of the report. The terms of reference of the inquiry are narrow but can't be changed at this stage, presumably. Airconditioner efficiency is critical for economic efficiency, not just to reduce energy use but to minimise peak electrical demands. Adequately addressing this will encourage alternative technologies and reduce cross-subsidisation of wealthy people's electricity bills by poorer people. Building rating software does model future building energy use, although current energy use for heating and cooling may in many cases be more related to the size of the heaters and coolers than the house construction.

The increasing penetration and size of airconditioners means that building rating software predictions of future energy use are likely to be accurate. Without improvements to the building fabric residential greenhouse gas production from heating and cooling will soar. Thanks.

DR BYRON: Okay. Well, thank you very much. That was very thoughtful and thought provoking and very useful, and we compliment you on your perseverance in going through the whole draft report like that and to have such constructive comments to make. I guess the terms of reference issue is one that - well, you're not the first person to raise it with us. But we did actually check and the government quite deliberately set those terms of reference because that was a question they wanted answered. If they had wanted the broader general question of, is energy efficiency a good thing or a relatively cost-effective way of pursuing Kyoto targets, I'm sure they would have asked us that.

But the much more specific question is about the extent of these measures that appear to be privately cost-effective and if indeed they are so privately cost-effective, why aren't they being adopted, and that's what we're trying to focus on, because it wasn't a mistake. That was actually the question they wanted us to answer. If we had been asked a different question we probably would have written a different report.

MR BLANCHARD: For sure. I mean, I personally am of the belief that we need

to act rapidly and so therefore I think the things which in the short term might not appear to be privately cost-effective need to be done, and so I'm just expressing that. But I don't expect you to change the report for that. I'm just - - -

PROF WOODS: No, we can only write a report on our terms of reference.

DR BYRON: But in your comment there and in the report you basically say measures that have major environmental benefits but may have a small private cost are "rejected as unacceptable." Well, I mean, we're not rejecting them as unacceptable. We're simply saying - - -

MR BLANCHARD: Yes, okay, point taken.

DR BYRON: We actually say that governments, you know, should do those but they're not in the basket of measures which are privately cost-effective.

MR BLANCHARD: Yes.

DR BYRON: What we're trying to find out is (a) what's in that basket and why aren't these measures being picked up already, and it seems to me that, you know, there are an extraordinarily large number of measures that most households and businesses in Australia could do things that would substantially improve their energy efficiency, many of which may well be cost-effective, and yet they're still not being done, and that I think is the conundrum we're trying to get on top of. We're not saying that anything that doesn't pass the privately cost-effective test should be excluded or prohibited, or - - -

MR BLANCHARD: Yes, I take your point and I recall reading the paragraph which is more or less what you're saying. But I'm pretty sure that paragraph was in the body of the report and it's not in the summary. I might be wrong, but I certainly got a much more restricted view from the summary than I got from the body and I thought that in the body you made a number of statements like that, where you were saying, you know, that there are other ways of looking at things and it's obviously difficult to get those into the summary because they're not necessarily your key points. But I felt that it gave a biased view in the summary, not that I want to concentrate on the summary, you know.

DR BYRON: But that is valuable feedback.

PROF WOODS: Yes. I hadn't sort of appreciated that you could read them as two slightly diverging messages. But having read your submission caused me to go back through and I think we will look closely to make sure that the alignment is complete. Certainly there was no intention to have misalignment, but having read your submission it does cause us to review it, so thank you for that.

MR BLANCHARD: I mean, basically when I read it I was thinking, "That's wrong, that's wrong and that's wrong." Then, when I read the report I saw that you had explanations which sort of clarified and made statements - you know, I could understand what you meant by the statement in the summary after having read the clarification in the actual report itself.

PROF WOODS: Sure.

DR BYRON: Sounds like we didn't do a very good job of summarising what we had actually written.

MR BLANCHARD: Having tried to summarise my own submission, I think that's a very difficult task.

PROF WOODS: Sadly it's the one that the commissioners take most responsibility for.

DR BYRON: Yes. Would you agree with us that the actual energy efficiency outcomes depend on both the design and construction of the hardware and the behaviour of the people who actually use the buildings and appliances.

MR BLANCHARD: Sure. The behaviour can change the energy use dramatically. If you have somebody who always believes in leaving a bedroom window open all night then their heating bill is going to be much higher than somebody who closes the window at night and opens the windows in winter in the middle of the afternoon, when the temperature difference is the minimum.

DR BYRON: But, you know, the impression that we've got throughout the course of this inquiry is that there has been an enormous amount of very focused and very detailed attention on the hardware, on the design and construction of materials, the measurement, the monitoring.

MR BLANCHARD: Yes.

DR BYRON: All the sort of engineering and architecture type of issues and likewise with the appliances, that we've got into that enormous amount of detail and a lot of resources have gone into that. But there seems to have been much less effort into the behavioural issues about why do people have the airconditioner on flat out with all the windows open, or the heater on, when it's such a self-evidently silly thing to do; they're just burning up money.

MR BLANCHARD: Yes. There's a couple of points that I'd like to make on that. One is that as I've said, the trend in energy - well, in airconditioning and heating -

over certainly the 25 years that I've been in the industry is for a much higher level of standard and expectation of comfort that people have than they had 25 years ago and I expect that to increase rather than reduce.

So I think that we've got to separate out two different types of behaviours. We've got to separate out the behaviours which rationally achieve comfort but are targeting a higher level of comfort than we traditionally achieved. Separate from that is behaviours which are not rationally achieving comfort. They may have other motives which it may be possible to address by other means, like for instance the example I gave of leaving a bedroom window open. There are other alternatives. You could have a heat exchanger drawing in outside air and using the heat from the inside air to heat that outside air, so your energy loss is much less. Obviously that's an expense but if the person wants a very high level of outside air, then that's a much cheaper solution if they also want a high level of comfort. If they're prepared to accept the low level of comfort, then it's not an issue either.

So, as I say, there's two different types of behaviour. The long-term trend on what I've just called the rational behaviour is going to be for that behaviour to keep targeting higher levels of comfort. At the moment the percentage of areas heated and cooled in houses is often quite low. In Adelaide a lot of houses, the only heating they've got is in the main lounge. Certainly my house falls into that category. That's the main heater. So the rest of the house isn't heated. But the long-term trend is that people are going to want higher levels of comfort. So if we don't address the issue of the fact that people want higher levels of comfort, what we might say is, "Well, if we look at current behaviours, it's really not a big problem." But I don't think the Productivity Commission would say, "So we've got to stop people changing their behaviours from accepting a low level of comfort. We've got to stop them from wanting a higher level of comfort." That's certainly not your approach.

So we've got to assume that that comfort level increase has got to occur. But what we've then got to look at is how much of the excess energy use is due to that other issue of people doing non-rational behaviour or not thinking about the behaviour. So, for instance, like at this time of year, if you don't clean your windows every month or something or other like that, it's a good time of the year to clean your windows now so that any winter sun which comes in gets into the house and warms up the house to reduce the amount of heating that you have to do. There's simple things like that which can be encouraged. That's an example from my energy efficiency newsletter which is on my web site. Basically, I've written that to try and help with the knowledge and information thing and certainly most the state - well, I think all the state governments have their equivalents and there's a reasonable amount of information available, but the problem is that - you've made the point yourself in the report - effectively the transaction cost is high relative to the dollar value that you might save.

So people have to stop and think about it. I guess that's another reason for going down the trends of increasing the efficiency of the building fabric, because, as in the discussion you had before, if the building fabric is more efficient it's more likely to be forgiving of poor use. It's not really forgiving of an opened window because that completely bypasses the fabric, but a five-star house in general, unless you make really stupid decisions, is going to use less energy than a three-star house. Although some of the work presented in the paper didn't seem to show that, I think there's been some other submissions which were put forward which gave other examples of studies which did show that if you're comparing like with like, then the higher star rating gives a lower energy use.

So there was a correlation in actual energy use that they got whereas because of the fact that - again, it comes to the fact that the energy use is only at the moment quite low. What I've called the usage factor, which is what we're talking about, is relatively low compared to what it could be if we heated the whole of the house and cooled the whole of the house.

PROF WOODS: Thank you. You've got a statement in your submission - it's under the MEPS heading but I think it has broader application. You say, "A voluntary approach, even with appropriate labelling, is not going to address the split incentive problem for airconditioning," then you go on to say, "with current energy pricing." I mean, isn't that the nub of a lot of these issues, that on the hardware side, as my colleague commissioner refers to it - the fabric, the appliances and the like - you can do something in a mandatory manner, you can put in MEPS, you can have your energy efficiency ratings for your building fabric and the like, and you can impose those on the community through a mandatory process, but you can't have mandatory chasing after the teenagers to turn off the lights or shut the curtains or something? But at the moment while price signals are saying, "Even if I did spend my life doing that, I'm only going to save a couple of dollars a week. Thank you, I've got other things that I want to spend my life doing," I think the point that you make there has touched on the very point, that you can do something about the hardware but on the behavioural side we're missing the big opportunity.

Do you have a view on that, and do you have any sense of the magnitude of difference between doing these mandatory activities that are chasing in some cases quite small incremental gains versus, if you were to send a price signal through, what that would do to people's consciousness and to their actual behaviour, and even, may I say, to making description about, "If I live in Canberra, an evaporative airconditioner might be a very good thing, because the air is so dry why put in airconditioning that just sucks out any remaining moisture that might be there compared to the refrigerated type."

MR BLANCHARD: To balance those, to work out the balance, that is a hard task. I'm not sure that - probably there isn't enough knowledge of exactly how much of it

is due to behaviour as opposed to the hardware, and I certainly agree that we need to conduct more research into that. But I'm not quite sure what you're trying to get me to - - -

PROF WOODS: I'm not trying to get you to say anything.

MR BLANCHARD: No, I understand.

PROF WOODS: I'm just curious as to your views about whether we're missing part of the main game in what we could do for energy efficiency by only concentrating on the hardware and the mandatory minimums on that side and not addressing the behavioural side by doing something say on the energy pricing signals to consumers.

MR BLANCHARD: Right. I didn't really discuss pricing signals terribly much in my submission but - - -

PROF WOODS: No, but you did refer to it in a few places, which is why I pointed it out.

MR BLANCHARD: Yes. I'm inclined to think that if the pricing signals were strong enough so that you reflected the wholesale price of energy at the time, then somebody with a large airconditioner could end up paying $100 a day to run their airconditioner - $100 per peak day, not every day that they run the airconditioner - and that's going to start sending a fairly powerful signal, because it means the cost of running an airconditioner is going to be much higher than the cost of running something which is on more continuously but the maximum power draw is less. I can't think of an example, but on a TV or something like that, in a lot of houses TVs are on for an incredibly long length of time, so the amount of power that the TV draws is probably a reasonably significant amount of power.

PROF WOODS: But it's more a base load issue, not a peak load issue.

MR BLANCHARD: It's a base load, not a peak load, and because it's a base load issue, the electricity generators and distributors don't have to invest as much in infrastructure and they are also recovering much more money from it. That of course is why currently at the moment people who haven't got airconditioning are actually subsidising those people who have got airconditioning - because of the capital cost component with the electricity tariffs, which are averaged over everyone and don't relate to whether people have contributed to that infrastructure requirement.

DR BYRON: The issue of the residential airconditioning spike in summer is a huge issue for all the state governments that we've spoken to, and they're obviously very concerned about it, particularly because of the capital expense to expand all this

capacity. Of course, there are huge greenhouse implications if new coal-fired power stations are going to be built purely to satisfy this summer aircon spike. So the question is, what more do you think we could recommend in terms of dealing with this summer airconditioning spike? We're talked about prices that were more reflective of both the wholesale costs of electricity on those peak hot summer days and of the congestion problems that arise through the transmission distribution system on those days. There is an experiment going on in southern New South Wales at the moment about interval meters and with four different charges, including a super peak rate, which is the one that would cut in up to four days a year. Do you think that's log legs?

You've mentioned the airconditioner levy. Would that be on all new airconditioners sold as from now or would it be on all airconditioners? In other words, do you have the inspectors to go round and - - -

MR BLANCHARD: No, I would certainly restrict that to new airconditioners. Basically, I guess we haven't paid in terms of interest rates for the existing infrastructure, but I'm looking at it from the point of view of future infrastructure and then tying the purchase costs of an airconditioner to providing some of the costs to build the infrastructure that that airconditioner requires. I think if we limit it to airconditioning, that obviously is the strongest signal, because a levy on the purchase of airconditioners is then going to either reduce the differential in price or even perhaps make the more efficient airconditioner cheaper, or - - -

PROF WOODS: Sorry, just on that, do you have a sense of the size of the levy you're thinking of?

MR BLANCHARD: That's a good question. As somebody who wants to see rapid change, I might well suggest that the levy by huge, but I think if there was a levy you would need to introduce it at a moderate level, well below recovering the infrastructure investment and then over a period of time increase it (a) to allow people to get used to the idea and (b) to allow people - you know, manufacturers and importers - to change their products to make sure their mix of products is more of the higher-efficiency products and less of the low-efficiency products.

PROF WOODS: But you're not going to take a stab at some dollars?

MR BLANCHARD: Well, I think it should be - as a starting point I would say several hundred dollars per kilowatt would be a starting point. I mean, long term I'd certainly consider $1400 a kilowatt or something rather like that. So that means a bedroom airconditioner at $1400 a kilowatt, a box-type bedroom airconditioner which typically are the least efficient type of airconditioner is actually going to be more expensive than an efficient wall split airconditioner because the wall split probably won't be having a $1400 levy. It will only have a $1000 levy and that will

largely eke up the price difference between the two products.

DR BYRON: Would it be correct to assume that the reason that airconditioning has taken off in terms of the graphs here is because the appliances themselves have become substantially cheaper, substantially better in terms of quieter and split-size and remotes and all this sort of stuff, compared to the old box in the window, and the cost of electricity as we've argued by international comparisons at least is relatively inexpensive and it's a percentage of most people's weekly expenditure?

MR BLANCHARD: Quite likely.

DR BYRON: So people see having an airconditioned house as something which is highly desirable?

MR BLANCHARD: Yes.

DR BYRON: Especially in those cities we're talking about, and it has suddenly become very, very affordable. So it's not surprising that you would have those sorts of growth rates.

MR BLANCHARD: Yes, absolutely, and in the graph that I showed of the various states it's actually South Australia and the Northern Territory are the two highest. That's the Northern Territory, that graph there. But you can see how it can change very rapidly. That's what, 55 per cent to 80 per cent in only a few years and airconditioner sales are very strongly driven by the weather each year. So the summer we've just had in Adelaide, I'm not quite sure about the rest of Australia, was a relatively mild summer. It was a couple of degrees - well, at least February was a couple of degrees cooler than average although the other months were about the same as average. But I think it was the year before was a hotter than average summer and sales in that year were much higher than sales in Adelaide in the last season.

PROF WOODS: I was curious about that graph. I'm glad you've come back to it. The long plateauing which looks like a span sort of, of eight to 10 years.

MR BLANCHARD: Yes.

PROF WOODS: It's a bit hard to quite pick up, but is that product mix available on the market and therefore the introduction of the split cycles et cetera in the last couple of years has led to some change in behaviour?

MR BLANCHARD: That's an interesting question.

PROF WOODS: Because that plateau extends over quite a range of states and

therefore it suggests it's, you know, some generic issue and I'm wondering if product is one of the drivers.

MR BLANCHARD: I think you might be right. I mentioned that I developed a wall to window backward cooler and when I was developing it, the costs of a box-type room airconditioner was $1300 - was a brand name, Kelvinator or whatever airconditioner, was $1300 - and at that price I was expecting my price to be slightly under that and so I thought I had a market. That was in 97 or 98 and it didn't get released on the market until the 99-2000 season and by then the prices of box-type airconditioners had dropped to below $1000. So around that period, which I think corresponds to the Asian economic crisis - - -

PROF WOODS: 97, 98.

MR BLANCHARD: Yes, there you go. So that's when we suddenly got the flood of imports because manufacture in Malaysia, China - well, at that time it was mainly Malaysia and Korea. Manufacture had snowballed and so I think that supports strongly what you're saying about the fact that it was very strongly driven by the price because that's around that period is when it starts to - a year or two after that is when it really goes up steeply.

PROF WOODS: Where did it start to plateau because I just can't quite read those numbers.

MR BLANCHARD: Yes. Actually I just wonder if I can find the original of that document.

PROF WOODS: Even if you could just give us a source later that would - - -

MR BLANCHARD: Yes. It's Chevlin which is - - -

PROF WOODS: All right, yes.

MR BLANCHARD: It's one of the references in my paper.

PROF WOODS: You've got that in there, that's fine.

MR BLANCHARD: And it's available on the Web so you've got no - - -

PROF WOODS: Thanks, we'll pick that up.

MR BLANCHARD: Yes.

DR BYRON: So have you any idea about - coming back to the idea of interruptable

contracts or different prices. We had somebody at the hearings in Brisbane last week talking about informative meters rather than smart meters.

MR BLANCHARD: Yes.

DR BYRON: And suggested that for $10 or $15 per meter you could modify existing meters in a way that would give you much more information about the energy consumption that you ran up yesterday, your current rate in terms of whatever.

MR BLANCHARD: Yes.

DR BYRON: The point of that being that if people don't have the information base, even if they want to manage their energy efficiency use, at the household level they can't.

MR BLANCHARD: I think actually his point that information is critical to achieving savings if you're using a price signal - because the Australian Consumers Association made a good point in their submission that the price signal by itself doesn't mean anything unless the person is aware of it when they're taking action. So if you don't know that it's going to cost you 20, 40 or 100 dollars to run the airconditioner for an extra hour you might not switch it off while you go out. Of course that has another problem if you do switch it off. When you switch it back on again you then have the problem that if it's not a very generous capacity it will struggle and may well trip out on overload because it will be trying to pull down the temperature in the building.

So again we end up in a problem where rational behaviour for another object, namely to keep the airconditioner running so that the temperature in the building doesn't run away from them - and an example here is somebody who's going to work and then coming home. Now, it depends what time they're coming home, but if they're coming home at, say, 3.30 in the afternoon, if their airconditioner is slightly under size then they are actually - from their own personal point of view, certainly at current pricing they're better off running the airconditioner all day and making sure that when they get home it's comfortable.

There are of course other strategies: instead of running it all day you could have a predictive - I can't remember what it's called now, but on large commercial buildings you measure the outdoor temperature, the indoor temperature usually, and you work out what time you want it to come on, well, you tell the controller what time you want it to come on and it will work out whether it needs to turn on an hour before, half an hour before, 10 minutes before, and so that's one way of minimising energy use, still achieving comfort, and I think that a lot of these control strategies which could be used will become quite cheap in the medium term, which means that

- and one of the things that I strongly feel is that people are very - the whole trend is more automatic operation.

Like, for instance, with evaporative coolers a traditional evaporative cooler was two-speed and a pump. So you would just alter the speed when you decided you were too hot or too cold. Nobody sells a domestic two-speed airconditioner in Australia. They are all at least variable speed so that you've got more control and the top of the range, certainly on the rooftop evaporative coolers, is for thermostatic control and a lot of those thermostatic controls have got some time controls, not quite as sophisticated as the time control that I was talking about.

But the long-term trend, I mean, given that the cost of electronics is going down then to add what I was talking about to the top of the range controllers, you'd probably be able to do it for the same cost as the previous controller you had because the minimum size chip that you can buy next year is going to be powerful enough to do more than what you've been doing previously.

DR BYRON: Well, I think that exhausts the list of questions that I had for you. Is there anything that you would like to say by way of wrapping up?

MR BLANCHARD: No. I guess the only thing I'd say is that my own personal view is that we need to act sooner rather than later, and I'd actually endorse the previous speaker's comment that the changes which are in motion, we should put in motion so like, for instance, the five-star building rating and things like that. Since they're in motion let's keep them and I do believe anyway that they will contribute to reductions in future energy use. But I certainly don't have a problem with us undergoing a feedback cycle, finding out in greater detail what is actually happening there, addressing the usage issues, finding out how much of that usage issue is rational behaviour and how much is irrational behaviour.

Where it's rational behaviour then that means - well, that's something that is more difficult to do, to deal with, and it comes down to hardware issues. If it's irrational behaviour then a certain amount of education - and education combined with strong pricing signals is going to be effective but you need to make sure that you do both because either the pricing signals without the information and education is going to be useless, but equally without a pricing signal there's a lot of people aren't going to bother because $100 more or less on the utility bills in a year is not going to be noticeable to them.

DR BYRON: A very good point. Thank you very much for coming and thank you very much for the submissions.

PROF WOODS: Thank you very much.

MR BLANCHARD: Thank you.

DR BYRON: Can we adjourn for five minutes for an urgent caffeine break.

DR BYRON: Our next participant is Alex Cruickshank from the Energy Retailers Association. Thank you very much for coming and thanks for the written submission from the ERAA.

MR CRUICKSHANK: Thanks very much for your time this morning. We only want to make a very short presentation. The Energy Retailers Association represents 12 retailers who retail energy in most of the regions in the national electricity market or all regions in the national electricity market and we obviously have a fair interest in energy efficiency and we've been promoting ourselves for some time.

You've got our submission and I think it's fair to say that the underlying statement in our submission is that we support the draft report almost completely. We believe that you've done some good work and the major aspects I think that I'd like to cover are across three major points: the fit between energy efficiency and greenhouse gas emissions, the role of mandatory standards and lastly, price signals. They're the three things I'd like to cover today.

Just as a general comment, in reading through the report a number of things that you've recommended is to check what has been done, to always make sure what has been done is grounded, is working, is correct, before we move forward and I think that's something the retailers support. We believe that in every case we should not be moving forward without a full, thorough check to make sure that what's being done is correct and efficient, and that comes across in a number of different areas. This supports the sort of total quality management sort of push that was around that many years ago: plan, do, check act. That is, plan what we can do, do it, check it to make sure it's actually the correct thing, before you then move on, and I think that's a consistent theme which we support through your report.

Firstly, in the area of energy efficiency and greenhouse emissions we think it's important to realise that the energy efficiency is a totally separate field from greenhouse gas emissions. While they overlap and have some common outcomes they are actually separate and it's important that the objectives for energy efficiency are not, if you like, subverted for greenhouse gas emissions and vice-versa. That is, we should be focusing in energy efficiency purely on the energy efficient aspects and where that does provide a greenhouse gas benefit that is a benefit, but the energy efficiency is the prime aim.

PROF WOODS: What would be the purpose of energy efficiency without a greenhouse gas objective?

MR CRUICKSHANK: More efficient use of resources, cheaper use of the resource; that is, providing better and cheaper products around the place. You would have in itself less use of resources, less pollution and other things. There are a whole series of energy efficiency benefits on their own.

PROF WOODS: Okay.

DR BYRON: I was going to say it later but I might as well interrupt you now. The other reason I think for governments, particularly state governments, being very interested in energy efficiency, apart from greenhouse, is the deferral of major capex for expansion and capacity on generation, transmission, distribution et cetera.

MR CRUICKSHANK: That's right.

DR BYRON: But as I think your association commented in the first submission, that what you would do about deferral of capex is not necessarily the same thing that you'd do if you're driven by greenhouse, so that there's a couple of different agendas in play; they're not always identical and synonymous. Is that the point you're trying to make?

MR CRUICKSHANK: Yes, and perhaps to come at it from the other angle, if you're trying to focus purely on greenhouse gas emission, then an efficient carbon trading signal is the way to go. There's no question about that and if you're trying to do energy efficiency then there are a whole series of other things, mainly market based and cost based, you would seek to achieve, so they're quite different and that's the point we're trying to make, yes.

One thing we're saying, and we believe it's appropriate, is that in general energy efficiency should be delivered primarily through the market-based mechanisms. That is, if you provide people with appropriate costings and appropriate information then the market will deliver appropriate efficiency and the use of mandatory restrictions or mandatory standards should be reduced as much as possible. Talking about mandatory standards, one of the issues we have about mandatory standards is it can produce inefficient outcomes if the mandatory standard in fact is not correctly targeted to energy efficiency.

We believe that if the correct pricing outcomes are delivered to participants and the appropriate information is delivered to participants then you will see people using the right sort of products and using their energy efficiently. This is a market-based outcome we believe is most appropriate. That is, where people see a benefit they will take that benefit. One of the issues there is to make sure that the price is given to the decision-maker. It's appropriate that the price is delivered to the right point. In that case we definitely support the commission recommendations of only regulating where it makes sense, only putting regulations where they're efficient and where they can't be better delivered via the market, and to target the regulations specifically to the matter that's being addressed.

One of the things that your draft report does say, that we support fully, is to

make sure that the models that are being used to support the various recommendation of various bodies are actually tested again for reality. It's important that at all stages the models are grounded back to reality, that the efficiency gains are verified, before other steps are taken. For that reason we need efficient information on actually the truth of statements that are being made, and that's an important step.

The last thing I'd like to talk about is price signals. The Energy Retailers Association in a number of forums has been talking about the need to have appropriate price signals delivered to energy users in all cases. It's important to recognise that price signals come from a couple of different sources. The first one is through energy pricing but the other major source of price impacts on customers is network. So you need to have, if you like, appropriate pricing signals for both of these sources and that includes time of use, pricing for networks, demand-based pricing for networks where that's a relevant factor, as well as energy pricing on those sorts of factors.

As I mentioned before, it's important to get the price to the decision-maker. One of the reasons why mandatory standards are sometimes useful in building construction for example is that the price that's seen by the user of the product is not always the price seen by the constructor or the supplier of the product and it's important that that be appropriately developed. Information may be the appropriate thing there, like five-star labelling is an important technique, but other things may be necessary.

We do believe the time of use pricing is appropriate to customers as a means of trying to drive energy efficiency to some extent and also the actual efficiency of product labelling to drive appropriate use of products, but we don't agree necessarily that mandated interval metering is appropriate. We believe that, as we've said in other cases, the market should drive the use of interval metering. Where it's cost-effective for customers and cost-effective for businesses then interval metering can be used and that provides some signalling. In all other cases it's possible to provide some means of time of use pricing with cheaper mechanisms such as simple two-rate meters or other things like that. So there's a lot simpler - - -

PROF WOODS: So your off-peak and standard rate type stuff.

MR CRUICKSHANK: Yes. In general, customers aren't seeking half-hourly pricing. In general, customers are seeking simple pricing regiments and so a simple two or three-rate meter is easily adequate for a lot of customers and can be delivered more cheaply.

PROF WOODS: But that doesn't deal with your peak load airconditioning summer hot day routine, does it?

MR CRUICKSHANK: One of the issues with peak load airconditioning is it's not so much the actual knowledge of the price or while the customer is obviously paying more will choose to use the product more wisely, but things like peak loading airconditioning in any form of demand management, it's more useful where the retailer has control over the use rather than the customer has knowledge over its use. Where pricing helps there is that with industrial customers the price that's charged to customers can be linked to a control mechanism and therefore the control can be given to the retailers who can then use that, we think, and efficiently reduce the usage of the product while reducing the price.

If the customer is simply given about its use but unable to control it, then we've got an inefficient pricing mechanism that doesn't assist in the process.

PROF WOODS: But domestic airconditioning is very much under the control of the end user.

MR CRUICKSHANK: Yes. I think there are two things about domestic airconditioning we need to understand. Firstly, the efficiency of the airconditioning product is probably more important than the time of use. Secondly, we need to verify that the time of use issue for domestic airconditioning is in fact significant in the scheme of things.

PROF WOODS: Do you have some data that would help us on that?

MR CRUICKSHANK: I don't know. I don't think so. Certainly there has been some work done in South Australia but I don't think it has been particularly finished yet.

DR BYRON: Are you familiar with the trial that's being done in Southern New South Wales with the - they've got smart metering and four prices including an extra super peak for four days a year or something?

MR CRUICKSHANK: No, I'm not familiar with that trial but I have seen similar trials in the United States.

DR BYRON: Any reactions to that?

MR CRUICKSHANK: It has certainly been shown that allowing customers to know the price of their product and the band when that price will occur does have some impact on the usage of the product and for that reason the simple four-band pricing may be useful. Again, that doesn't actually require metering, simply knowledge of when a product is on or off.

DR BYRON: The point was made last week in Brisbane that, you know, the

electricity meters that we currently have are there to provide the energy supplier with the information they need to send out the bills. They weren't intended to inform householders so that they can make intelligent, rational decisions about how they use appliances within the house and the suggestion was made that, you know, with a little bit of modification a dumb meter could become a smart and quite informative meter.

The analogy was that, you know, if people got one bill every three months from the petrol company for all the petrol they had used, they wouldn't be able to associate, you know, "How much I've done this week as opposed to how much I'm paying out of my pocket this week," or "because I was towing the caravan yesterday", or whatever. So even if people want to do demand-side management at a residential level without the information they're basically stymied.

MR CRUICKSHANK: Yes, that's correct.

DR BYRON: Is that a valid point?

MR CRUICKSHANK: There are two sections to that, I guess. Firstly, if people had the information would they actually use it, and I think that's a valid section. But the fact that they don't have information means they can't use it. I think it's important that where possible customers be provided with the necessary information, which is price-band timings, and if that means a little clock on the wall that says, "At this time in the afternoon you're in peak-hour metering or peak-hour energy costs," that would be useful. But I'm not absolutely sure whether you can have people sitting around watching the electricity meter, given the cost of electricity in the scheme of things is very low.

PROF WOODS: That's the key point in that particular behavioural issue, isn't it, that no matter what the pricing signals are showing, if overall the price is still very low then what proportion of their attention will be directed to that issue compared to other issues in their life?

MR CRUICKSHANK: Yes, and it not only occurs in domestic, it also occurs in small industry where, at the end of the day, electricity is a small component of the bill. It might be a large bill when it comes in, which is why they notice it, but the actual usage rate is very low in terms of cost. I don't know how you solve that. You're not going to suddenly tax it to make it expensive; hopefully not. The main issue with electricity usage is that if people have information where they can make small savings and they can make those savings at low effort, they will make the savings and that's what the American study certainly showed: people will shift some of their energy use into off-peak times where it's easier to do. But on a 42-degree day you're not going to get someone switching off their airconditioner to save even $10.

DR BYRON: In fact, that's why they bought the airconditioner.

MR CRUICKSHANK: Exactly. When you spend $10,000 on the airconditioning system you're not going to save 10 bucks, so that's one of the problems we have. The efficiency of the airconditioning system becomes more important I think at that point.

DR BYRON: But is that also why - you say you can't rely on the price mechanism and information to the user. Would you like to see some sort of interruptable supply contract or a mechanism whereby a signal gets sent down the wire to turn the aircon off for 15 minutes every half-hour or something?

MR CRUICKSHANK: Not so much the aircon necessarily but certainly lowering energy use and in a controlled mechanism by retailers will lead to reduced prices and energy efficiency at the same time, and there are various products being trialled even now to try and do that, both in Australia and overseas. The important issue there is that the customer elects to take the reduction in their usage of a product at the time for a benefit at an agreed time.

DR BYRON: Is there anything to stop energy retailers doing that at the moment? Are there state rules or anything that prevents it?

MR CRUICKSHANK: No, nothing to prevent it now, and in fact there are some energy retailers currently offering a product, or offering products certainly to small industry, for demand response on a controlled basis. We've got a number of different levels of demand response, but certainly there are some control mechanisms, not currently using down the wire type technology but certainly using mobile phone type technology, to provide demand-type response, and that's been offered to industry at a price.

PROF WOODS: Are they being evaluated and are you getting some results from that?

MR CRUICKSHANK: I don't think they're bringing in a penalty evaluated.

PROF WOODS: Is there any way in which we could access some of the conclusions being drawn from that?

MR CRUICKSHANK: We'd have to ask the individual details.

PROF WOODS: Yes. Could you go back through your membership, because - - -

MR CRUICKSHANK: I suspect what we'll find is again the cost of electricity

means that the take-up rate of a lot of these products is low.

PROF WOODS: But that's relevant in itself. What we're interested in is, "Here is something being offered," and if the take-up rate is low that's instructive in itself because it means there are other motivations happening, but if it is being taken up, then how effective it is, at what cost, because in a lot of programs - and not only by government but also by industry - the public availability of evaluative information is a bit thin at times.

MR CRUICKSHANK: Yes. What might be more useful at this stage are some of the technologies that are being made available that could assist in the future.

PROF WOODS: Yes, but there's a speculative end to that as to just how effective they will be. I think we're starting to understand a bit about the technologies, but getting behavioural change is the interesting issue there. So both, yes, but if there is any information that can be made available to us we'd be very grateful. Your other comment did help resolve a conundrum, because you mentioned earlier that airconditioner efficiency was more likely more important than the peaking of use. But I then take it from a later comment of yours that that's predicated on the assumption that the use will occur, and therefore if you can have greater efficiency in the appliance itself, the use won't be as great in terms of overall load. Is that the line of your thinking?

MR CRUICKSHANK: That's the line of thinking, yes, and also the other point is if you are going to have some sort of method of reducing airconditioner use during a period when airconditioners would normally be used - say by cycling of compressors or something - it has to be done efficiently so that the true gain is made for the cost of the technology used and the benefit is applied to the customers via a pricing signal they can actually see.

PROF WOODS: Okay. You have throughout your submission various comments like, "Agrees with this recommendation, supports this recommendation, concurs strongly with this finding," et cetera, et cetera. What bits of our draft don't you like, and where in your view could we refocus and re-examine?

MR CRUICKSHANK: I'm not in a position to answer that question. I think it would be fair to say we're supporting your draft very strongly.

PROF WOODS: That's the message that came through, but I was wondering if there were any little points where you could draw to our attention the need to - - -

MR CRUICKSHANK: If we were going to say anything, it's to ensure the separation of the greenhouse gas energy efficiency. That would be one we'd say is important. I suspect we might even go further than you in terms of saying remove

mandatory standards, but I don't think that's a major difference. You've argued very well to say verify them before you use them.

DR BYRON: I thought you were just making a pretty strong case for having MEPS for airconditioners.

MR CRUICKSHANK: I think efficiency of airconditioning needs to be known. The running costs and the efficiency of energy use of airconditioners needs to be provided as information to people so that when they're choosing between a $3000 system and a 3 and a half thousand dollar system, the $3000 system may in fact cost more than the 3 and half thousand dollar system. I think these sorts of pieces of information are not generally known, and if they are known, people sometimes don't even make that decision. Sometimes it's still preferable - and that's a choice individuals probably should have the right to make - to choose to use one system rather than the other.

DR BYRON: The information content that people get when they buy a new airconditioner - the labelling and so on will tell them the laboratory test results, but do they actually get a mug's guide to how to drive this machine? What's bothering me is that a good machine poorly managed might give lousy results.

MR CRUICKSHANK: Certainly retailers do provide information to customers about the temperature settings that they should operate airconditioning on, for example, and the fact that running them to - if you want to run round in midwinter in Victoria wearing your shirt sleeves, that's going to cost you. That information is available. Whether it's fully understood I don't know. I don't think you can necessarily mandate how someone is going to use a product, but again information about how much it costs to run at certain temperatures is useful information.

DR BYRON: Yes. I mean, as we were saying before, you can mandate the hardware but for individual user behaviour you need much more subtle mechanisms than regulation.

MR CRUICKSHANK: Also the other aspect is that, even if the airconditioning itself is efficient, if it's installed poorly or the installation is not suited to the actual design or the construction of the building, then you get efficiency losses there.

DR BYRON: Just coming back to interval meters, smart meters or, as they were called last week, informative meters, I had been led to believe that smart meters, interval meters, were going to be pretty expensive to roll out and install, but what we were told in Brisbane was that it's only a 10 or 15 dollar modification of the existing meters and that that enabled this particular householder to save $100 off his electricity bill in six months. My reaction was, "Where do I apply to get one of these meters and why can't I have one already?" It's not a question that would have to be

mandated or subsidised. You'd expect that householders would be queuing up to have one of these modifications made if it really is that simple and if it does enable that sort of pay-off.

MR CRUICKSHANK: I think the case has been a bit overstated there. There's nothing to prevent a householder now wishing to have an interval meter if it makes sense within a contract between a retailer and a customer. We can arrange a contract and put in an interval meter now, if you want. The cost is much higher than I think you were led to believe. On a marginal cost basis if you're replacing or installing new meters, the cost of an interval meter versus a dumb meter is actually very low, there's no question about that, and certainly if you've got a choice of two meters and a time switch and one metre with a two-rate capability, there's no question that it's certainly cost-effective and should be chosen.

But it's not just the cost of the meter. The cost of getting the information to the customer is also very important. In South Australia and probably around the country, a number of retailers already offer a web-based service to industry where an industry person can actually find their meter, what their meter is doing at that moment. They can actually test and verify the information or the data usage. That allows them to control their usage and monitor their usage in buildings. Certainly the SA government is using that in South Australia. That's for larger users.

DR BYRON: Is that available now?

MR CRUICKSHANK: Again, that's for a larger user because it becomes cost-effective. That's really what the retailer is saying: where it's cost-effective it will be done because it's in the person's interests as well as the retailer's interests and therefore a deal can be struck on a price. That's what we're saying. But for the average household, when you look at the total amount of energy being used and the potential for savings, the use of the interval metering doesn't help a great deal. One of the issues there is the cost of getting the interval meter information into the retail systems and back out to customers, and that is an expensive component and therefore needs to be fully addressed if you choose to go down the mandated interval metering route.

DR BYRON: My understanding is that the Victorian interval meters will still have a uniform year-round price, so they're not actually proposing interval pricing but merely recording quantity data every half-hour. Is that right?

MR CRUICKSHANK: Yes. We're not in a position to comment on the Victorian government's decision to do that, but the use of an interval meter in that case simply puts pressure on retailers to try and find an efficient means of helping customers use their energy. But certainly what we're saying is it's the information to the customer that matters rather than the interval meter. So you could argue, not that you could

publicly argue it, that the Victorian government is perhaps going about it the wrong way.

DR BYRON: That's carefully worded.

MR CRUICKSHANK: Years of dealing with the law.

DR BYRON: Anything else? There appears to be a lot of heated agreement.

MR CRUICKSHANK: Yes.

DR BYRON: Okay. I don't have any other questions. Was there anything else? I think we might have interrupted you as you've gone through.

MR CRUICKSHANK: No, it was fine, thank you very much. As I said, we're in full support of what you're doing and where it's going, so there wasn't that much we could really add. Thank you.

DR BYRON: Thank you very much for coming, Mr Cruickshank.

PROF WOODS: And any follow-up on data would be helpful.

MR CRUICKSHANK: Yes, I'll try and track some down.

PROF WOODS: That would be good.

DR BYRON: Mr D'Arcy and Mr Isaacs from the Insulation Council of Australia and New Zealand, are they here? No. We're a bit ahead of schedule anyway, so I think we can adjourn and hope that the Insulation Council are ready at 10 to 1 as advertised. Thanks very much.

(Luncheon adjournment)

DR BYRON: Okay, if we can resume the public hearings; the representatives from the Insulation Council of Australia and New Zealand. Gentlemen, if you could each introduce yourselves for the transcript and then we look forward to the presentation, the summary of the main points that are in your written submission, and then we'd like to discuss it with you. Thank you.

MR D'ARCY: Certainly, thank you. Firstly, thank you to the commission for sparing us the time to address this meeting. My name is Dennis D'Arcy. I'm with the Insulation Council of Australia and New Zealand, and I am currently the president of that organisation.

MR ISAACS: I'm Tony Isaacs. I run my own consulting business. I have worked for government in the energy efficiency area for about 15 years or so and am a specialist in sustainable buildings.

MR D'ARCY: Today I'm representing the Insulation Council of Australia and New Zealand. The ICANZ members produce approximately 70 per cent of insulation that goes into commercial, industrial and residential applications in Australia. We employ about 5000 people directly and indirectly in our industry. We've decided to make our submission I think because we represent such a large part of the industry. Other industry submissions which we may have been aware of may not have represented our interests to the extent that we would have, and perhaps I think this morning Tony McDonald would have expressed that for BPIC For example, we see no speed to market issues with regard to the insulation industry that perhaps that wider group may have discussed.

As you may be aware, we have an agreement with the Productivity Commission. This is an interim submission that we put in to address some of the underlying assumptions of the recommendations of the draft report. The reason for these two submissions, if you like, is that we have a more comprehensive submission that is the result of a wider range of energy experts and economists that we drew together last week to have a full look at the implications of the Productivity Commission's findings and other broader issues, and it's taking us just a little bit longer to get that more comprehensive report. Once you've received that report in the next week again I'd take this early opportunity to say if there was an opportunity for members of that group to talk through that report we're certainly very keen to do that.

To the draft PC recommendations I suppose I'd like to, on behalf of ICANZ, make some general recommendations. We're a little disappointed with the draft report and its recommendations because we felt the terms of reference were too narrow. We believe the recommendations need to consider all issues in balancing both private and public outcomes. We felt that wasn't the case. The energy efficiency regulations we feel are different from perhaps other issues that the

Productivity Commission may have looked at, for instance in buildings issues such as fire and things like that.

The reason we think that they're different is because energy efficiency has an immediate payback. The benefits start from the day the insulation has - well, not the insulation, the energy efficiency regulations are put into place and the effect on the building stock is for the next 70 years approximately. So there are times when those measures need to be put in, the most economic times for those measures to be put in, and they will then service the varying needs of various range of occupants that would enter those buildings. I take for example, for instance, in residential homes where the wall area of those homes is probably getting up towards twice the area of the roof. Now, to address those issues later is impractical so those issues need to addressed now.

The other implications go beyond the individual. They go to issues such as power supply to peak demand, issues that are very current at the moment, and to the demand for increasing standards of living such as the rapid increase in airconditioning penetration into the market, and I felt that the commission didn't pay focus enough on those issues. Of course, there is the environmental impact of reducing power and we feel that this is a very serious issue that energy efficiency regulations also address, simply not the immediate cost to individuals.

The cost of energy of course is to an extent artificially restrained by commitments made by various Commonwealth and state governments as to what impact that will have on the consumer. So to simply look at the market regulating for that simply through adjusting a pricing mechanism is perhaps not true in this case. Today, however, in our interim submission we want to address some of the research that appears to have underpinned the PC's recommendations and perhaps the reticence, as we see it, of the PC to accept the program of energy efficiency regulations and what we believe is their effectiveness.

In this aspect I'd like to hand over to Tony Isaacs who has operated as a consultant, an expert consultant, for ICANZ to look closely at some of the underpinning recommendations, so I'd like to hand over to Tony.

MR ISAACS: Thank you, Dennis. In reading the Productivity Commission's draft report, specifically with reference to chapters 7 and 8 that refer to the building environment - and the submissions made by ICANZ do relate to that specifically - I must say, if I agreed with Terry Williamson's submission I would agree with your conclusions regarding the building industry and regulations completely. But I think while I have the utmost respect for Terry and would consider him a friend, I disagree with him in this respect and that is that I think there is adequate evidence to base policy decisions on whereas I think Terry's central thesis is that there was not.

In terms of the relationship between energy use and actual consumption, Williamson produces a number of graphs in his submission and shows that there is virtually no relationship in a very limited and narrow study of just 31 houses. It's worth noting too that while Williamson has measured the consumption in these 31 houses over a specific period of time that the actual energy rating is based on a year of average weather data. Now, one can have a 30 per cent variation. The fact that no relationship was seen was really little surprise. It's not the intention of energy rating schemes to measure actual consumption. It is the intention to give an indication of the potential to save energy.

However, what was I thought the most remarkable conclusion of Williamson's study is that by adjusting for appliance efficiency he derives a much more close relationship and he mentions himself in his paper attached to his submission that if you remove a couple of the outliers which may well be valid, that the correlation improves further. In fact I think he only removes two outliers. If you go to remove a third outlier your R squared value comes up around .5.

He concludes after that, that there may yet be hope for energy efficiency, I think central to his argument is that once you take into account the heating and cooling efficiency of appliances. So far from there being no relationship whatsoever between actual consumption and simulated consumption, all Williamson is really showing is that there is not a direct relationship and that was a deliberate decision made by government. I was a member of a number of government committees at the time when this was being decided.

If one adjusts for appliance efficiency and given the usual range of cooling efficiencies and heating efficiencies, one virtually eliminates the impacted cooling from the rating altogether because cooling devices are typically far more efficient than heating devices and a deliberate decision was taken that because of the importance of cooling energy, domestic cooling energy - I think the Electricity Retailers Association submission pointed out how that had changed the whole market for electricity in Australia. So to make sure that the rating would actually have an impact on that, the decision was taken not to adjust. That's not to say that energy efficiency of appliances is not dealt with in other places but this was not seen to be the appropriate place.

Williamson also presents a range of case studies, houses which have a low energy consumption in which the occupants are tremendously satisfied with the comfort conditions that they have achieved and which yet receive a low rating. I guess I'd make the point that Williamson's own monitoring which is presented on the psychrometric charts - and essentially you see the temperature along the X axis. The Y axis has to do with the moisture content of the air and Williamson presents his monitoring results on the psychometric chart and then superimposes the ASHRAE comfort zone.

Now, that's a comfort zone that is defined internationally as acceptable for human comfort and I should add too that the World Health Organisation recommends that temperatures inside buildings should not be allowed to fall below 16 because of the respiratory and possible cardiac disease that may be affected by those lower temperatures. What Williamson's monitoring shows is that these houses spend a substantial amount of time below that figure and also above that figure. The little dots in there give you an indication of the frequency.

To give you an idea of what a five-star house would be like, I performed some simulations using the AccuRate rating tool. Williamson does not challenge AccuRate's ability to reproduce temperatures in real buildings. In fact I've been present while he and Angelo Delsante, the author of the AccuRate programs, sat down and tried to get monitor results from a real house with real occupants to score with the actual simulation results and both Delsante and Williamson were quite pleased with the overall level of agreement.

What this graph shows is a frequency distribution - unfortunately I couldn't produce the psychrometric chart - for this house, optimised to five starts in Adelaide. You can see that inside this house, without any heating and cooling operating, there are only .6 per cent of temperatures under 15, 1.8 per cent of temperatures over 30. Contrast that with the monitoring which is clearly a far greater frequency for those extreme temperatures. Again in Darwin a huge number of hours outside the normally accepted range of comfort, even allowing for some air movement, which is what these sloping lines do, compare that to some of the typical government housing of the 80s which was well appreciated for its excellent performance and this shows only 1 per cent of temperatures over 33.

Now, I think this house spends probably 40 per cent of its time over 33. It's not a good house. It has extraordinarily good occupants who are very tolerant of uncomfortable conditions and that's really the reason for its low energies. Similarly in Brisbane this house spends a tremendous amount of time at low temperatures. Its performance in summer is quite reasonable but again a five-star house would be spending only 2 per cent or thereabouts of temperatures under 18 in Brisbane.

Contrast that with, that looks to me to be, 10 or 15 per cent, and only .7 per cent of temperatures over 30. So one can see that while these houses that Williamson presented may well have low energy bills, their low energy bills are due to the energy conservation practices, I would presume of the occupants. When you look at the houses themselves, they have a number of features associated with sustainability, such as solar hot water systems, photovoltaics and so forth. One can only assume that the occupants are therefore very highly environmentally motivated. There's no guarantee that the next occupant will find these houses so wonderfully comfortable. There's no guarantee that the next occupant is now going to use a hell

of a lot more energy than the current occupants.

Williamson points out in these case studies that the cooling energy is predicted by the rating programs at the time is very much higher than observed. To an extent this has been addressed through the development of a new rating tool by the CSIRO which - I think for the first time in the world an energy rating program is now actually allowing for the increased perception of comfort because of cooling breezes that are going through the house. So I would say that a lot of Williamson's concerns about the overestimation of cooling in his case studies are resolved by that new tool. I have been on a tour around Australia showing some case study results to the building industry to gauge their feeling for the results that one obtains, and so far in places like the Northern Territory and Adelaide and Perth there's been a pretty good response to the outcomes.

Williamson also suggests that there is no evidence linking improved building fabric with lower energy consumption, and on my bookshelf at home I have four such studies. For example, the Gas and Fuel demand management study showed a 22 per cent saving due to ceiling insulation in centrally-heated houses, an 8 to 12 per cent saving for space heating, and because these studies were longitudinal studies, they test the assumption behind matters far better than a study comparing differing households. NatHERS, or the rating scheme, is trying to ensure that people use less energy than they otherwise would have. To compare two houses with two occupants that are of two different efficiency levels is not actually going to the very heart of the matter of what the rating scheme is trying to test, and what one sees when you do these longitudinal studies is that improved building fabric has significant and very often quite close to the full theoretical value of energy savings.

The Gas and Fuel demand management study was interesting inasmuch as it also asked people how they changed their heating and cooling user behaviour patterns after the installation of insulation. They were looking for rebound effects and so forth. They tested hours of use, the heating thermostat and the area heated, for example. Overwhelmingly they found no change but, interestingly, what people report is a significant drop in the hours of use and also the heating thermostat. This can be understood from the point of view that the superior performance of the building fabric means that they don't need to turn the heating on as frequently, that better distribution of heat within the room afforded by the ceiling insulation means that one can achieve a comfortable sensation within the room at a lower thermostat setting. There is some indication of a slightly larger area heated in 17 per cent of the households, but 76 per cent report no change, and that's what one would expect with a central heating system. So in this study alone there are some significant savings.

A study of Tasmanian public housing, which Gerry assures me he's well aware of, and quite strong in his PhD thesis, shows a 15 per cent energy saving due to wall insulation, a 14 per cent energy saving due to the presence of unshaded north-facing

glass. This was a very highly focused study where it looked to eliminate the sort of variability in the sample that had plagued other studies in finding statistically significant changes in energy use. They were all public housing tenants, the houses were all a similar size, similar heating equipment, and heating was measured separately, metered separately. Meters were read on the same day of the month every month for 21 months. So it was a very detailed study that avoids a number of the problems of the studies that Williamson reports - so again statistically significant at 95 per cent confidence levels energy savings due to improved building fabric.

The Victorian Home Energy Advisory Service was a service offered to Commonwealth healthcard holders where they could get up to $250 worth of retrofitting and some advice on how to save energy. That looked at a very large sample of 3000 participants within the scheme. They looked again at a longitudinal study. They looked at their bills before and after the intervention, and because of the financial limitations they could only insulate the living room. They found a 9 per cent gas and 7 per cent electricity saving in those houses that had had ceiling insulation installed. To be honest, I was quite surprised that they found an energy saving at all, because being Commonwealth healthcard holders, one might presume that they are actually trying to contain their energy use - they have limited incomes - and therefore I would have expected to see lesser savings because they would be possibly taking up that improved performance in comfort by rebound effect, so it was quite encouraging to see such significant energy savings none the less.

A smaller sample, and one that's perhaps the weakest of the four presented - insulation of walls in the Australian Capital Territory - a blown-in wall insulation product did show a 15 per cent lower total energy use after the walls were insulated, but there were some methodological problems with that study and people often did this in conjunction with renovations. So you've got the use of all the tools and so forth used to do the renovations, you've possibly got people not heating or cooling during the renovations. Nevertheless, the fact that it showed any improvement at all was encouraging to a degree.

I also thought it was important to reinforce that the sorts of other aspects of energy consumptions that Williamson says house energy ratings don't take into account are certainly taken into account in regulatory impact statement work. I supervised the conduct of the regulatory impact statement for regulations in Victoria when I was in the sustainable energy authority, and I must say that my consultants found me a pretty tough taskmaster. I wanted to make sure that that was as conservative as it could possibly be, the reason being if it was demonstrated to be cost-effective with conservative assumptions, then it was most likely to be cost-effective from thereon into the future, because there is an element of uncertainty when you're looking at households. People's use varies quite dramatically.

So appliances without cooling devices were not assumed to save any cooling

energy, of course. The efficiency of appliances, from what we know of the stock of appliances out there in the field, was taken into account. The areas of the house heated and cooled were taken into account, and the duration of heating and cooling, with the result that the energy savings predicted in the regulatory impact statement is probably around a third of that predicted by the rating tool itself. Again the rating tool is not trying to predict bills. There certainly is a lack of data on which to base this sort of information, but it's my belief that that lack of data only makes this even more conservative. For example, information on the duration of heating and cooling is taken from an ABS survey of minutes of heating and cooling energy use that is over 20 years old. Since that time in Victoria, for example, central heating has become standard. The penetration of airconditioners is probably triple what it was 20 years ago. There's no doubt that people are using their appliances, anecdotally, more intensively than they were 20 years ago. So it would seem that this is relatively conservative.

Finally, in terms of the other factors that building regulations can't affect, such as user behaviour and appliance choice, it was my understanding in government that we wanted to deal with the building fabric and building regulations because one could there, but one cannot create a regulation necessarily to make people buy energy efficient appliances, so it was there that the minimum energy performance standards and the rating labels had a role. I should add too that the surveys that I was aware of, of the Sustainable Energy Authority, which asked people about the importance of various factors in making an appliance purchase choice, the energy efficiency was consistently the second most important factor next to the total cost of the appliance.

So in terms of those things that Williamson says are left out there is not government inaction in that area. There are actions. The commission may or may not agree with the efficacy of those actions, but there's certainly work done, and there is a huge amount of public information on how to use your house properly, how to make the most out of your appliances, how to maximise your energy savings and so forth. So the regulations need to be understood in the context of other government programs that are designed to influence the choice of efficiency in appliances and also influence user behaviour within houses. That's pretty much it. That's the ground that we covered in the interim submission, and I think Dennis would like to add a few things.

MR D'ARCY: Yes. Of course there are, you'll be pleased to know, things in the Productivity Commission's recommendations we do agree with. One of those is the need for information and education to help market participants take the most value out of energy efficiency regulations. There's no doubt there is an ignorance, a gap, between what's proposed in terms of regulation and what the general person at the front end of the industry is aware and has the wherewithal to implement. We think that it's important to address those.

Our industry - this is just the insulation industry - over the past 20 years has probably spent over $50 million in promoting energy efficiency both in existing and new homes and had less than 50 per cent success with new home builders prior to regulation being introduced because there was this split incentive. It was always amusing to build a builder's home and see what a builder would build for me in terms of the measures that were undertaken. There was nothing in it for them to do it.

I would say today our anecdotal evidence would suggest that, of existing homes, there's still 50 per cent of homes out there in the building stock that are not insulated in terms of their ceiling insulation, despite conservatively all that money being spent, because it's in our interests to promote that. So information is a part of the solution but doesn't seem to provide the incentive to move forward satisfactorily.

There's also, we believe, as the recommendations point out, a need to value the ex post evaluations, which will help people understand and further improve and refine any regulations that are in place. There's no doubt about that. National consistency was an argument that I think most industries are looking for, and we would support national consistency at a sufficient stringency level rather than adopting the lowest common denominators just simply for administrative ease.

I might say that probably the reason that national consistency is also important is that, if there are no regulations, say for instance in the commercial building market, where there are none at the moment, this where national inconsistency happened, because every council and state government went its own way. Quite frankly, I felt very sorry for the building industry in New South Wales, where every council seemed to have a different set of regulations and just caused so much unnecessary administrative paperwork. I believe by not pursuing some form of national consistency with regulations it will return to that, because there are agendas out there that do want some form of benchmark for energy efficiency.

MR ISAACS: I think too the currently proposed regulations will actually deliver consistency for the first time. But at the moment we've got a variety of different stringencies and approaches. I think the step towards the current regulations rather than waiting till the result of ex post studies will actually mean that there is one rating technique, one level of stringency to be achieved that is climatically appropriate of course, but will be closer to national consistency than we've got at the moment.

MR D'ARCY: Lastly, I'd like to make the commission aware that there's possibly a cost of not progressing with the current energy efficiency regulations that have been, if you like, mooted for some time. For our industry, for instance in 2000-2001, we were approached to ask whether our industry had the capacity to supply energy efficiency material, if in fact these regulations were brought in and we were privy to

projections and various other things. Our industry has invested over $30 million in expanding plant capacity. I believe the windows industry, they can speak for themselves, but I know moving from single-glaze to double-glaze has been an extensive program of upgrading.

So all these things are now invested, let alone with builders that have already corrected their designs, which is not an insignificant cost. We have a whole new industry out there of energy raters that have invested time in training and various other things, and I could go on. But to say there is a cost in stopping at this stage, I would like the commission to be aware of that and I say with that we would like to thank you for your time in hearing us and we will be putting in a more comprehensive submission in the next week or so.

DR BYRON: Thank you both very much. The thing that intrigues me is why would anybody not want their new or existing house insulated, given that there has been so much evidence that - you know, you really didn't need to hammer the point that insulation works. I doubt that there's anybody in the country who doesn't think that it works. But the question that we're particularly looking at is how privately cost-effective it is. Now, I've been told by people like the MBA and the HIA et cetera that every time they do a survey and ask new home buyers, "If you had an extra $1000 to spend would you rather have the insulation in the roof or the marble bench top?" every year they have done this survey for the last five or six years it's always between 90 and 95 per cent say, "The marble bench top, thanks."

Now, I personally, as somebody who has always insulated every house I've owned, can't understand that mentality but, you know, (a) is that correct and if so, why do you think it happens, that people faced with the evidence still choose not to insulate their houses?

MR D'ARCY: I think that would be my summation of the scheme as well. Firstly, I don't think they understand the savings involved for some reason and we've done surveys of not only the occupants of the house but the people that sell houses, the commission salesmen, and we've walked through those houses and asked them, "Are these houses energy efficient?" "Absolutely," this sort of thing. So how can that be - say, "Look, we don't understand this. It's much easier to sell a brick letterbox or a marble bench top. This has the immediate appeal: a plasma TV." Put in a small plasma TV and it's that immediate gratification that seems to capture the buying public. They just don't seem to understand the long-term savings and benefits they can get from insulation or double-glazing or anything.

DR BYRON: But I mean, your industry has spent - what did you say - $50 million or something?

MR D'ARCY: Yes.

DR BYRON: On promotion. There are NGOs that - every Commonwealth and state government agency is interested in this. As you say, there's masses of information out there and yet somehow there are still some people who refuse to get the message.

MR D'ARCY: That's right.

DR BYRON: And that I find absolutely intriguing.

MR D'ARCY: You can take the analogy to overseas where climates are similar but energy costs are much higher. They still see the need to regulate because the message has not been had there where the returns are even higher, and you would think the incentive, if you were a logical person and looking at payback on your money there, you could always put a marble bench top in later and again they have the same problem with what I would call market failure.

DR BYRON: So bounded rationality or - - -

MR D'ARCY: Well, bounded rationality, indeed.

DR BYRON: There's probably a term for it, yes.

MR D'ARCY: Yes.

MR ISAACS: I think too it is hard to see the benefits of insulation from the point of view of the benefits that the individual receives from energy efficiency vary as their lifestyle varies. So for example, you know, when you first buy a house may well be dual income, no kids, you're out most of the time. You don't heat and cool a lot. You'll notice the comfort benefit of the energy efficiency but you're not going to reap huge savings. Then if what happened to me happens to you and your wife falls pregnant with twins and is suddenly at home with two babies, and born during winter I should add, she was in the house almost frightened to come out. She was daunted by the very prospect and of course the heating was on all the time.

Now, it was actually just at that particular part of your lifestyle where you do actually notice that you've got the energy savings there because you know that the heating is on all the time and yet your bills aren't astronomical. So I think it's difficult to get the signal because the benefits vary over your own lifestyle. I think too that energy bills aren't desegregated. You don't see, "Oh, that's how much my heating was. That's how much my hot water was. You certainly know that in the middle of winter you pay a bigger bill for heating and that some part of it's to do with heating.

DR BYRON: Plus the energy bills come once every three months.

MR ISAACS: Once every three months, indeed.

DR BYRON: Do you think there's any merit in that argument, that if you think about fuel efficiency when it comes to petrol, people go and fill up their car every week or every two weeks, whatever; they know exactly how much they're paying, and they can relate that to what they've done; whereas if you get an electricity bill or a water bill once every three months it's very, very difficult to relate what's on the bill to any behavioural decisions over the previous three months.

MR ISAACS: Indeed, and it's also hard to know whether this is a high bill or a low bill. One of the great things that I've noticed on my water bill is that it shows me for a household of this many people is, you know, what's considered average. People may be thinking, "Well, everyone pays a bill like this when it's a couple of thousand dollars over winter." You know, they don't get the feedback on their behaviour and yes, it happens too infrequently. By the time you think of doing something about it winter has gone; you can't do anything about your heating till next winter.

So I think that's a part of the situation too and, look, people just don't make the most economically rational decision with every decision they make regarding their house. I know I certainly didn't in my house and there were features that I wanted and I'll admit to having a granite benchtop. But it's also energy efficient, but I've gone without other things to get that granite benchtop.

DR BYRON: People wanting other things in the house, whether it's a great view which happens to be south facing, you know, presumably there are ways of offsetting the disadvantage that would go into the ratings system through that.

MR ISAACS: Look, I've seen many houses with southern views, eastern views, western views still achieve five stars because the designers thought about it from first principles, designed accordingly with the rating tools by their side, though I do know that there is a great fear in the building industry, because there are those who don't understand these issues as well. But, oh my God, if I've got a site facing south I'm gone: I've got to spend $20,000 or something, and that's generally not been my experience. The great thing about the rating tools is it does give you far more flexibility. You can have your south-facing view and yet not have a huge impact on your energy bills because of that, because either you upgrade the glass or you take other measures in the house that offset that.

DR BYRON: The studies that you refer to on the impacts of insulation and of the absence of the rebound effect, they were 10, 15, 20 years ago.

MR ISAACS: Indeed.

DR BYRON: Would the answer be the same if it was done today? I mean, I don't know. I'm not saying it wouldn't be, but - - -

MR ISAACS: Well, I think certainly in new homes since 1990 they've had to have insulated walls and ceilings anyway. So obviously it's going to be hard to see the difference between uninsulated and insulated now.

DR BYRON: The question I've been asking everybody almost in all the hearings that we've had is that it seems to me that, you know, the energy efficiency performance of a building, a residence for example, depends on both the design and construction side, all those sorts of hardware features, but also on how it's used by the occupant and I guess that same thing extends to appliances. There are certain things you can design into its structure and there are other things which are user variable.

MR ISAACS: You can have an energy efficient car but if you drive it flat out and you never maintain it, your petrol use will be high.

DR BYRON: Yes, exactly. Now, what I'm trying to get a handle on is how important are the hardware things as opposed to the behavioural things, because it seems to me that over the last 10, 15, 20 years there's an awful lot of effort gone into improving the design and construction of the hardware, whether that's a house or a commercial building or an appliance or a lift motor or whatever, and I think that has been done with an enormous amount of effort and so on.

In terms of what have we been doing about the way it's used, the appliance or the house or the car, we don't seem to have put as much into the behaviour or psychology or whatever it is. I mean, you're absolutely right to say that there's masses of information out there. But I think if we did a survey we would find that there's an awful lot of people who haven't read the information or they haven't got the message and so there are certain things you can do through regulating the equipment and the house must have certain standards. We know that regulation isn't a very effective way of influencing what people do in the privacy of their own home et cetera.

MR ISAACS: Not should it be, yes.

DR BYRON: Exactly. So what are our tools, our public policy instruments, for getting the behavioural things right and am I right in thinking that there has been far more effort into sort of the engineering technology sort of things rather than the people things?

MR ISAACS: I'd actually say the reverse. Having worked at the Sustainable

Energy Authority for a number of years and despite the fact that I was a manager, everyone got their turn on the phones and the amount of brochures that have been available on every aspect of how you can save energy in your home, the number of queries that one gets on those phone lines, particularly around the sort of time of, you know, the peak winter bill or the peak summer bill, they get that stimulus of, "Oh, my God, I've spent this much," and people have been ringing.

So I feel like in terms of government effort that there has been a huge amount of resources focused on trying to give people information about how to use their appliances and how sufficiently. Whether it's gotten through to all the people who need to get that information, one could say that the information is perhaps preaching to the converted and how one gets to the unconverted is another matter, but certainly governments have considered that.

DR BYRON: In nine months' time, the start of the next winter billing cycle, they will have forgotten what SEAV told them at the end of this winter and I mean, maybe we all need a reminder.

MR ISAACS: I'm not sure. I mean, there's no doubt that, I mean, a phone call is not going to be - well, it will probably be more effective than a brochure which you might just flick through and cast aside. But the personal contact makes it stick a bit better. This is the sorts of research that has gone into designing these programs. Furthermore, if you get a home visit that seems to stick as well. The study in Tasmania also looked at the impact of the provision of information and those households which received information certainly had a lower energy use after that than they households which didn't. Exactly how long that persists, I'm not sure.

I guess in terms of looking at the relative importance of the equipment and hardware versus the user, there's no doubt that very poor user behaviour can increase an energy bill by many, many times, and I do, like, sometimes to refer to regulated and unregulated houses as, if you like, analogous to saying a regulated house is like having a four-cylinder car and an unregulated house like an eight-cylinder car. You can be conservative, you can cut down the number of miles you drive, you can maintain it very carefully, you can ensure that your driving behaviour is great, but it limits your overall ability to save petrol; whereas with your four-cylinder car, yes, you can abuse it - you cannot maintain it, you can drive with flat tyres - but because its inherent efficiency is greater, you've got a greater potential to save energy thereafter.

DR BYRON: Do you think there's been a tendency to try and sort of hardwire in technologies that make it more difficult for unthinking consumers to run the estate badly, that it's sort of failsafe, if you like?

PROF WOODS: That's the beauty about insulation, isn't it? It sort of sits there as

a - - -

DR BYRON: Sits there and works all the time.

MR ISAACS: Yes. I mean, if you heat to say 25 degrees in Melbourne as opposed to heating to 21 degrees, your heating bill will be approximately 40 per cent higher, but so too will your savings of being energy efficient. So there are few behaviours which, apart from heating with all your doors and windows open, which will totally obliterate the savings, and generally the benefits of energy efficiency are proportional to your bill. So if you're the sort of people who have a high demand for energy, then the energy efficiency measures will save a lot of energy. If you have a low demand, then you won't save a lot of energy. There will be some winners and losers but, as I said before, very often the very people who might be losing now in four or five years' time may well be winning if their lifestyle changes.

MR D'ARCY: Can I add a comment to that in terms of the information versus the structural components. Some anecdotal evidence, for what it's worth: as these regulations first started to come in in 2003, we were of course very keen to get builders' perceptions on how they felt about these regulations and certainly what did they need, because they were struggling a little to come to grips with these plus many other regulations. We phoned 300-odd builders in New South Wales and Queensland before regulations came in and asked them what they thought of them, and they said, "We don't want them. They're going to price me out of the market. Costs are too high. Sales are going to halve" - all this sort of thing.

We phoned the same sort of subset of builders in South Australia and Perth that had regulations, and their reactions was, "They're great. They didn't go far enough," because everybody had taken that step forward. So they were really concerned about the cost of the buildings. I'll even say also that we've looked at some of the - not the showpieces, not the Eureka towers and these sort of things that are written up, but the general office warehouse that's going up in the commercial area, the tilt-up slab. They put nothing, really nothing, into them, and because it's invisible, it's one of those costs that you can pull out and really nobody knows until they're in it. So there is no responsibility, I suppose, that at some time later they have to compensate that person for a very poorly designed commercial building.

I don't think personally commercial buildings on the whole - I think their design is quite poor when it comes to energy efficiency, and that won't change, because there is no incentive, other than saving money, for the builder to change his behaviour.

DR BYRON: But that comes back to the commercial tenant not being willing to pay a little bit more to be in premises that have low utility costs. Is the tenant who's - - -

MR ISAACS: I don't know whether he's really given that option. It's a building that's up: "Do you want to rent it or don't you?" Where are the potential energy savings reflected?

PROF WOODS: Just in competition between different buildings. If somebody puts up a more efficient building - - -

MR ISAACS: I think that's too - - -

PROF WOODS: Yes, it passes over the tenants. They want location, size - - -

MR D'ARCY: That's it, and it's only in the operating costs later on - I wouldn't think the normal commercial building that's going up now would be much above about two, two and half, stars, if that. That's a very poor performing building, and it's cost-driven. Many of the energy efficiency regulations are invisible costs that can be taken out because there's no requirement to keep them in there. So that's what happens, and to retrofit them, as I said earlier - those buildings are there for a long time - you just can't do it. It costs you tens of thousands of dollars to do something that would probably cost you a couple of hundred dollars, or a thousand dollars, to do in the first place.

MR ISAACS: It is quite unusual in the property area for people to even think about marketing from the point of view of energy efficiency. There have been a few boutique builders who have done it. The interesting thing, though, I found in Victoria was how many homes chose to go to five starts well in advance of the regulations, and their particular strategy for selling once they'd done that was, "These are big houses. These are 30, 40 squares. They've got central heating. What do you think the bill is going to be like? See the builder over there? They're probably one or two stars." They found they got tremendous success with that. It took an enormous amount of effort to get someone to actually step out ahead of the rest and take the risk that what they were doing had sufficient value to the market to give them a marketing edge.

It just so happens that Henley did that extremely effectively. The costs they report for upgrading their houses to five-star were half that the government predicted in their cost-benefit analysis, costing only $1500 a house to go from where they were already to five stars, because they had a performance system to work with and they could manage the way in which they designed their houses to make the best balance between the amount of glass, the orientation of glass, the insulation levels and so forth. So when they go to the trouble of doing it I think they do see significant benefit, but I think the industry has been too scared that they're going to step out ahead of the rest and end up being left like a shag on a rock, as it were, with insufficient market demand for their product to justify doing it.

DR BYRON: Just as a footnote, you mentioned that, you know, these are big houses. Somebody said to us - and I'd like to just cross-reference this with you - that it's actually easier to get a higher star rating on a large space than it is on a small space.

MR ISAACS: It used to be. That was one of the criticisms that was given to government probably four or five years ago. In response to that an area correction was developed, so that the rating of the house was determined not only by its energy load but by its size. So if you had a small house you got a bonus, if you had a large house you got a penalty.

DR BYRON: I was just wondering if that might have contributed to the McMansion effect

MR ISAACS: Possibly. When you say McMansion you can't help but think of Bob Carr, as he's the man I think who invented the term. The stringency of the regulations in New South Wales hasn't been terribly high, three and a half stars. I wonder, if the stringency had been higher and there had been an area correction introduced sooner in New South Wales, you might have seen something a little different as a result. I developed the area correction some five years ago. It's been in Victoria. Other states have chosen to take it up or not take it up.

DR BYRON: The Building Codes Board told us of difficulties in getting data on user behaviour and ownership and efficiency of appliances to put into its RISs. For example, the RIS for five-star housing had to rely - - -

MR ISAACS: I've worked on that RIS too.

DR BYRON: I'm asking the right person then.

MR ISAACS: Yes.

DR BYRON: Is it correct that they've used 1986 ABS survey data?

MR ISAACS: Absolutely. That's the only data that's available.

DR BYRON: To account for different usage patterns within particular climate zones. In addition, the ABCB told us that, in developing the energy efficiency measures, some technical and policy decisions have had to be made on "limited or anecdotal evidence due to lack of energy data". That's in their submission to us. Do you agree with the Building Codes Board's concerns or not, and why? Are there data problems, and are they getting some sort of measurement error in this? How accurately is it possible to do this given the state of the data that we have to use?

MR ISAACS: In general I find that where there is a lack of data the approach is to take the most conservative approach. So, for example, in assessing the energy efficiency or the energy savings due to the 2006 proposed regulations, I tested each of the buildings against various user behaviour patterns. I selected the user behaviour pattern that gave for unregulated houses the same average hours of use as observed in those 1986 user behaviour patterns. As I said before, I think people are using their heating and cooling more extensively than in 1986. Just the ownership of more intensive energy-using appliances has soared in that time. So I think if there were more accurate data available on that, it would actually show a greater benefit in that particular regard.

In terms of the sorts of data around, I think the government has been remiss in not collecting more data on that sort of thing. I think there's a great need for it. I think it would improve our energy ratings enormously. I think it could identify further areas where larger savings could be made.

PROF WOODS: That's a feature of this whole energy efficiency area generally that we've found as we're conducting this inquiry - the lack of evaluation that's built into programs, built into industry activity. You refer to 50 million on promotion. How much have you spent on doing detailed analytic work to sort of underpin a lot of your research and development and the like? I don't plan to pick on your industry, generally across the board you're relying on 86 data there on behaviour, the studies that you referred to when you were responding to Williamson, some of those - - -

MR ISAACS: Back from the 1990s onwards.

PROF WOODS: Yes. I find it surprising that a lot of money is being spent and a lot of regulation is being imposed on individuals but we're not seeing the evaluative processes built in as a matter of course so that we have a feedback mechanism that says, "All right, we've moved to this point. Let's test it, see what it's doing, whether it's cost-effective." I don't understand why - you've been, as you say, in the industry for a very long time; perhaps you can respond to that - but my other concern is that when we're talking about the energy rating tools you've on several occasions referred to them "improving" or "now we can do this", but the problem is that things were made mandatory using less effective, less accurate tools. I don't mind some inaccuracy if it's guidance and promotion and things, but when you start making things mandatory I think there's an obligation to ensure that there's some rigour underlying that imposition on people's behaviours.

MR ISAACS: Look, I think, to be frank, governments have been - - -

PROF WOODS: Not only governments but industry as well.

MR ISAACS: And industry - have been remiss in not spending money on the evaluation side of things. I think there has been limited budgets available for organisations specialising in this area. It's a small area of government, work. In addition, I think when you do evaluative work for, say, an insulation company, you might take three or four houses and you'd measure the temperatures in it and you'd find a tremendous, wonderful improvement. But the nature of the work you need to justify regulation of course should naturally have a higher level of proof required. I think that the point I try to make is that I find that the lack of data leads one to make conservative assumptions and that, I suspect for a whole range of reasons, if one had more accurate data one would be finding larger energy savings.

So therefore I think, while I would agree, yes, one wants to have these things working right for regulations, I think therefore it's justified to proceed with it. But if the Productivity Commission's report was to achieve anything, if it achieved some more thorough evaluation of programs, I would be delighted. I think that's needed and it's one thing I agree on a hundred per cent with Terry Williamson: these ex post studies have been needed for a long time. I don't believe that there's evidence to say that the current things don't work.

With regard to the incremental improvement that has been going on with all of these energy rating programs, the real areas of dispute have been for architect and high-end designer homes which have employed various ventilation strategies, which the existing tools could handle quite adequately for spec-built homes which is 95 per cent of the market and with building regulations there's three ways of achieving them. There's your need to satisfy, your performance and then expert opinion and it's my understanding that in South Australia for example a number of the specialist sustainability designers who have a specialising sustainability are getting expert opinion to demonstrate their compliance with the regulations, because they continue to build houses with features that can't be simulated. But I think that just shows the strength of the approach of the Building Code, that there are the three different ways of handling it.

PROF WOODS: We would certainly want that opt-out alternative way as being appropriate for the small number of houses, but you'd want to hope that 95 per cent of the houses are caught in a fairly accurate manner.

MR ISAACS: Indeed, and some recent modelling work I did looked at the latest energy rating tool and I compared a very highly ventilated house with a spec house within that tool. Because it's under development at the moment, it's possible to turn off the more advanced evaluation of ventilation features. In the spec house when I turned off the advanced ventilation features, the cooling energy use was virtually unchanged and the highly ventilated house, when I turned off the advanced ventilation features the cooling doubled.

So clearly it was getting the message about right for your spec houses to begin with and clearly it was getting - as the industry was saying, it was getting it wrong for well-designed houses. But they are a smaller proportion.

PROF WOODS: No, that's fine.

DR BYRON: Okay. I think in view of the time we're going to have to move along. But thank you very much - sorry, I meant to also say that Terry Williamson has just sent another submission in response to your submission.

MR ISAACS: Yes.

DR BYRON: And it will be on the web site in a day or two.

MR ISAACS: Okay.

DR BYRON: I got it by email this morning. I've had a very quick glance at it. It's going to take me a long time to think about it. But I think I can say, in all due modesty, I'm not even going to attempt to adjudicate on any sort of debate between you and Williamson. But I take it that, you know, two highly credible sources have quite different views on these things, suggests that maybe somebody who is competent might want to go into this further, but I think it was outside my competency. But I'm sure the debate will continue for some time.

MR ISAACS: It will.

DR BYRON: It hasn't just begun, has it?

MR ISAACS: But look, I can assure you, knowing Terry, I think that if I could be so bold as to speak on his behalf, if governments were to proceed with ex post studies on all of this sort of thing I think Terry would be very much relieved, as would I. I think it's very much needed. Terry feels it's needed to justify the regulation in the first place. I think it's needed to enhance and improve the regulation. I think there's enough evidence to say one should proceed, whereas Terry takes the other view.

DR BYRON: Okay, that's a very good summary.

PROF WOODS: That's a very neat encapsulation of the issue and, as you can see from our conversation, we're hesitant about imposing mandatory rules until there is sufficient evidence to warrant it and what you're saying is that even if the database on which it's drawn might be dated, provided they're conservative rules, then it's a base to move on from.

MR D'ARCY: That's right.

DR BYRON: And that there is an escape clause.

PROF WOODS: And that there is an escape clause. So any concluding comments?

DR BYRON: Dennis, was there anything to wrap up?

MR D'ARCY: No, not unless - okay, no, that's fine. I think we've - - -

DR BYRON: Thank you very much for coming.

MR D'ARCY: Thank you for your time.

DR BYRON: Thank you very much, and we look forward to further contact with you I think.

MR D'ARCY: Yes.

DR BYRON: But thanks again. Okay, we've got a short lunch break until 2.15. Thank you, ladies and gentlemen.

(Luncheon adjournment)

DR BYRON: In the commission's inquiry into energy efficiency, we've got the representatives from the Business Council for Sustainable Energy. Thanks for coming. If you could just introduce yourselves.

MR BRAZZALE: Okay, I might go first. Ric Brazzale, the executive director of the Australian Business Council for Sustainable Energy.

MR EDIS: Tristan Edis, policy and research manager with the Business Council for Sustainable Energy.

MR SZENTAL: Peter Szental, I'm the president of the Business Council for Sustainable Energy and also a director of AEPCA, the performance contracting association.

PROF PEARS: Prof Alan Pears, I provide policy advice to the Business Council.

DR BYRON: Thank you for coming. Thank you for your written submission which we've read with great interest. If you'd like to summarise the main points. We have about an hour or so set aside for this.

MR BRAZZALE: Okay, thank you for that. What I'd like to do in the time we've got, I'd like to make some introductory comments and then hand over to my colleague Tristan, who will then be expanding on and elaborating on a couple of points in our submission and then of course we're happy to discuss any questions that you may have. I suppose firstly it goes without saying that we were extremely disappointed with the commission's draft report. For us, the most disappointing aspect of the report was its significant discounting and even dismissal of the considerable analysis and modelling from Australia as well as overseas showing that energy efficiency measures would save consumers a considerable amount of money.

The commission has selectively used two reports, the William and Sutherland, and it has used this to argue that progress on phase 1, measures of the national framework for energy efficiency, should be delayed. We cannot see how this position is justified on the basis of the information provided and Tristan will further elaborate on some of these points. As a result, we believe that the report has done little to progress work in this important area. The narrows terms of reference have certainly limited the commission's scope. However, we think that the commission has missed an important opportunity to assist in the development of effective policy. We see that the report effectively writes off the demand side of the energy equation and instead appears to be arguing that government intervention should best be left to the supply side.

We find this staggering when we consider that many demand side investments will have effective paybacks less than the time that it actually takes to actually build

a coal-fired power station, let alone recover the cost over its operation. An outcome of this approach we believe would needlessly lead to an increase in energy prices that will reduce our international competitiveness. We accept that more comprehensive data would have been helpful. However, the analysis and work undertaken has tended to be conservative in dealing with this issue and we believe it has certainly been sufficient to justify and support action. Again, Tristan will follow up with some more specific examples.

Indeed what we are finding is that states are moving ahead on the second stage measures under NFEE. Effectively we're seeing the New South Wales government has implemented its retailer benchmark scheme that will provide sort of a market recognition and support for demand side abatement measures which include energy efficiency, and it's also implementing its energy savings fund. Other states, including Victoria, are currently working through the approach that they take. In this context it is a shame that the commission could not play a more constructive role, certainly through its draft report, in helping us work out how additional market based measures and fiscal measures should be implemented to achieve some level of national consistency. I'd like to hand over to Tristan.

MR EDIS: Yes, look, I don't want to elaborate too much on our submission. I think most of the points are there. I think the important thing for us was that when we received the report and when we received the media release, we were quite shocked in how the statements that were made were quite confident in essentially dismissing private cost-effectiveness and value of energy efficiency interventions by government. We felt that statements that suggested that energy efficiency regulations were unjustified and not cost-effective from a private benefit perspective needed a lot more substantiation behind them. The thing with the report is that it points out debatable assumptions.

I think any kind of modelling exercise that is undertaken by government will involve some assumptions that could be debated but we need to sit there and see in that report an evaluation of how likely or unlikely it is that these assumptions are going to hold or not hold and what the influence might be on the overall cost-effectiveness of the intervention and whether that in the end means a net negative outcome on a cost-benefit evaluation. I think any kind of modelling exercise that I could look at, I could identify a whole range of debatable assumptions. But we need to be able to say, "In light of these assumptions, is this evaluation invalid?" and I don't think the report provided that. The other thing is that you spend a lot of time talking about how some of the analyses may overstate benefits and understate costs, but there is very little discussion in there about where those evaluations may have understated benefits or overstated costs.

For example, one of the stand-out items, I think, is the fact that any regulatory impact statement for appliances and equipment has no incorporation of the carbon cost

whatsoever. That may not be a private cost right now but if the states proceed forward with their emissions trading scheme, that very shortly will become a private cost borne by individuals. The other issue is that there is a bias, I suppose, within the Productivity Commission that regulations should be biased towards not intervening. I think there needs to be a more thorough examination of the costs of delay and there needs to be a discussion in the report about if we delay NFEE, what does that mean; what are the costs of delaying energy efficiency measures and how long are we talking about, and what sort of standard of proof are you going to hold regulators to before you believe that they have sufficiently justified intervention on energy efficiency?

Because there seems to be a great deal of analysis and work that has been done not just here but also overseas on energy efficiency and the value of energy efficiency as a greenhouse abatement measure and in terms of its cost from a private perspective and a public benefit - and it's quite substantial - we'd like to see some kind of discussion about that material that's out there and being able to say, well, if we don't proceed with these things, what might that mean in terms of greenhouse and what that might mean in terms of longer-term costs for the community. So I suppose that's where we're up to with this. I suppose we're a bit concerned that we're not sure whether anything we do will actually lead to a material change in the report but I think the key thing for us is that we'd like to see a more thorough and a more balanced evaluation that also talked about how these regulations actually play an important role and also discussing how these regulations perhaps are the end of a very long process that has taken quite some time and has looked at other alternatives to regulation. That sums up my statement, thank you.

DR BYRON: Any others, gentlemen?

MR BRAZZALE: No, I think Alan and Peter are experts in their particular field and supported the development of our submission and we're keen to perhaps answer any specific questions or even general questions you may have.

DR BYRON: Thanks. For about the 200th time, the matters of the terms of reference has come up. I should have a little tape-recording of this. The government, I think, asked us that specific question about privately cost-effective energy efficiency opportunities, because that was the question that they wanted us to answer. It wasn't a mistake. They didn't mean to ask us the general question. They specifically wanted that question and so that is the question that we have attempted to answer. If there are so many energy efficiency improvements which are so clearly privately cost-effective, why aren't they being adopted immediately, voluntarily, spontaneously? I think that's a perfectly good question to attempt to answer. It's not an attempt to answer the question of what is the least cost way of meeting greenhouse targets. That would be a quite different, much larger question. We've been given the more specific one.

In trying to assess whether these privately cost-effective energy efficiency improvements have huge potential, modest potential, or somewhere in between, the difficulty that we have with all the evidence that has been put before us from all sorts of different sources is that we don't actually know the truth, in that it is possible that some claims by experts have been exaggerating the benefits and underestimating or overlooking certain costs and therefore the potential might be inflated compared to reality. It is equally possible that managers have systematically underestimated the benefits of energy efficient improvements or have exaggerated the costs which they fear are the risks and therefore the actual potential is different. So somewhere, the truth, if there is a truth, lies between the very optimistic view and the very pessimistic view.

I don't know that we're ever going to be in a position to work that out. But I think we can devise strategies that will help to reveal which of those points of view, the optimistic or the pessimistic, is more realistic. That's why I think your suggestions of looking at how to go forward are actually very helpful. We didn't intend to say in the report that all claims of privately cost-effective energy efficiency improvement have been exaggerated, but nor have we been able to say that managers are totally wrong when they take a more pessimistic view.

MR EDIS: Managers, what do you mean - because we're talking about not just the industrial sector or the commercial sector.

DR BYRON: The manager of the household, the person who pays the bill.

MR EDIS: Right, okay.

DR BYRON: The manager of the small shop or the delicatessen.

MR EDIS: But I don't think there are a lot of managers, if we took that definition, that are making any claim at all about energy efficiency potential. I mean, residential, have you met a number of people that have made a submission to this inquiry saying that they believe the cost-effectiveness is far lower than what has been estimated by government?

DR BYRON: The point is that their actions are revealing that they don't. I asked the people from - - -

MR SZENTAL: Sorry, isn't that the point about market values?

MR EDIS: That their actions reflect something that isn't perhaps a reflection of what's in their best interests. So really their actions may be revealing that it's not cost-effective or their actions may be revealing that there is a problem in the first

place that requires government regulation.

DR BYRON: Yes, we could spend a lot of time clarifying what we mean by "market failure".

MR EDIS: It doesn't have to be market failure.

DR BYRON: No.

MR EDIS: I mean, it could be branded rationality where government can intervene cost-effectively to enhance societal welfare.

DR BYRON: The general premise is - and this is what we mean by consumer sovereignty - that individuals or individual businesses are often better placed to work out what's in their own best interest than some benevolent bureaucrat. The way the economy generally functions, unless there's a very good reason otherwise, is that people make their own decisions. Sometimes some people make silly decisions, decisions that you or I would not have made. But the point is that the way the economy works, they're allowed to, as long as they bear the costs of that and nobody else does. Now, the onus is on those who propose regulation in this country to make the case of why the regulation is necessary, why the outcome that is sought cannot be achieved by measures other than through regulation, that the proposed regulation will be effective and that it will not generate adverse or perverse outcomes and that it will generate reasonable net benefits. Now, that's what we call the RIS process. Now, when we've looked at some of these proposals to regulate, we haven't been convinced by that documentation.

MR SZENTAL: You talked about the RIS process. The Building Code of Australia has recently come out with a regulatory impact statement which I believe was endorsed by the Productivity Commission showing a 4.6 times net benefit and there is in fact, I would have thought, a very, very concrete demonstration of the net benefit and hence the justification for regulation. The second point I'd like to make though is that the usual argument for regulation, government intervention, is based on a public benefit and while you very clearly said that your scope is limited to a private benefit, I think you are under obligation to make the note that therefore this cannot be seen in terms of public policy-making because it does not address the public benefit.

DR BYRON: We repeatedly say in the draft report words to the effect that there are any number of measures which may produce net social benefits, taking into account all the environment, social and economic measures, but for whatever reason don't pass the other test of, "Are they privately cost-effective?" We do not therefore say those measures should not proceed or those measures should be banned or rejected. We're simply saying that we can't delude ourselves that we're doing this in order to

save people money. They may perfectly well be worth doing but let's not claim that the reason for doing them is that they will save people money. They may not in fact be privately cost-effective.

MR BRAZZALE: That's not what you said.

MR EDIS: That's not what you said. You said that you hadn't seen enough evidence. There is evidence there to suggest that there is a private benefit. But what you're saying is that you haven't seen enough to say that you can be confident in those submissions. So you haven't seen enough evidence to suggest that it's not privately cost-effective. You're just saying that, "We want to see a higher standard of proof than what the regulatory impact statements currently have to indicate that this is cost-effective." So by saying it's not justified, you're not saying it's not justified "because we don't see a private cost-benefit that is favourable", it's because, "We haven't seen enough proof to believe that we can be confident that that is a private cost benefit."

PROF WOODS: Can I just clarify the role of the RIS process which is undertaken by the Office of Regulatory Review. They examine RISs in terms of, "Have they complied with good process?" but they don't themselves replicate the actual analysis. So to say that it has passed through the ORR says that it has complied with a possible practice of compiling a RIS but they themselves therefore don't necessarily endorse the actual policy decisions or the detailed calculations that were undertaken. So we can put that bit aside, that a RIS that goes through says, "Yes, that's complied with appropriate practice," and that's good. That's a very good, sound start, but it doesn't say that the ORR has therefore ticked the actual calculations.

MR SZENTAL: No, but you're challenging the results of the RIS in particular. I go to the Building Code. You're saying there is no proof and yet the regulatory impact statement from the Building Code of Australia points out a 4.6 to 1 benefit, and you're saying there isn't sufficient proof. So I'd have to suggest that, rather, the onus has now got to be on you to say, "That process is flawed," not, "There isn't sufficient proof."

DR BYRON: I don't think there's anything wrong with the process.

MR SZENTAL: Not the process, the content.

DR BYRON: Okay. The numbers that go into the benefit cost analysis that was produced by the ABCB or by consultants doing it are ex ante. They are predictions of what people think will happen, what the benefits might be and what the costs might be. Ex ante projections in no way constitute proof of anything. They are informed estimates of what the consultant or the board thinks is likely to happen. Now, we have had the time to dig a little bit deeper in the numbers that went into

that. You know, the ORR has dozens of these things coming across the desk every week. They simply don't have the resources to look at the details or the quantification.

PROF WOODS: It's not their role to check that.

MR EDIS: Shouldn't that be a recommendation that comes out of this, that they don't have enough resources to - - -

PROF WOODS: No, it's not their role.

DR BYRON: It's not their job.

PROF WOODS: I mean, go back to the earlier point.

MR EDIS: But I've dealt with the ORR and they came back to me and said, "Well, we'd like you guys to incorporate this calculation in the regulatory impact statement to evaluate distributional effects."

PROF WOODS: But they won't - - -

MR EDIS: I mean, they're looking at these questions, aren't they?

PROF WOODS: They still won't endorse the particular calculation that you come up with. They will ensure that you go through appropriate process but that doesn't say that they support the outcome of the particular RIS or the decision that follows from it. They endorse that it is appropriate procedure that has been adopted.

MR SZENTAL: Correct. But I still go back - you're challenging the content of the Building Code RIS.

PROF WOODS: Well, on that one - - -

MR SZENTAL: If you like, we want to have analysis. What we have not seen is the analysis that shows that that is faulted.

PROF WOODS: I think your point perfectly was that this was ex ante assessments that were built in. I'm not sure if you were here when Tony Isaacs was giving evidence just before our brief lunch break, but the message that came through that particular interchange is that there needs to be a lot more evaluation of programs so that we can ensure that what steps are being made are based on sound ex post evaluation. Is that not something that you would also agree with?

MR SZENTAL: Absolutely.

MR EDIS: We do agree that there should be evaluation of policy. What troubles us is the way the report is written is that it makes the statement that these are not justified, that these may be regressive, that the cost benefit is weak, that they have overstated benefits. I think it would have been a lot more helpful report if you had spent more time discussing the value of the information that goes into the RISs, the amount of research that goes into those regulatory impact statements, the amount of research that goes into understanding energy use and use of appliances and talked about how we could improve the rigour of that, how we could spend more time on that rather than, perhaps, making very strongly worded statements that the energy efficiency measures were not justified, that they had overridden consumer and producer sovereignty. "Lightly" was the phrase that was used.

I just think there needs to be more care with the way that report has been worded if you're suggesting that it's not justified or not cost-effective, so much as, "We believe that they have not done a thorough enough analysis," or, "We believe that there is a need for policy evaluation, once implemented." Absolutely, I agree.

MR SZENTAL: We thoroughly endorse measurement in buildings. That's one of the reasons we endorse the mandatory disclosure of performance. We can actually see how these things work. In fact, the commission has said that to wind that back - and that again seems to be running contrary to your argument that we should do post-policy analysis.

PROF WOODS: A feature of the Productivity Commission's procedures is that we do receive advice and input from experts, but then we're prepared to put a draft out, which is exactly this process. So we're prepared to lay on the line publicly and openly where we have got to to date in our understanding of the issues. So to the extent that you're able then to offer some input - and I don't know if you read the AGO's submission on our draft but if not, I commend it to you. It's a very worthwhile contribution to furthering the debate. We're prepared to (a) explain why we've come to the position we have in our draft but we're also prepared to listen to and receive further input on our way through to the final.

MR BRAZZALE: Could I just seek further - in fact, give you the opportunity perhaps to enlighten us on how you've come to that conclusion. It was a line or argument we were exploring just before. I'm not sure what you actually need to be convinced of in this particular case because, I mean, Peter's outline that there's - and certainly some examples. The numbers are pretty compelling. Government - and in fact we all do in our own private and public place need to make decisions under some level of uncertainty and then, whilst we will choose to sort of deal with that uncertainty through gathering additional information, we also deal with it in being conservative in our assessments.

We believe that's exactly what's happened before governments introduced a lot of these energy efficiency measures. There's been significant public debate, even in the Victorian five-star with the Housing Industry Association, and there's been quite a big debate on this. But in the end the government has to make decisions and it's done that on the basis of the best information it's had at the time, and it's looked at that on a conservative basis.

PROF WOODS: But they're also making that decision on net social benefit, which is a broader topic, a broader issue.

MR BRAZZALE: But that's not the point. They may well have other objectives in implementing energy efficiency.

PROF WOODS: Well, that's the ultimate - - -

MR BRAZZALE: And that's exactly what we're advocating too. I mean, climate change is such a fundamental issue that government needs to act.

PROF WOODS: Are you getting any argument from us on that?

MR BRAZZALE: No, that's not the point. The point is that we believe with energy efficiency measures there's clearly net benefits to consumers.

PROF WOODS: Okay. Then the question is, why are they not pursuing those net benefits, and what we're trying to do is work our way through what are the reasons for individuals not doing things in their own best interests, and where then can you justify government intervention in terms of behaviour? So you go through labelling and you go through MEPS and things and we come to various draft views on that at this stage.

MR BRAZZALE: Yes. In our submission to you, we went to some lengths.

PROF WOODS: Yes.

MR BRAZZALE: In our initial submission, in submitting to you some work that Allen Consulting Group did, and I think we were quite disappointed that - I don't think that was referred to at all.

MR EDIS: No, we didn't see that reference in the whole report.

MR BRAZZALE: And I was going to say, we went through the consultants and Allen also did quite a bit of work outlining, if you like, the case for government intervention, going through a number of specific examples of where that - answering exactly the question you just posed.

DR BYRON: Well, I was going to thank you on record for that appendix, your first submission, the one from Allen Consulting, because that basically gave us the analytical framework that we subsequently used in the draft report because it goes back to the Jaffe and Stavins one. So I would have thought you'd be overjoyed that we followed exactly the line that was in the appendix to your first submission.

MR EDIS: Good. Now, this is the other thing: that you spend a chapter which is actually not a bad chapter describing some of the issues but then you say - - -

PROF WOODS: I'm glad we got one right.

MR EDIS: It's almost as if it's a schizophrenic report in that you write that detail in that report and then the rest of it is forgotten in the body of the report. For example:

> Mandatory measures such as minimum standards override consumer and producer sovereignty and are inconsistent with the proposition that energy efficiency improvements they promote are privately cost-effective.

Now, what you've said is there's actually a number of imperfections in the way the market operates which therefore means that people don't make appropriate decisions in light of what is ultimately privately cost-effective, and as a result we have some government interventions. But you're saying, "Because they're regulating we can't be privately cost-effective." That's the statement that I read from that quote, and I think that's an assumption that's underlying your analysis throughout the whole report: "If people are having to regulate, it mustn't be cost-effective for those individuals." But that's the same with seat belts, drink-driving laws, controls on smoking; people regularly do make decisions that they regret.

PROF WOODS: Absolutely, but for the net social benefit, governments go in and regulate.

MR EDIS: But then it's the same with energy efficiency.

DR BYRON: In not one of those examples does the government say - - -

MR EDIS: But there's a private benefit - - -

DR BYRON: Excuse me, thank you, I'm running the show. In not one of those examples you just gave has the government said, "We're doing this because it's going to save you money." They're saying, "We're doing this because of its net social benefit." Governments don't tell people to give up smoking in order to save them money.

PROF WOODS: They tax them, make it even more expensive.

DR BYRON: Yes. So what we're saying is that there may well be many energy efficiency measures out there that on the broad view are very worthwhile and desirable but, if they're not privately cost-effective, let's not go round telling people that they are. Let's not use the ruse of saying, "This is really for your own interest. We're really doing this because we want to save you money."

MR EDIS: Drink-driving laws aren't in people's private interest.

DR BYRON: No, but they're in the public interest.

MR EDIS: No, not in the person who's driving the car who's drunk. They're not in their interests. Preventing people from thinking twice about driving while drunk - - -

MR BRAZZALE: And going to gaol.

MR EDIS: - - - isn't in their own benefit?

DR BYRON: Smoking is exactly the same.

MR EDIS: Isn't that in their own benefit?

MR BRAZZALE: And in fact the policy is actually saying it's in our benefit.

MR EDIS: It's also a social benefit. It's like energy efficiency. Energy efficiency is about, "Yes, it's in your private benefit but it's also in the society's benefit, and the net benefit is even better."

DR BYRON: Sorry, other way round. You can argue, "These are things which we believe are worth doing because they will generate net social benefits, and we don't really care whether they're privately cost-effective or not."

MR EDIS: That's part of the RIS.

DR BYRON: That I think would be a perfectly honest statement.

MR BRAZZALE: But it doesn't mean that they're not privately cost-effective, and that's the part that we're having trouble with.

DR BYRON: My point - I deliberately chose the word "irrespective" of whether they're privately cost-effective. If that was the situation, I think we would then find ourselves in heated agreement. But the government has asked us to look at, "Are

these measures privately cost-effective, because everybody keeps telling us that they are. Are they really?"

MR SZENTAL: Can I answer that on, say, the equipment side and buildings. I'll give you two good examples. With equipment, over the life of that piece of equipment - I'm talking appliances, whether it be a fridge or airconditioner in particular - it is definitely cheaper over the life to have it more efficient. I don't think there's an argument there, is there? The problem becomes the additional first cost, and that is the failure that we talk about. The same thing in buildings - and we've talked about this to you, the split incentive between owners and tenants - the developer doesn't trap the cost savings. It doesn't mean there's no private benefit. There are very strong private benefits, and they are measured in buildings all the time here and overseas. The body of evidence just cannot be disputed. So there are two very clear examples.

Where I have trouble is that while the public benefit is excluded, you still go on to pass comment on government intervention. That is the problem that I believe is a fundamental flaw in the logic. If we're excluding the public benefit, on what basis can you pass comment on public policy?

MR EDIS: I think the other thing is any regulation is evaluated on the balance of its benefits and costs, its wider benefits and costs, including private benefit. If you exclude the private benefit from the evaluation, it makes our task a lot harder. When we sit there and say to appliance manufacturers, or when government is talking to the building industry and says, "Look, we need to address greenhouse emissions. We've evaluated a suite of measures. We see that there are some market imperfections going on here that mean that as a result, the industry" - meaning the builders and the occupiers of those buildings - "are passing upon a number of different equipment enhancements, and as a result you're not capturing a number of net benefits. At the same time we're also going to save greenhouse emissions," if we say, "We won't look at private benefit because that's not the role of government regulation," then the building industry will sit there and say, "Why are we being regulated when Hazelwood isn't being?" I would say they both need to be regulated, but the question is, "What is the least cost and what are we going to do first?" You'd sit there and say, "Of course we'll do the building regulation because it is the least cost intervention because there's a private benefit and there's a public benefit, so therefore we need to intervene there."

We don't disagree with you that we need to put a price on carbon. The issue is, will that capture these other benefits, and at what point will it capture them? At $50 a tonne when we could get it right now? Are we going to impose a cost upon the rest of the economy of $50 a tonne in order to get these other benefits because of split incentives or because of bounded rationality or other issues there?

That's the challenge facing the policy-maker, "How can I pick up this other abatement?" It's not about purely doing it because of private benefit, but private benefit is an important component in evaluating the worthiness of the regulation.

PROF PEARS: Maybe just a couple of specifics. I was the developer really of the energy efficiency best-practice program, which I appreciated your compliments about in the report, so first of all, a minor factual issue which I think is important is that in the reference in the draft report to the EEBP, you mention a 36 per cent saving potential being identified for Barrett Burston, a malting company, and 12 per cent savings being achieved. It's very important to recognise they're actually quite different from the way it might be read. Firstly, the 36 per cent saving that was identified was for a proposed new plant. The 12 per cent saving was actually the savings they achieved in the first 12 months by applying the cultural change and the technical lessons that they have learnt through that workshopping process to their existing plant.

DR BYRON: That's a very important distinction.

PROF PEARS: That's right. It's not that we said we'd get 36 per cent and actually got 12. The 36 was about a totally different situation, and in fact the 12 was the first year's outcome. There have been more savings, and the company has achieved an international award within its overall company.

Now, you keep saying, "What is it that stops these people?" I think this is where we have to recognise that we have a very dynamic situation in which people are really short of time and they are responding to what seems like a priority at the time. The reality is energy is very rarely a priority at the time when the decision would really matter. In the case of the first home buyer, they've never bought a house before. They are trying to get the finance together. They are trying to agree on the colours, on the granite benchtops. They are trying to deal with a very complex situation, and at the same time they have very little personal experience of what living in a good building is like. Within my own family, putting my parents into a passive solar house, in the first 18 months they reckoned the climate in the Dandenongs was milder than down in Melbourne. It was only as they got to see what other people living in the Dandenongs put up with that they realised there was something different here, and they saw their bills. So we have to accept that a lot of the energy efficiency issues are very subtle.

If we talk about industry, again we see the same kind of issue constantly. The number of engineers I've met trying to redefine the laws of physics is astounding. You might say there's something really wrong with engineering education in Australia, and I would. Take appliance energy labelling, which again I helped develop. The engineers in the Australian appliance industry were adamant that there was no more than 15 per cent savings potential. In the end I employed one of them,

who told me what he thought, and I said, "If you still think that in six months, I'll go with you." In six months he published a report that said, "There's at least 50 per cent savings for everyone, and here's how you can do it."

The point I'm making is that we are all bounded by our limited realities and our rationalities and the pressure and priorities that we're facing, and in that sense there are many energy efficiency opportunities that exist, but the dynamics of all of the situations that each of us is facing are working against it. If the price of energy tripled next week, that might get everyone focused and it would be fine, but I have not found an Australian government that is prepared to go on the record and say, "We'll double energy prices." So we have to work outside the boundaries of those things and recognise that when we go into a company - we find people who run boiler houses who have never actually worked out how to tell the production guys that they're keeping two boilers on stand-by costing a quarter of a million dollars a year because they never know when they're going to ask for steam. You could say that's an internal problem, but when we went into companies with the energy efficiency best-practice program, we didn't just find one or two examples of all of these things.

The whole point is that the whole way we're dealing with energy in our society is pervasively wrong. We have many industries that suffer from what Allen Consulting call "moral hazard", where essentially it's in their interests to get us to buy energy-wasteful equipment. How do we deal with that in a context of government policy? The kinds of measures which have evolved in Australia over the past 25 years are attempts to deal with the complexity of all of those things. None of those required policy responses are in fact based on an assumption that it's not cost-effective or it is cost-effective for individuals. They have largely looked at the public benefit. But the reality is when I go into houses, large industrial plants, small industrial plants, hot bread shops, all these places, I find lots of measures which are cost-effective for the private individuals.

PROF WOODS: But do they always take them up?

PROF PEARS: No.

PROF WOODS: There's the conundrum.

PROF PEARS: Let me say when we are very effective in our communication techniques and our workshopping processes and things like that, we get a lot of them taken up. I think the other important point to go beyond this is that the potential that's available this week is less than the potential that is available next month. Again, one of the barriers, if you like, that we face is technological change and our inability to kind of keep up with it.

To come back to a point that you were talking about earlier with the insulation people, the kinds of problems we face are that, for example, the research done by the Gas and Fuel Corporation was done by a public agency. Since energy market reform all of that has been cut out. The home energy advisory service program was run by government, and indeed was cut out in 1993 as part of the introduction of energy market reform. In academia, in CSIRO, we've again had lots of reform which has meant that academics go for where the easy funding for projects is. I can tell you, energy efficiency has not been in academia or in CSIRO or research organisations. So what's happened is we've had a pervasive process in our society where the capacity to do energy efficiency well has been undermined over a long period of time by the removal of the essential infrastructure. The regulatory processes that we're starting to put in place are starting to rebuild that infrastructure. We're actually starting to train people to understand building energy performance.

Now, both Terry Williamson and Tony Isaacs were students in architecture at Melbourne University in the 70s, when indeed some world leaders were running building energy education for architects in Australia. All of that went in the 80s and was never replaced. So to summarise, we're talking about a dynamic situation here, and we're talking, unfortunately, about a situation where the dynamics are such that individuals do have real trouble capturing private cost-effective benefit.

DR BYRON: Again, I don't think we disagree with that. What we're trying to figure out is why does it happen and what, if anything, can be done about it. Just to add to what you were saying. people in the meat industry, for example, say by the time they deal with OH and S and food safety, which are absolutely life and death issues - - -

MR SZENTAL: Because they're mandatory, that's also true.

DR BYRON: Yes. Energy efficiency is so far down on the radar that it's something that they get to do between, you know, 3 o'clock and 4 o'clock in the morning if they're still awake and that as a percentage of the total expenditures of the business, it is so small that it simply doesn't warrant getting up on their priority list.

PROF WOODS: But the other point they make is that despite all that, they do invest in it, don't they? You know, a number of them - - -

MR SZENTAL: Because it is cost-effective, and look, one of the comments I use - - -

PROF WOODS: And they're also environmentally conscious and want to be good citizens.

MR SZENTAL: Yes.

MR EDIS: Let's not lose track of the fact that - - -

MR SZENTAL: Most people are in there for the profit.

MR EDIS: Okay. This is where you and I, I suppose, or us - BCSC and yourselves - disagree. You would say those people are economising in light of all of their inputs including their time, their staff time. Now, let's take the household sector, okay? It's a simple example there, or the residential sector. When they build a house, it's a critical opportunity for achieving a number of efficiency gains for a certain amount of capital expenditure, okay? Now, they don't understand, nor do they want to particularly understand low-voltage halogens, downlights and their transformers that go with them and the relative efficiency of different transformers.

So a labelling scheme, maybe it might deal with it; maybe it won't. But we certainly can't expect them to become experts on lighting solutions and we can't expect them to be experts on thermal loads, these sorts of things. So you say, well, actually this is an opportunity for the government to put in place a level of regulation that we can be reasonably confident will be in the private benefit of the householder and at the same time though, importantly, will achieve greenhouse emissions and we can do that, being confident that they will also get a house that they're very, very comfortable with that will meet their needs, will look and feel the way they would like it to feel. That's where there's an opportunity to intervene cost-effectively. It's not about saying, "It's all too difficult and these people have to spend copious amounts of time understanding energy efficiency." That's not what we're arguing for.

That's where there is an opportunity there for regulation, but also an opportunity we think for altering incentive structures through some mechanism; NEET, the National Energy Target, is one that's been put forward. I'm sure there's a lot of others we could probably imagine, where we would see that total lifetime cost in the up-front cost of the appliance. That may be some kind of energy savings fund that New South Wales are doing or their greenhouse benchmark scheme, for example, allows people to get a reward for the energy efficiency in the house, and people would start seeing the lifetime benefits of energy efficiency in the up-front cost and then it's not a matter of them learning or understanding energy efficiency. That's up to the equipment supplier to work that out. That's up to their builder to work that out and they have an incentive and it's their core business, and then they will actually sit there and worry about it and that's the next step.

I think this report, unfortunately, perhaps by not canvassing some of the alternatives to an energy target or perhaps only seeing the disadvantages has thrown not only NFEE 1 but NFEE 2 on its head and we think that's a really disappointing outcome that's come out of this report, because that was where we were going to go to next and now we've found ourselves spending copious amounts of time defending

the NFEE stage 1 measures.

MR SZENTAL: Small steps forward. Can I just make one comment on what Neil said and I think that's really the debate, that Neil pointed out a number of issues that face small business and why they do a lot of other things, other than energy efficiency, even though there is a demonstrated private benefit for it. You said it was cost-effective but OH and S et cetera, et cetera, and the argument that was then run was that therefore it's not cost-effective because there's limited time and so on. I think that that's the conclusion that I would challenge, that it has nothing to do with whether it's cost-effective. It's to do with all the other things that are going on in that business, and that really should be the focus I would like to think of this inquiry and maybe to go back to the white paper. The government in setting it up says that:

> The Productivity Commission will be established to provide further information on the potential benefits of and policy to achieve improved energy efficiency. The potential economic and environmental gains from increasing the uptake of commercial energy efficiency opportunities warrant a high-priority response from government.

If that's the context in which we are dealing with this report, then I think all the reasons that those small businesses that you've identified - that's what we should be dealing with in how we address those, and things like information disclosure, whether it be on buildings or appliances, I just can't see how we could be arguing against it.

DR BYRON: I suspect that there are probably very capable people in other areas who could go to one of these small businesses and say, "I can reduce your costs by 15 per cent by improving your human resources management, by improving your financial capital" - you know, having all that money sitting in a non-interest paying cheque account or something. I suspect that, you know, there are people who don't optimise on a whole raft of different aspects of their business. Now, one of the things that has concerned us is why should the government intervene to require businesses in particular to optimise on their energy efficiency but not on their labour efficiency, their capital efficiency or their anything efficiency. Now, the answer to that, that I can come up with, is because of the greenhouse interest.

MR EDIS: Correct.

MR SZENTAL: There's a second one and that's the cost of infrastructure. If we have inefficient airconditioners, as we do today, who's going to build the power stations to drive them for 80 hours a year? That's a serious issue that's facing government and us as a society.

MR EDIS: We can do it through cross-reflective pricing but that might be too late

and then they subsequently regret their airconditioner. I think cost-reflective pricing it terribly important because I think it would actually make the RISs look a lot better as well.

MR BRAZZALE: But, commissioner, isn't this exactly the point, that regardless of why you would implement a government measure or a regulation, and whether it's greenhouse or security or any other reason - I take it that's not an issue here - the question you've got to consider is: is it cost-effective to do so? Are there private benefits? You've said effectively there aren't any or you're not convinced there are any, I think, and what is actually the position the commission has taken on this? Forget about whether the government regulation is warranted for other reasons, it's about the private benefits or otherwise, the private benefits of a particular regulation. Are you saying you can't make the case for regulations because of the consumer sovereignty but you might be able to for other reasons, but it's the private benefits?

DR BYRON: In many cases the private benefits that have been documented to us appear to be surprisingly small. Now, that I find personally counter-intuitive.

MR BRAZZALE: Many or some, or of what?

DR BYRON: Well, it varies. I mean, some of the MEPS, for example, particularly with things like freezers and fridges, we think that's a good idea and we've said so in the report, have no problem with that. Where we do start to have - - -

MR EDIS: Could you say it a little bit clearer, please? It didn't come across with airconditioners.

PROF WOODS: You'd like the bold bits of the - - -

DR BYRON: You might have heard me say this to almost everybody else, that if you think about energy efficiency outcomes depending on both, the design and construction and the hardware, the device, whether the device is a house or a car or a lift motor or a washing machine or whatever, there's some things that depend on how it's designed and built and installed, and there are some things that depend on user behaviour. Even though they're very well designed and energy efficient, if badly used, if you run the aircon with the windows wide open or whatever, you can get a lousy outcome.

Now, it seems to me that an awful lot of effort over the last 20 years has gone into specifying the hardware, the design, the construction, the type of motor that can be - you know, those sorts of engineering technical things, and it does seem to me still, in spite of what Terry Isaacs said, that there has been far less effort gone into the human behaviour, the operator, how the device is used. So when we talk to AEMA, they say, "Look, for fridges and freezers which are basically set, forget devices."

You know, the MEPS - that's terrific. When you get to things which have a very high user-operator discretionary thing, which might be washing machines and dishwashers, or cars for that matter, the MEPS are not as suitable.

MR EDIS: Washing machines and dishwashers don't have MEPS in Australia though, and you have to recognise that.

DR BYRON: Yes, but that's - - -

PROF WOODS: Exactly that point.

DR BYRON: - - - precisely the reason, yes, and nor do cars.

MR BRAZZALE: I'm not sure if that's because of those reasons.

DR BYRON: No, but that's the point. You've got a whole spectrum of different types of appliances from those where, if you get the design and construction of the device right, it will give you great outcomes because they're almost user-proof, all the way through to other things where so much of the outcome depends on what's between the ears of the operator, and you can't regulate that the way you can regulate the design of the hardware.

PROF PEARS: Yes, the two areas are actually intertwined in very complex ways.

DR BYRON: And it's certainly not either/or.

PROF PEARS: Yes, because, for example, my energy efficient house has a heating system that's two and a half kilowatts' capacity. So even if I left all the doors and windows open, the heater could not waste more than two and a half kilowatts instead of 20 kilowatts in a centrally heated house. So likewise, if I leave my compact fluorescent light on all night, then I have captured savings, so that part of the logic - and this is where we come back to the dynamics of government intervention - is that government is actually being pushed to do the really conservative, absolutely safe, guaranteed kinds of things because we can't win arguments on the other things.

I can tell you, I would love to have the kind of budget the Transport Accident Commission has been able to spend on car safety or some of the health program budgets, because we could have really done some good things. But the fact is, we've never been strong enough in government to get the kinds of resources to do really serious behaviour modification. But the other factor is that one of the big messages from the successful behaviour modification programs is not only do you spend a lot of money but you keep doing them over a very long period of time.

We have never had that kind of consistent commitment from governments to

doing any of these kinds of things. So I think part of the problem and part of the lack of effectiveness of these programs has been, you know, you get a burst of 10 advertisements on the TV and everyone is really excited about the big initiative we've taken. But when it has been going for 10 years consistently and strongly with very good market research to target and enhance the effectiveness and all of that, then we will be in a position to judge whether we've been able to influence the behaviour of people.

But, you know, at the moment we have spent quite a lot of money when it's all added up. We have put in a lot of effort and I ran an energy information centre in Melbourne for three years myself. But in relative terms it has been tiny and given the challenge from - for example, let's take the rhetoric that was around about energy market reform through the 90s. There was a massive campaign through Business Review Weekly, the Financial Review, everything, telling everyone that energy prices were going to fall through the floor; there was no need to worry. Now, that has been a massively powerful signal to many, many people and we're still coming out of that now.

DR BYRON: Again I think we're in agreement that it's very hard to change outcomes when you've got regulatory measures, you've got information or SEAV measures and you've got price signals. Now, what's happening at the moment is we're going flat out on the regulatory measures. We're doing some things on the information side and the price signal is actually giving users the opposite message.

MR SZENTAL: We would encourage you to push price signals in the same direction; we agree with you.

MR BRAZZALE: Commissioner, the bottom line though is you have recommended to cease work on MEPS, whether it's regulated minimum energy performance centres on buildings and appliances basically, but this is coming out of NFEE stage 1, and I can only assume you believe it's not cost-effective. How have you come up with that? I mean, all you've done is quote - as Tristan said, you've raised some issues about some assumptions, sure, but there hasn't been any balanced detailed assessment as to what are some of the flip-side conservative assumptions that have made, and you've relied extensively on Williamson and Sutherland. Again, that's the core issue for us.

DR BYRON: Well, I don't think we've relied on Williamson very much at all. I think you'll also find that he's not by any means a voice in the wilderness; that there are probably at least a dozen submissions that are making the same point as him about the real or perceived deficiencies in ex ante energy load simulation ratings.

PROF PEARS: That's actually not the point really. I mean, taking another one of the submissions that you referred to in the draft report, the work by Paul Bannister

from Exergy, my understanding of Paul's intent, based on discussion too, is that what he was really saying was that just regulating at the point of design is necessary but insufficient to guarantee actual outcomes in terms of savings that are in the hand of an individual.

DR BYRON: Sorry, would we all agree on that?

PROF PEARS: I don't know.

MR SZENTAL: It's certainly not sufficient. It's an essential stat, but not - we all agree that you need a suite of process here.

DR BYRON: Okay, sorry, carry on.

PROF PEARS: That's the point then, to say in that sense - I mean, Paul is someone who has been heavily involved with the Australian Building Greenhouse Rating Scheme, which I did the original concept for. It focuses very much on real outcomes and has been very effective. So there's evidence there that if we can increase the level of accountability of all of the players in the whole process, we have greater confidence of tangible outcomes that will be cost-effective for individuals.

Now, that's where, for example, the energy disclosure concept could be seen as very important, because if I as a developer and I as the first buyer of a building am conscious that I will be held to account when I try to sell the building in the future, there is at least the beginnings of some pressure on these people to start falling into line and responding. So you can build up an overall package that does provide pressures at a number of key points and can deliver outcomes.

To just step back though, one of the things that seems to me to be very important in a broad sense here is that the point Ric made in a sense is that you've got an inquiry here which is focusing on private benefit, and yet you have made recommendations about deferring a number of measures which have been decided upon by government based on total public benefit. I think my concern would be - - -

MR EDIS: Total net benefit including private benefit - - -

PROF PEARS: - - - that that is an inappropriate recommendation for this inquiry to make. If you are focused on the private benefit then it's really important that you should not make recommendations about things which have been decided on a broader benefit. It seems to me that it may be appropriate for you to recommend key issues that should be properly considered in coming to those things but that it should be, you know, that it's beyond your terms of reference to recommend on that.

DR BYRON: Okay, got that point. We'll certainly have a close look at that,

thanks.

MR SZENTAL: You mentioned behaviour change before, and I'll give you an example that perhaps maybe brings this together. Lighting: we all say that you should switch off the lights when we leave an area - work. It's considered to be, or had been considered for a long time, one of the behavioural changes at no cost that we can make efficiency savings. But if there's one switch for the whole floor, you can't do that, and that's why overseas we have mandatory rules on the number of lights controlled per switch and that it switch within the areas, so that it provides the occupant with the ability to control it. I guess that without having the mandatory requirement, you're never going to get the behavioural changes.

DR BYRON: That's a good point.

MR EDIS: Yes, I mean, this is the thing. When we're looking at electrical appliances and they wanted to deal with stand-by, the equipment manufacturer said, "I just tell them to turn it off at the switch," but people use their remote control.

PROF WOODS: Absolutely.

MR EDIS: They don't want to go up there and turn it off.

PROF WOODS: That's the whole point of the remote, isn't it?

MR EDIS: So you see me going, "How do we deal with this?" Do we deal with it through a $20 million advertising campaign that may or may not change behaviour or do we regulate, based upon an evaluation of cost-effectiveness, subjected to stakeholder input, including equipment manufacturers, so they can input and say, "I think that's a pile of crap," or, "I think it's true," and also the public themselves, they can be open to this and say, "We'll actually regulate stand-by power consumption based upon an evaluation of what we think the relative cost is to achieve that versus what the benefit is going to be." That's the issue there that not so much regulators but policy analysts have been looking at and saying, "Do we do it through behaviour or do we do it through other measures?" I think that's where MEPS have some benefits, but then there's proper sizing of airconditioners, proper sizing of central heating, proper sizing and utilisation of electric motors. These areas are areas where we're approaching perhaps limits sometimes.

PROF WOODS: Yes, we've had a very good submission from the electrical manufacturers. Their point again is that you do a fridge and it's almost user-proof and you can put in a MEPS, but with airconditioners they're having real problems, because the time frame in which this is being negotiated is a lot less than they need to be able to work through where and what is an appropriate standard. Because airconditioners are much more complex and you have variations in your start-up and

your inverters and the like, they're saying, "Hang on, this isn't just a fridge that's on and stays on, this is a much more complex piece of machinery."

MR EDIS: Yes, but there's also been a lot of detailed study on that in other nations.

PROF WOODS: But the electrical manufacturers aren't blanket opposed to MEPS.

MR EDIS: No, and they said don't delay NFEE 1.

PROF WOODS: They're also saying though that when you're doing something like airconditioners, "Let's do it in a much more considered than evidence based way than is being done at the moment."

MR SZENTAL: And we'd agree with that, I'm sure.

PROF PEARS: Except that energy labelling of airconditioners has now been running in Australia I think for 15 years, and one of the questions that must be asked every time in a situation like this is, "How long do people really need?" Some of these issues come up about building codes too. The fact is, as was in the BCSE submission, these things were government policy in 1979 in Victoria. How long does it take an industry to respond? The answer is several years after they think you're really serious.

MR EDIS: The other issue is that those airconditioner RISs didn't take into account what the true cost is of the energy use of those airconditioners, and if they'd done that, I think the cost benefit would look even stronger than it looks right now. Then we'd have to say, "Heck, guys, you're going to have a lot of effort to prove why we shouldn't go ahead with this."

MR SZENTAL: If I could just make one closing statement. That is, I'd like to reiterate the point that Alan made, because that's probably at the heart of our concerns. Energy efficiency has moved forward very slowly in this country. It is in our national interest, both from energy supply, from competitors, international competitors and so on, but governments have made decisions based on both public and private benefit in terms of the MCE process, NFEE part 1 and moving NFEE part 2. To recommend that those be wound back based on some opinions on the private benefit, which I think we have had some disagreement about, we were really very, very concerned about. If there's one message we could pass on, please, that is the issue that concerns us the most.

PROF WOODS: That's very helpful. Can I just add before we do close off, although we were discussing BCSE's submission, we had read your other ones and we picked up your point on the 12 and 36 and things that you had in there and the other one - - -

DR BYRON: I've got just two hopefully short points. Coming back to stand-by power on devices, I think in the submission that you say, "Detailed study found stand-by power comprised almost 12 per cent of residential sector electricity." The graph that we used, the pie chart in the draft report, said something like household electronics is only about 4 per cent. Is there something wrong with the graph or - - -

PROF PEARS: Sorry, 4 per cent of what?

DR BYRON: Yes, that's a - - -

PROF PEARS: 4 per cent of household energy, yes, because this is electricity, and if you take into account gas and other fuels where the combustion losses occur on the customer side of the meter, the percentage of end-use energy that stand-by power is could well be 4 per cent of total energy. I'm not sure about that.

DR BYRON: Yes, okay. That sounds right.

PROF PEARS: Yes. So the 11.6 per cent in fact was an AGO study based on intrusive - delightful word - measurement of every piece of equipment within a substantial sample of houses and was pretty consistent with international findings.

DR BYRON: How much could that stand-by energy be reduced as a result of the MEPS?

PROF PEARS: 95 per cent. I mean, Philips have got chips that will do all the stand-by functions with a tenth of a watt instead of 10 watts or five watts. It's an absolute lay-down misere.

DR BYRON: Across all the TVs, VCRs and DVDs in the country, it adds up to a whole lot.

PROF PEARS: Yes. In fact, if you look at the data on, say, set-top boxes, which are a real emerging bomb, half of them are very low on stand-by power and half of them are very high. In fact, this is from the latest issue of Choice magazine, which the Greenhouse Office, to their credit, talked into providing some public information on stand-by power. But it's astounding, there's just a difference in functionality.

PROF WOODS: So at 3.00 in the morning my house doesn't have to glow like a nuclear power plant as it currently does?

PROF PEARS: Indeed.

PROF WOODS: That would be good.

DR BYRON: Sorry, last point. It refers to something we were told the other day about the installation. We were saying before that design is the obvious starting point towards getting things right and having it constructed properly and then having it used right, but there's a point in there somewhere that if equipment or material like insulation isn't properly installed, then again we're going to get lousy outcomes. Now, we've heard in other public hearings about insulation that's in the ceiling but it's all still in its wrapping piled up in the corner, or insulation where the batts have been ripped in half so you only need do half the number of batts to do the whole ceiling.

PROF WOODS: Or it's just around the electrical - - -

DR BYRON: Yes, or it's only around the power points in the wall.

PROF WOODS: Where the inspectors can see it.

DR BYRON: Yes. The point that was being made there is that the regulation and approvals process is designing very much of ex ante, what's in the plans, what we say is going to happen. But the people who used to go round and actually inspect that it really did happen have gone and there's a very small audit.

PROF PEARS: Victims of economic efficiency, I believe, yes.

DR BYRON: I was just wondering if you had any comments on the need for actual verification and audit that energy efficiency technology is delivered.

MR EDIS: We need greater enforcement, there's no doubt about it.

MR BRAZZALE: Can I make a suggestion. This is also part of the standards training and accreditation process too, particularly through energy efficient auditors, energy managers and the like. It's part of improving their trade, if you like. We run a standards training and accreditation process for designers and installers of PV systems, and it's taken a number of years to actually improve the standards and capability of that part of industry. Again, that's part of NFEE phase 1, looking at standards training and accreditation for energy service providers, and that would include people like plumbers, installers and the building trades too.

MR SZENTAL: And the second part is the mandatory disclosure of the performance of buildings. It's as you've said: if you don't measure it in practice, you'll never know. That is the only answer, and that is why we are so supportive and so distressed that that might be wound back, or there be a recommendation to wind it back. I've got to say one more thing: 95 per cent of the building stock is out there now. If we don't tackle that - - -

MR BRAZZALE: And that is part of NFEE phase 1 - mandatory disclosure of energy performance of buildings.

MR EDIS: But it needs to go beyond the ACT scheme, which is wholly inadequate, and we also believe that in commercial buildings the Australian Building Greenhouse Rating, which measure actual performance, not just design intent, is important, for that very reason that you talked about, about insulation being done properly and a number of other different energy efficiency measures. We think that is terribly important, and if you can put that in your report and emphasise the importance of that - actual performance, not just design intent - that would be tremendously important and, yes, there should be ex post evaluations.

PROF PEARS: That's how you find out whether that insulation batt was installed properly.

MR EDIS: Absolutely.

DR BYRON: We could go on all day, but thank you very much, gentlemen. It's been very informative. You've raised lots of points that we will fully consider.

PROF PEARS: Thank you.

DR BYRON: Thank you very much for the time and effort you've put into it.

DR BYRON: Thank you very much for coming. If you could each introduce yourself for the transcription and thank you very much for the written submission which we've read and enjoyed. If you'd like to summarise the main points then we'll discuss it.

MS CROUCH: Thank you. My name is Elizabeth Crouch. I'm HIA's national senior executive director of building services and planning.

MR EVANS: My name is Glenn Evans. I'm the national executive director for building services.

MS NECHWATAL: Janine Nechwatal, assistant director, environment and planning for the Victorian office.

DR BYRON: Thank you.

MS CROUCH: Thank you for the opportunity to address you on this important issue. We as an association have long had an affinity with the Productivity Commission, most recently of course with the inquiry into home ownership. I think many of the issues that were raised in the course of that inquiry are certainly revisited in a range of things like regulation of this sort of nature. So we're pleased to be able to talk to you about this issue.

HIA, as you know, is the peak residential building industry association. We have over 40,000 members nationally and they encompass the full spectrum of the industry, from the high-rise end of town right through to the small, detached home builder. Importantly, we have a significant number of manufacturers and suppliers within the industry who are also members. So many of the issues that we have concerns with or that we have raised issues in our submission are the result of discussions we've had, not only with the builders who are constructing housing but also with the manufacturers and suppliers who are supplying product. Our members build over 85 per cent of the housing stock in Australia. So we feel pretty well placed in terms of talking to you about these issues.

Can I say from the outset that we are very supportive of a range of the issues that you have already put forward in your draft report, particularly the moratorium on new energy efficiency. In the context of allowing for a full evaluation of those measures we accept the argument wholeheartedly that housing bears a disproportionate amount of the regulatory burden, and we'd add a rider to that in that government should focus on higher order greenhouse gas generators rather than particularly looking at the end user being the housing industry.

The need to examine the process that states and territories used, I'm from New South Wales and we have seen a rampant increase in energy regulation through

planning systems. 150-odd different councils in New South Wales who are all bent on, if you like - - -

MR WOODS: Outdoing each other.

MS CROUCH: Yes, outdoing one another and getting the environment crown, if you like. I think governments have been very successful in persuading the community about the importance of environmental measures and, clearly, as an industry we want to do our part and do our share on that front. It's one of the reasons we created an initiative called GreenSmart which we've referred to in our submission. But we recognise that there are several ways to do this and the trouble we've having is we've having a discussion about these sorts of measures at the household level without necessarily considering how housing is used on a day in and day out basis and without really considering how you might deal with some of the broader issues through better infrastructure expenditure and through better pricing mechanisms and so on.

We clearly support the Productivity Commission's view about reducing the scope for those local governments to erode uniformity or consistency of those sorts of regulations. From a manufacturer and supplier point of view, it's obviously extremely difficult to deal with energy efficiency measures if you've got eight different rules that dictate how your products are going to be handled or implemented or whatever. So as a manufacturing base that has obviously production and employment implications that are very serious for us. I might ask my colleague, Glenn Evans, to actually touch on a few of the key themes in our submission. Thank you.

MR EVANS: Thank you. Perhaps just to build on what has just been mentioned, the housing industry doesn't seek to evade its fair and reasonable contribution to the national effort on energy efficiency but it is of concern to the HIA that the impact of any unsubstantiated regulatory reforms potentially impact on housing affordability. As was just mentioned, governments thus far have really dealt with energy efficiency as a political populist issue and it's become a race that's been run on ideological grounds. So we've seen additional multiple layers of regulation which actually have had really little regard to any substantive evidence which would validate the benefit of that regulation.

The residential building industry is already a fairly highly regulated industry, and certainly energy efficiency regulations not only add significantly to that but also have an impact on the cost of housing. Housing prices are sensitive and the market responds very quickly to increasing costs. First home owners are especially vulnerable to rising material and construction costs stemming from new regulation. Housing does not generate significant greenhouse gas emissions and the sector accounts for only 1.6 per cent of total greenhouse gas emissions, which were AGO

figures.

However, it has been subject to disproportionate burden relating to energy efficiency requirements through a lack of focus on high-order greenhouse gas generators, as was mentioned earlier, an uncoordinated nature of energy regulation and confusion it creates for builders, manufacturers, suppliers and consumers, various numerous state and local government schemes which have not been validated on their benefit basis, pricing of energy which in many cases discourages efficiency measures, and the lack of public investment in infrastructure which would deliver more substantial environmental and economic gains. Focusing on shifting costs associated with energy efficiencies provided a bit of a smokescreen for governments to hide their lack of investment in public infrastructure, the result of which would have greater impact on reducing greenhouse gas emissions, both in terms of return on investment and in absolute terms.

Inconsistency in building regulations has a significant cost impost on the community which is forced to pay a premium to compensate for inefficiencies that multiple regulatory regimes produce. In order for the industry to cost-effectively transform regulatory requirements into built product mandatory requirements must be consistent across the range of regulatory regimes within which the industry operates. One recent example which actually occurred last week was the South Australian government's banning of electric hot-water services.

HIA supports Productivity Commission's draft recommendations, particularly that local government should not have a role in setting energy standards when they can be established through a nationally consistent approach, such as through the ABCN and the Building Code of Australia. It is not clear why the focus of energy efficiency for housing has been the building fabric, particularly as residential energy use is the key to achieving significant costs of energy efficiency gains. The HIA agrees with the observation by the Productivity Commission that building standards are not the most effective mechanism to address energy efficiency objectives.

HIA supports the comment by the Productivity Commission regarding the maintenance of the Building Code's deemed to satisfy approach in terms of designer approval of energy efficiency building solutions. This would minimise costs associated with the industry moving to an entirely IT based platform and being reliant on third party assessments which erode housing affordability and arguably contravene national competition principles, particularly if we move to the next scenario where potentially those people would be licensed or in some way regulated.

Governments should support and encourage industry incentives. We heard about the HIA GreenSmart program earlier but there's a range of other incentives out there that would provide for the market to move beyond minimum requirements, and this actually provides a bona fide opportunity for governments in terms of

consideration of non-regulatory alternatives. The principle of good regulation requires effective and efficient policy. Instruments need to be compatible with economic realities and new regulation must deliver a net public benefit. In conclusion I'll just pass over to my colleague Liz again who can perhaps close our remarks.

MS CROUCH: So I guess just to recap before we field some questions with you, it is clear that housing is a small contributor, an important contributor but a small contributor all the same, and there are probably better options to achieve the sorts of energy efficiency that the community at large demands. We believe those sorts of things can be better addressed through better infrastructure investment, particularly things like avoiding energy transmission leakage, a whole range of other things where we're losing a significant amount of energy efficiency through the course of our transmission; better pricing structures so that we deal with the issue of how people use energy rather than necessarily focusing on the building fabric; focusing, as I said, on how people live.

Consistency is critical for us, from a manufacturer and supplier point of view and from the industry, more generally. I might add here that for people in regional Australia, these sorts of regulatory changes are often very difficult to deal with, and when you move to a system that is an IT based system and that requires some sort of third party assessment and so on, it's extremely difficult for those people in regional Australia to actually cope with that. We've already seen evidence of that with the introduction in New South Wales of the government's BASIX systems where there are significant delays, and from an economic point of view, housing and the housing industry are such an important economic contributor that any sort of delay or any frustration or barriers that are put in the path of the industry have significant effects on employment and the manufacturer and supplier sector and the retail sector and a whole range of other things that hang off the industry. So I don't need to obviously advise you that in regional New South Wales that's a particularly damaging impact when you have these sorts of things that cause people a delay in the production line.

Clearly, we support the view that there needs to be quantifiable analysis to substantiate that the costs of these sort of regulations outweigh the benefits, and if they don't, we need to be looking for some alternatives. We need to have more rigorous scientific and economic analysis and debate on these issues and try and avoid or get around this issue of people competing to be the best on energy regulation or the best on sustainability and so on.

Costs need to be justified against the benefits. If they don't, we will continue to see an erosion of affordability, and that is something that, as I said in the earlier Productivity Commission hearings on these issues, I don't need to go back over the sort of concerns we have on that front. If we don't deal with the affordability issue, then we're going to face a generation of people who cannot afford to get into their

home, and that has a broader series of social implications. We'll probably leave it at that and be happy to field any questions from you.

DR BYRON: Thank you very much. Well, can I pause here; some people have told us that the Building Code law should continue down the current path of increasingly more stringent standards because if they don't do that, local and state governments are going to off and do their own thing and pose their own divergent standards, probably without RIS requirements et cetera, and that undermines the whole national consistency point of view. I guess this is what you were talking about, the race to be the greenest local government in Australia et cetera. Assuming that you think this is a problem, any suggestions on how it should be handled?

MS CROUCH: I think there's a clearly a role and we're very supportive of the Building Code having that function of ensuring national consistency and so on. There are certainly going to be regional variations that come into play, obviously, when you're dealing with energy, different issues in Queensland versus issues in Thredbo or wherever it happens to be.

DR BYRON: But the code has got those eight climate examples.

MS CROUCH: The code has got those eight climate zones. So it picks up those sorts of things. The fundamental principle, I suppose, with the building - we need to justify whatever regulation we're imposing in this sort of area. So it doesn't matter whether it's the Building Code or whatever vehicle you use to get there; we've got to have a solid cost-benefit analysis to say, "Is this a justifiable piece of regulation? Is there an alternative way to do it?" I think that's a really critical issue with whatever we do. I think the other issue with the Building Code of Australia - and Glenn might want to comment - is that it has suffered in the past from its speed to market. So what we've seen is that local governments, again in their haste to appease a lobby that's now increasingly putting pressure at the local level, they've pursued their own because the BCA is going to take 12 months or 18 months to actually come forward with what is a sensible piece of energy regulation. So we have to deal with the structural problems that the BCA has had in speed of market - and in maintaining those sorts of - the relevance of those sorts of regulatory measures, but that has to be underpinned by a solid cost-effective analysis.

DR BYRON: Yes, which brings me to the question of costs because on page 60 of the submission you talk about the survey showing that the Victorian five-star requirement raised building costs by about 12,000 on a typical $250,000 home and compared with the estimate of how much the commission thought it was going to cost - 5 and a half, yes. I think only a few minutes ago we were told that the actual cost was less than half of that 5600. So we're obviously getting diverging views on how much it does cost.

MS CROUCH: Yes.

DR BYRON: So anything more on that and particularly the point that you made there about the difference in impact on regional areas. Would we be right in thinking that the cost to meet the new five-star standard is probably a hell of a lot higher if you're in the north-east or north-west, whatever it is in Melbourne?

MS CROUCH: That's right.

PROF WOODS: Yes. You talk about surveys, so if some of it can be put into public form - - -

MS CROUCH: Certainly. We'd be happy to provide you with some supplementary information.

PROF WOODS: Yes. I mean, we've had evidence from organisations that are also involved in your industry in relation to Queensland.

MS CROUCH: Yes, thank you.

PROF WOODS: But that would be helpful for me, so - - -

MS CROUCH: We will be happy to get that through to you.

PROF WOODS: Yes. Do you want to comment on the Victorian example?

MR EVANS: Just to suggest that the Victorian example was an example that was undertaken some time ago in relation to their five-star legislation or five-star regulation and this has been an involving issue in many respects. Back in that stage there was a level of uncertainty. But certainly we can get you a copy of the element of the survey which talks about costs.

DR BYRON: Because this applies to a whole lot of other things, even down to MEPS for appliances and so on.

MS CROUCH: Yes.

DR BYRON: But there seems to be a lot of literature which says that the regulator thought that it was going to cost X, industry complaining it was going to cost 2X, and when it actually came in, the real cost was only half X, but that's because the people in the industry were so innovative and creative that they found smarter ways of delivering that threshold that the bureaucrats hadn't anticipated. So could that sort of thing be going on too?

MS CROUCH: I think there's no question that there needs to be the maximum opportunity for the industry to innovate and that's why you should always be more performance based rather than proscriptive in your regulation as such. So that's a principle that we support generally. I guess the issue is, it's the first point I made about: are the regulations really justified on the basis of its costs and benefits? If yes, then how do you deliver it? You deliver it in the most innovative way that you possibly can. If it's not - and I'll give you an example, just not particularly on energy but on water in Sydney.

The government with its BASIX legislation said that BASIX compliance would cost the average household about $8000. Now we, as we always do with these sorts of things, ran through several examples, different types of housing, different situations. The only way that you can possibly get to that sort of money is if you handle your water at an estate level. So you're doing reticulation systems, you're doing all that sort of stuff there. As soon as you start to talk about the individual household who might be a one-off house, you're up to 25 and 30 thousand dollars because you have to put your tank underground and you have to plumb things in and so on.

So you've got to compare apples and apples in these sorts of things and I think that's probably pretty much the case in this situation, that we need to be very clear that if you've got a clean slate and you can do some of these things at the estate level, that is a far better solution. Energy is harder of course and I guess the fundamental point we keep coming back to is: what proportion of energy usage is really housing related? A very small proportion compared to some other big parts of the economy that are far more inefficient. We need to deal with those issues and look certainly at how we can continue to improve housing, and product development I think has improved quite dramatically.

But that does not address how people use their home, how often you leave your lights on, whether or not you're going to be running your pool or whatever it happens to be. That's where you need pricing signals to deal with those sorts of things about how people actually use energy in a home. Your building fabric is only going to take you so far and not very far, compared to your day in and day out usage.

DR BYRON: I think that's where we were headed to.

MS CROUCH: Okay. Sorry, you wanted a comment a bit more on the regional stuff. You're absolutely right. The regional parts of the industry struggle to cope with this sort of regulatory burden for a number of reasons. One is that generally their products aren't always as readily available so they don't have the range of choice or the availability. So you might get local government, for example, specifying a type of energy regulation requirement and you can't actually either physically build it or you can't source the material to construct it in that fashion.

The second issue, as I said, is the issue to do with IT based systems, in many cases the lack of broadband coverage and other sorts of things that might allow people to readily plug a whole bunch of numbers in and get their house design assessed and so on. The third aspect of course is the availability of these assessors. Glenn referred earlier to the market that will be created around those sorts of assessors and the sorts of function that they will perform. So you have a range of broader issues for regional Australia which I think in many cases get lost when we're talking about regulation that's a bit easier to apply, some people perceive, in a metropolitan area.

PROF WOODS: So if you're in Wilcannia you don't have immediate access to them.

MS CROUCH: No, so you have to rely on somebody and that's where your costs start to - - -

PROF WOODS: Or pay the transport costs and - - -

MS CROUCH: Or pay the transport costs.

PROF WOODS: - - - bring out the IT person. You've got to put them up for the night and all the rest of it.

MS CROUCH: That's right, and in many cases you may not have the IT firepower in your own sort of situation to be able to cope with some of these. Again I'm using the BASIX system in New South Wales. It's about to roll out to regional New South Wales and we had a whole bunch of regional builders run through models and it just kept crashing. So it's impossible for them to get a score out as a result of sort of not having that IT firepower to cope with it.

DR BYRON: That's funny. It crashed every time I tried to use it too.

MS CROUCH: Absolutely, yes. So it's just one of those - we're making it progressively harder for people to do business. Their compliance costs are already heavy and the reality is, some of these sorts of things really obviate people's choice. If you're a home owner you want to be able to choose the house you want to choose and obviously meet what you need to in an environmental sense. But some of these software products just dictate that you're having this type of thing without perhaps - - -

PROF WOODS: And if your view happens to be south, you're in real trouble.

MS CROUCH: You're in real trouble. If you've got a south-facing apartment,

you're in real trouble.

DR BYRON: Well, you've opened off with how residential housing represents only a tiny percentage of the total Australian energy consumption and you've got the 1.6 per cent of greenhouse emissions. Have you got any more specific information you could share with us on impacts or not just the amounts but the potential savings, because I'm getting the impression that when we get into the real minutiae of both the design and construction of houses and the specifications of appliance that go in them, we're almost down to the sort of rearranging deckchairs on the Titanic point.

MS CROUCH: We are.

DR BYRON: I would love to be able to compare the total energy savings through pushing through the reforms in the Building Code or five-star in Victoria or something, with what would happen if we closed down a marginal aluminium smelter or something.

MS CROUCH: We've done a lot of those sorts of exercises. It's a very marginal impact, you're absolutely right, and I mean, I guess we looked at it in the context too of how often people turn over their homes and all of these sorts of things, and would you ever realise the return, and the reality is, you wouldn't.

DR BYRON: I didn't.

MS CROUCH: Well, that's right. It's such a marginal impact. We're playing around the edges and as a community, if we're serious about energy efficiency and energy regulation, then we'll deal with it on a much broader basis which is exactly what we need to do. We need to have a look at generation, transmission, the high-end users, the pricing structures; all of those sorts of things are part of a broader mix of energy regulation. But the easy target is housing; you can't hide housing and you can't move it, and it has become a very easy target for regulation and people feel good about that. But it's costing the home owner a huge amount of money for very minimal gain.

DR BYRON: My follow-up question was going to be why do you think the housing sector has been "picked on", particularly by local governments, and I guess you're saying that it's simply easy.

MS CROUCH: Easy target, yes. It's an easy target and it's a target not only for this type of regulation but also for increasing levels of taxation, which again - and your earlier inquiry on home ownership identified a lot of those sorts of things. So I think local governments have realised that in many cases they can legislate and have power to sort of either tax people on these sorts of things or get levies or contributions for sustainability measures. I mean, again I keep using the New South Wales example

because they're probably at the far end of a lot this sort of stuff at the moment.

There are new transport levies and other sorts of levies that now apply on housing that are over $65,000 per lot on just a transport level and that's just a symptom of a whole range of these sorts of things that are being levied on housing to pay for either water or energy or whatever it happens to be, and the average home owner, I suspect, wouldn't have any idea that they're wearing that sort of cost within their house and land package. You have to ask yourself a question: is this the best way to do it, and I'd have to say no, it isn't. I mean, anybody in their economic right mind would do the costs and benefits and say it just doesn't add up, but it is an easy target. That's it. We will be happy to provide you with some additional information along those lines.

PROF WOODS: Yes, that would be good; I think you can only just have so much heated agreement.

MS CROUCH: Yes, indeed.

DR BYRON: Well, it's a nice change and I'm going to bask in it. I think I've exhausted my list of questions.

MS CROUCH: All right.

DR BYRON: Thank you very much for coming and for the submission and for the feedback.

MS CROUCH: Thank you.

MR EVANS: Thanks for the opportunity.

MS CROUCH: Thank you for your time, we appreciate it.

DR BYRON: Thank you. I said this morning that at the end of the day's advertised proceedings, I'd say if anybody in the room wanted to come forward to put a point of view, observation, evidence on the transcript, they would have an opportunity. Now is it. There will be another opportunity tomorrow afternoon for those present, but in the absence of that, I'd adjourn the proceedings and we will resume tomorrow morning at 9.00. Thank you very much, ladies and gentlemen.

AT 3.56 PM THE INQUIRY WAS ADJOURNED UNTIL
TUESDAY, 7 JUNE 2005

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