



**TRANSCRIPT
OF PROCEEDINGS**

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PRODUCTIVITY COMMISSION

DRAFT REPORT ON ENERGY EFFICIENCY

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

TRANSCRIPT OF PROCEEDINGS

AT CANBERRA ON FRIDAY, 3 JUNE 2005, AT 9.00 AM
Continued from 31/5/05 in Sydney

DR BYRON: Good morning, ladies and gentlemen. Welcome to the public hearings of the Productivity Commission's inquiry into improving energy efficiency following the release of the 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.

This inquiry began with a reference from the Australian government on 31 August last year, and covers the potential economic and environmental benefits offered by measures to enhance energy efficiency that are cost-effective for individual producers and consumers. I'd like to put on record how grateful we are to the many organisations and individuals who have already participated in this inquiry, through written submissions and through presentations at hearings like this one.

The purpose of the hearings is to facilitate public scrutiny of the commission's work, and to get comment, feedback on the draft report. We've already held hearings in Brisbane and Sydney on Monday and Tuesday this week, and next week we'll be holding hearings in Melbourne on Monday and Tuesday. We're then working towards completing a final report for government by the end of August, having considered all of the evidence presented at the hearings, and submissions, as well as other relevant information.

All 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 the completion of the inquiry. We do like to conduct all our public hearings in a reasonably informal manner, but we are taking a full transcript, and for this reason comments from the floor are not helpful. But at the end of the proceedings each day we always provide an opportunity for anybody who wants to come forward and make a brief statement on the record to do so, including people who have already presented that day, and want to make an additional statement; something they'd forgotten or a response to something they've heard from another speaker.

Participants are not required to take an oath, but they are required under the Productivity Commission Act to be truthful in their remarks. As I said, participants are quite welcome to comment on issues raised in other submissions or by other speakers here today. Transcripts will be available to participants for checking of the accuracy of transcription within a few days time, and then will be available on the commission's web site as soon as possible after that. Copies can also be purchased using an order form available from the staff here today. Submissions and transcripts will also be available on the web.

To comply with the requirements of the Commonwealth occupational health and safety legislation I have to draw your attention to the fire exits and evacuation

procedures and assembly points. In the event of an alarm being sounded there will be an announcement over the PA. We will be requested by the hotel management to wait for further instructions, then a manager will escort us out the fire exit door, which is just to the right out here, down the stairs, and the assembly point is out in front of the church across the road. The other important pieces of housekeeping information are that the toilets just out the door to the right, and I'd ask anybody to please turn their mobile phone off or to silent. That's the housekeeping.

DR BYRON: I'd now like to welcome Mr Wilhelm Harnisch, Mr Neil Evans and Mr Peter Jones from the Master Builders Association. Gentlemen, if you'd like to - you can come and sit at the table there, make yourself comfortable. The normal procedure is that, if you'd like to summarise the main points in your submission. We've both read it quite carefully. And then we'd like to have a bit of discussion about the points that you raised in the submission. Thank you very much for coming today, and for the submission. If you can each introduce yourself in your own voice so the transcript can pick out who is saying what later on.

MR HARNISCH: Wilhelm Harnisch, chief executive, Master Builders Australia.

MR EVANS: Neil Evans, national technical director, Master Builders Australia.

MR JONES: Peter Jones, chief economist, Master Builders Australia.

MR HARNISCH: Well, thank you, gentlemen, for the opportunity to be here today. Can I, just for the record note that we have tabled a more complete submission. We omitted the attachment to our submission, but we did put that attachment to a previous inquiry of the Productivity Commission, in the inquiry into the reform of - regulatory reform and inquiry into the Australian Building Code's - that Australian Building Code inquiry.

The key points that we've made in our submission is that we are very concerned in terms of - sorry. Our submission only relates to the aspects of building, not other aspects of the inquiry that's being conducted. In terms of building, we are concerned about the methodology and the rigour that's being taken currently by the Australian Buildings Codes Board in terms of the cost-benefit analysis relating to introduction of greater energy efficiencies for both commercial and residential buildings.

We've put in two case studies, or two examples, which illustrate how we believe there are deficiencies in the way the cost benefit analysis is being undertaken. We believe those methodologies should be better reviewed. We also believe it is perhaps a better role for the office of regulation review - not, in effect, that they are deficient now, but I think we believe they require greater powers and greater

resourcing to enable greater scrutiny of the reasons that are put in front of them. We believe that the examples that we have provided here today show that the methodology for measuring the cost-benefit analysis are slanted such to give a positive outcome. In other words, it minimises the costs and accentuates the benefits that come out of it.

We're also concerned in our submission that the methodology is static in nature, and not dynamic. What I mean by that is that it looks at it purely from a building in isolation, it doesn't look at how the building is actually used in terms of its occupancy. You may well have a so-called energy efficient building or a house, but if the occupants allow their children, for instance, to keep the doors open during winter time with the heaters full on then, while the house may be so-called energy efficient, the totality of energy use is considerably higher, and similarly, if someone chooses to have 10 showers a day using efficient hot water heating system, that also belies the sort of total energy efficiency that may be achieved in the whole exercise. So simply to look at the fabric of a building to test its energy efficiency, and therefore its contribution to any reduction in greenhouse gases, needs to be tempered by the dynamics of the usage of a building.

We're also concerned that energy regulations in terms of building maintained through a central body - and that's the Australian Buildings Codes Board - we are very concerned that an increasing number of local governments are seeking to bypass the national regulations that have been adopted by the states, and using their planning regulations to impose energy regulations on top of what's already been specified by the Building Code of Australia. We're concerned of the inequity that that introduces. We're also concerned that there's no accountability at the local government level for the introduction of those measures. So we're very concerned of the increasing tendency by local governments to bypass the Building Code of Australia to - and using their planning laws to introduce measures that are not necessarily proven in terms of their cost benefit, nor necessity in terms of producing any greater outcomes for the consumer.

We're also very much concerned about the impact of affordability; the whole debate about private cost versus public benefits. I think that needs to be demonstrated. What I think we'll need to look at is the - in terms of, say, the greenhouse gas issue - is the totality of the contributions that any reduction, say, relating to improved building technologies may lead to greenhouse gases, and may well be that there are other broader measures that could be taken that would have a greater impact in terms of reduction, in terms of the totality. So we're very concerned about imposing private costs, which means in terms of, say, housing a reduction in affordability, and the down side consequences of that in terms of locking either people out or putting them under financial stress.

We believe that there's a greater role for public education, rather than mandatory application of new energy provisions. We believe that there's still a role for the market to make a decision. Very much the case where people choose to buy perhaps a very frugal four-cylinder motor vehicle versus a gas-guzzling V8. I think the argument in terms of public interest hasn't been made in that regard. So they're the sort of opening comments, commissioners.

DR BYRON: Thank you very much. Do either of you other two gentlemen want to say anything at this stage, or you're just going to help answer questions?

MR EVANS: Just help answer questions.

DR BYRON: Right, thanks. Can I start with the question that you raised about the - in the role of local government, or as you put it in your submission, no role for local government. Your colleagues in Queensland at the hearing from Monday gave us an example of where, even before - the decision was being made at an even lower level than local government where there was a covenant on a certain development area, where the covenant specified things like, you know, all houses to be built on that new development must have a solar hot water system that had to be north facing, but it couldn't be seen from the road. So if you've got an east-west road there's a bit of a contradiction there. That the covenant actually specified what sort of appliances would have to be installed in the kitchen and the laundry of the houses on that.

So is there a possibility that that sort of covenant issue could even take it out of the hands of local government in the sense of putting additional demands in what the - on what the house must - how it must be constructed compared to what's in the building code?

MR HARNISCH: If I understand your question, is that in those circumstances the local government, through its planning and other covenants, are requiring an additional standard than what's required as a minimum to the building code.

The concern that we have is that of the mandatory nature of those requirements, and if you look at it in terms of public policy, what you're having is that in the shire next door, which could literally be across the street, you have home owners who are not required to have those mandatory provisions or technical requirements and, therefore, they are much lower in cost. One has to ask the question in terms of equity, what's the justification for requiring a much higher standard across the street and not on the other. And, secondly, the question is, does it really add anything in terms of the, if nothing else, the private amenity of the home owner who may not choose to have that otherwise.

PROF WOODS: Can I just pick up on that further. In fact the particular example

they were referring to in Queensland was not the local government planning requirement that a private developer subdivision covenant. So it was fourth tier.

MR HARNISCH: Okay.

PROF WOODS: Is that starting to become common? So somebody will identify an estate, and put a nice, you know, brick wall out the front and a plaque on the side and a couple of trees and a bit of grass, and create an estate of 50 blocks or something, but then apply an even more rigorous covenant on that development within a local government?

MR HARNISCH: Sorry. I understand what you're saying. Yes, I'm aware that those sorts of developments are occurring. It's - certainly, it's been the practice of the past that they do set, for instance, certain standards in terms of quality of the housing to ensure that, in terms of getting the appearance right for that estate, that at least the right mix of the quality of housing is maintained.

PROF WOODS: You might understand that for layout and - - -

MR HARNISCH: Yes.

PROF WOODS: - - - for front, you know, exterior claddings and general size, and those things. But when you start to then go into the house as to how it operates and what it does, is that becoming more common as well?

MR HARNISCH: Neil?

MR EVANS: Yes, I think it is. For many years we've had covenants that control size of homes, and the materials that had to be applied to the external cladding, and roof materials. But now they are seen to be getting built on, and more in-depth criteria is starting to get called up in these covenants, like energy efficiency.

PROF WOODS: Now, are those covenants approved by local government? Does the local government have a role to be able to override those? Or where does the legal tangle work its way through in this process?

MR EVANS: It might vary from state to state. I know local government in Victoria has a role in developing or approving covenants through the subdivision process and the planning process, and it was only recently in Victoria the state government approved legislation where you could actually vary a covenant if you applied to the council for a planning approval. But I don't think that applies right across Australia.

PROF WOODS: Okay.

MR HARNISCH: But I think the concern we would have is that in a private estate, and particularly where it's perhaps strata titled, I think we accept the fact that a developer may well place covenants on it voluntarily for marketing and good market reasons. But we would be concerned if those covenants were applied through the back door, where developers were encouraged, shall I say, by local governments to apply such covenants as a means of getting approval for the development.

PROF WOODS: Yes, "You would like approval of this estate," or "I can't quite read this bit into your covenant yet." Yes.

MR HARNISCH: Correct. And I think while, obviously, none of these - you'd have to say allegations - are proven we are aware that developers are pressured from time to time to incorporate certain features as a means of accelerating the development approval through council.

DR BYRON: Changing the subject slightly, I'm interested in the mismatch between, you know, the deem to satisfy measures in the building code that I've been told most builders generally use, and other ways of satisfying the building code through performance, and in computer simulation and so on. Is there any evidence that you're aware of that the - well, I'll go back. Are you aware that there is an issue about a difference in standards for compliance by the different routes? Does it matter? Are there differences between states? Some people have told us that the deem to satisfy may actually result in over - over-engineering or - that's not the right word - outcomes that are even higher than what would be required through the other routes. Sorry, that's - - -

MR EVANS: Yes, I understand - - -

DR BYRON: I can get what I'm trying to - - -

MR EVANS: Yes, I understand what you're saying. The building code set-up is basically performance based, and then it has a set of deem-to-satisfy provisions on just about everything; health, amenities, safety et cetera. The - and performance is generally used in the larger commercial projects, because they're more complex, and you can come out with a very cost effective outcome by using performance in larger commercial buildings. Whereas housing, performance is not usually required, and the builders generally for house just look at the recipe book on what they have to do as a minimum to meet their obligations.

However, under the new energy provisions these software packages do lend themselves to offering performance outcomes that could be very cost effective, and

give you a multitude of options, rather than just being locked into the standard A, B, C, D recipe-type structure. However, I think because of the complexities and the problems associated with dealing with all the proposed energy measures, the proposed deem-to-satisfy measures in the BCA are set very high to ensure that they meet the performance benchmark, and if more time and more work was done they would be able to be reduced to allow more cost effective deem-to-satisfy measures. It's being a little bit rough.

DR BYRON: But most small builders generally use the deem to satisfy, and if they do all the deem to satisfy they might end up exceeding, substantially exceeding the expected standard.

MR EVANS: That's right.

DR BYRON: Yes.

PROF WOODS: But presuming there's a trade off that you help your members through - I mean, if you're - if you're doing the one off architect-designed home, and you've got a client who's got a sizeable cheque book, then you'd do your performance measures to meet - to tailor to their individual situation. But if you're churning out hundreds of stock-standard homes presumably you just do the deem to satisfy, and get away - or is there - - -

MR EVANS: Not - - -

PROF WOODS: Is it a different trade off, if you're producing a lot of one, is it worth the investment to do the performance? But if you're doing only a few then you do your deem to satisfy. Where is that trade off in the industry?

MR EVANS: I think you'll find the larger more complex architectural-designed homes will use performance. The mass-produced homes will use performance, because the companies will be in a - - -

PROF WOODS: They can spread the overhead of that performance across - - -

MR EVANS: Yes, and because often they are competing on price they will use every inch of - to their advantage. The deem-to-satisfy measures would be more often used by the small to medium operators, especially in regional Australia, which they may not have a draftsman or architect or a designer in town that's got the software, or justify the purchase of the software and the training that goes with it. So they'll just stick with the recipe book.

PROF WOODS: So you've got to be able to somehow cover the cost of the

overheads of performance based, either through mass production or through, you know, high value one offs, in effect?

MR HARNISCH: Yes, that's true, and I think the point there is that, particularly for smaller bills, and in particular in regional Australia, the proposition is, in a sense is right, deem to satisfy may well be dearer. But when you look at all the other transactional costs in getting the performance based design through, it may well be that overall a deem to satisfy is cheaper for the builder.

PROF WOODS: Yes.

MR EVANS: I think we'd say we'd support both.

PROF WOODS: Yes.

MR EVANS: But at the moment the proposed deem-to-satisfy measures are way higher than what's needed, purely because of the time frames that are being tried. Well, the time frames that are being attempted to be met have lifted the bar a little bit to make sure the - - -

PROF WOODS: How do we quantify "way higher"? Is "way" 10 per cent? Is "way" 20 per cent? Is there - - -

MR EVANS: It's impossible to say.

MR HARNISCH: I think for some builders, they see deemed to satisfy as providing them with a safe harbour.

PROF WOODS: Yes. I understand that.

MR HARNISCH: There's some certainty, and for them they are still competitive in the marketplace, and so they're so-called happy with them. In fact when the whole debate was going on, when the BCA was moving towards the performance based, a lot of builders did say that they were keen on deemed-to-satisfy provisions because they were looking for certainty. They didn't want to invest in performance based designs. All they wanted to do was build, and if that was - deemed to satisfy provided that with that certainty, and that's what they were looking for.

PROF WOODS: Yes. If the recipe said "so much of this" then they'd put in so much of this at the minimum - - -

MR HARNISCH: Yes.

PROF WOODS: - - -and that met the standard.

DR BYRON: Are there differences between the costs of complying with the new proposed building code requirements between rural and metropolitan areas? Is it likely to be more expensive for a builder in a rural area to meet the new standard?

MR HARNISCH: Well, Neil will be more expert in this than me.

MR EVANS: Definitely. Particularly - some years ago I was working in Victoria, and when the five-star provisions came in down there, to get a double-glazed window unit to Mildura or somewhere in north-west Victoria was going to be considerably expensive, because I - there were no outlets or manufacturing plants in that area, so they had to be trucked in from Ballarat, Bendigo or Melbourne. And, yes, purely the costs of getting some of these proposed systems and materials to regional Australia would be quite expensive.

PROF WOODS: But presumably single glazing would still have to be trucked out there. So, I mean, it's only the weight of the extra unit.

MR EVANS: No, no, there was glazing plants in regional Victoria, but the cost to re-kit those plants - - -

PROF WOODS: Okay.

MR EVANS: - - - and they were so small, was going to probably force a lot of those people out of business.

MR HARNISCH: Simply don't have the capacity to upgrade to start tooling up for double glazing.

MR EVANS: Tooling up, yes.

PROF WOODS: Is that a transitional issue though, because presumably if all new construction has to meet this standard then, you know, there will be volume over time. So it's a transitional issue rather than a long-term structural issue?

MR EVANS: Yes, we've heard that one before.

PROF WOODS: No, that's a question, not a - - -

MR EVANS: Yes. Prices usually keep going up, and in our report or submission here we mention that situation about the costs of meeting five-star houses in Victoria, and what it is actually costing now.

PROF WOODS: Yes, the 13, 15-odd thousand.

MR HARNISCH: And I think you need to be mindful that, while the proposition you put is correct, the domestic market in Australia is still very small by world standards, and despite - - -

PROF WOODS: Small and diverse.

MR HARNISCH: Small and diverse, and geographically diverse.

DR BYRON: Yes, dispersed.

MR HARNISCH: It's - you cannot fully achieve economies of scales that perhaps you can in overseas countries where population is 10 times our size.

DR BYRON: Yes. Just on that survey that you mention in the submission about, you know, the five-star standard will raise costs by somewhere between 13 and 18 thousand, is there any chance you could give us any more documentation or detail behind that? The - your Queensland colleagues gave us some very sort of detailed attachment that explained how they'd worked out the additional cost for a North Queensland house. But if you could give us any elaboration on that it would be helpful.

MR EVANS: Yes, sure.

PROF WOODS: And it would be useful to do some metro where the volume is as well. I mean, they chose North Queensland, and that sort of gave a particular figure. But when questioned, "What does that actually mean for some of the corridors around Brisbane," the figures tumbled down quite significantly. So I'd - yes, I'm interested in the volume side as well as the high profile big end of the figures.

DR BYRON: The other area where it would be interesting if you could give us a bit more elaboration, that you mentioned in the submission on page 4 that - I think a remarkably small number of, "The currently proposal to amend the BCA to increase energy efficiency requirements for houses to five star would result in a 0.029 per cent reduction of Australia's total greenhouse gas emissions." That seems like a remarkably small number, and it raises the question, "Well, is it really worth all the effort?" I haven't had time yet to compare that number with what we've been told from other sources, but can you give us some more detail on that?

MR JONES: Perhaps I could answer that question. I was like you, interested to put in context just what the proposal might mean for reducing Australia's greenhouse gas

emissions. So, without the resources to do a detailed study, I did a bit of a back of the envelope job.

But I talked to the Greenhouse Office, Australian Greenhouse Office, and they confirmed that Australia was on target to meet its obligation, which I think is 108 per cent of 1990 levels, and that that would amount to, I think it's - I've got the figures there - but 536 million tonnes of CO₂ equivalent greenhouse gas emissions, then I just used the figures that were contained in that regulatory impact statement as to the reduction that would flow, reduction in greenhouse gas emissions that would stem from introducing the regulations and simply divided one by the other to see what would be the impact in the absence of the regulations, just to get some sort of feel, some sort of understanding of what it is we are attempting to achieve in terms of greenhouse gas emissions by introducing these complex regulations that, as Neil was saying, are the bar.

DR BYRON: Is that because the regulations are taking us, you know, from four and a half stars to five stars or something, and therefore it's a relatively small jump, or is it because that there are other much larger contributors to total greenhouse gas emissions? I mean, it's an interesting question of just how relevant is all the effort that's going into this in terms of bang for the buck, so to speak.

MR JONES: I can't answer that specifically. What I could do is to put it into context is to say that, yes, it is a relatively small incremental step, this particular regulation relating to housing. So that's why I guess you would call it minuscule. On the other hand, for commercial buildings, it's at the beginning of the process as I understand it - not the beginning, but at an earlier stage. And again, using the rudimentary back-of-the-envelope type approximations, I came up with a figure of .2 of 1 per cent. So perhaps that puts it into context.

Is that significant or not? I'm not sure, but it's a figure that puts it into context, shedding some light on just what could be achieved with the regulations, based on their own assumptions, of course, just in terms of the benefits of cost savings, to do with what - we've been labelling some criticism - is probably a more static approach than you would do if you were doing a more rigorous examination of the benefits.

MR HARNISCH: But I think the point we want to make is that we replicated essentially the methodology used by the AGO, then put our own numbers in there. What it does show is that it's worthy of further analyses, to test the underlying assumptions or that sort of - for the calculations. And in terms of what you're saying, obviously we're not capable of making a judgment whether this is - what other areas may perhaps give more significant reductions, but I think that should be the subject, we believe, of further investigations and certainly greater focus by this inquiry, that in fact by perhaps, for instance, looking at our transport system and fuel consumption

of motor vehicles and whatever else, that you may well be able to achieve far greater reductions, rather than focusing on moving from four star to five star in the residential building section.

DR BYRON: I guess some people would say that any change that could be made anywhere in any sector that results in lower emissions is worth pursuing, but I think you're right, that we probably have an obligation to attempt to rank them in some way, in terms of both effectiveness and cost effectiveness. Because there's a whole, you know, universe of possible measures out there and the obvious question is why pursue greater efficiency in housing design if the effect is actually very small.

MR HARNISCH: We would agree with that proposition, because that's our concern, is that obviously from five star you could go to 10 star, but going from five star to 10 star, what are the net benefits. And I would suspect - without having done the great calculations, my educated guess would be - it's like the frog jumping half the distance each time. The closer he comes to the finishing line, you know, he'll never get there. But the effort to get there is obviously considerably more.

PROF WOODS: Can I just come - have you finished on that bit? Coming back to one of your earlier propositions, and that is, you construct arguments that say the performance of the building fabric is one thing but the total performance of the household and their use of appliances and keeping the doors open when the heaters are going full belt et cetera, are very significant. And the answer is, yes, true, but I'm not sure that is sufficient to avoid a debate on the efficiency of the fabric in itself.

I mean, it's a nice construction of argument that everyone has to agree to, but I think it could almost obfuscate the points that we need to focus on in this particular component of our inquiry. And presumably people who are inefficient in their behaviour operating or living in a more energy efficient fabric will consume less energy than those who are operating or living in an inefficient one. As a generalisation, why not? So isn't energy efficiency of the building fabric worth pursuing up to a point of cost effectiveness in its own right, irrespective of the behaviour of the occupants?

MR HARNISCH: Yes, we certainly agree with the proposition.

PROF WOODS: It just doesn't put it in hold too often.

MR HARNISCH: But what we're saying and what we're questioning is that the justification and the methodology used for increasing the rating, in this case from four star to five star, our belief, in terms of the calculations we've done and being involved in terms of the assumptions that have gone into that particular model, that the increases in terms of efficiency, from increased insulation and other energy

measures, are, shall we say, just marginal. It's certainly not significant in terms of a cost benefit analysis. The point we're making is that they have, we believe, understated the costs and therefore overinflated the benefits.

PROF WOODS: Yes, okay. So we can still debate that in itself, putting aside the question of household behaviour within the fabric.

MR HARNISCH: But we're not contesting the proposition that, you know, there should be efficiency in the fabric.

PROF WOODS: Yes, okay. No, that's fine. It just sometimes gets a little bit lost in the debate.

DR BYRON: My reading of that is that we could say that performance outcomes depend on both the design - and that's whether we're talking houses, commercial buildings, appliances, cars or whatever - and it also depends on the behaviour of the user.

MR HARNISCH: Correct.

DR BYRON: But it does seem to me that up till now most of the attention has focused on the design of the hardware, whether it's a house or building clients, rather than on the behaviour of the user, and the question is whether the greater improvements can be gained by further improving the design or by doing something about behaviour. And as an economist, I observe that, you know, price signals tend to alter both the way people use the appliance or the building, and also is likely to alter their choice of what sort of building, house, appliance, car. Now, that leads me to the question: if we want to influence both design improvements and behavioural improvements, is energy price a potentially powerful instrument that doesn't seem to have been used at all yet to influence either design or behaviour?

PROF WOODS: Do you mean price energy?

DR BYRON: The price of energy.

PROF WOODS: So that - - -

MR HARNISCH: But also I understand as economist also what you're saying. So price obviously has a role in terms of people's behaviour and obviously choices. But if you just look at purely, say, price mechanism in terms of the cost of housing, even when houses with three star, I didn't hear too many builders saying to me that there were home owners clamouring to wanting five-star home or seven-star energy rated homes. So while there were builders who were building very energy-efficient

residential buildings, they were more the exception rather than the rule. So if you - what that means for me is that the marketplace generally wasn't prepared to pay the extra cost to have a highly energy-efficient house, as determined by the sort of - the specifications.

PROF WOODS: Can I go further on that one. Given that behaviour of the occupants in a home has a significant effect on the overall energy performance of that household and the fabric, more so than, say, a fridge, which is a more predictable entity in terms of its energy usage, are there - is there a class of structural amendments that lend themselves to being efficient, irrespective of household behaviour, more so than other amendments to the fabric?

For instance, orientation, eaves, so that they might be 600 but not 900 mils, so that you get your optimum solar winter and shade summer. Those sorts of things - concrete slab, if that's the best way to get your heat banks - so that almost irrespective of household behaviour, those things will continue to operate and be efficient, as distinct from other things like breezeways or how heavy your drapes are on your southern sides or other things. So is the industry trying to focus on those which are almost sort of operator foolproof for energy efficiency, or is that not something that you've really explored yet?

MR HARNISCH: I think the answer is, yes, we're very much encouraging our builders and I think they're certainly adopting more and more of those - certainly design features which is taking advantage of the natural benefits that would accrue from, for instance, siting of the building to make sure you get the northern sun, the eaves in terms of sheltering yourself from the westerly sun in the afternoon. But those sorts of things are relatively minor in their additional cost. These are just sort of, you know, initial design features, in terms of siting, that would take maximum benefit of, you know, the orientation.

PROF WOODS: Yes.

MR HARNISCH: Versus, for instance, requirements where, for instance, you have to put batts under floors and whatever else, which is - obviously they are real costs, as opposed to others, which are sort of design features which don't necessarily add - impose a huge other cost, but - - -

PROF WOODS: I guess I'm not thinking so much in terms of the relative costs of the improvements, but whether there's a class of improvements that could be focused on that are almost household operator proof. I mean, you could still grow a tall, shady tree on the north side of your house, just in front of - you know, you could do silly things, but - - -

MR HARNISCH: The answer is yes, to your question.

PROF WOODS: Okay, because it's not an area that we've really pursued to date but there maybe something that.

DR BYRON: But I think, just to continue on that line, in your submission you seemed to me to be implying that the improvements that are being made in the design or the structure of the hardware, you know, the built form, are pretty marginal in terms of the benefits and at substantial cost, while meanwhile very little, if anything, has been done about the behaviour things, which also influence outcome. Is that what you're trying to get across to us or am I reading something that's not intended to be there?

MR HARNISCH: Well, what we're saying is that - the proposition we're saying is that you need to look at it in terms of the totality of any energy savings. So simply to focus on the fabric of the building we believe is inadequate and to therefore make - to impose higher stringencies is not looking at the problem in its totality.

PROF WOODS: What's the sort of - - -

MR HARNISCH: So in other words, for instance, going to seven star won't achieve the sorts of energy outcomes you're looking for, if you don't, for instance, control the behaviour of children who leave doors open during winter time.

PROF WOODS: When you're negotiating with commercial developers, and I guess increasingly the property trusts would be picking up some influence in this process, are you finding that they are actually demanding more and more efficient buildings or is that still somewhere down below layout, design appearance, appeal, all of those things? I mean, how high up the list of priorities has energy efficiency become for the major commercial property developers?

MR HARNISCH: Can I just say, I think it's certainly high up in their thinking, but somewhere along the line commercial reality bites. While they're prepared to invest in highly energy-efficient buildings, from what I'm understanding - and Canberra is a classic example - where a client is not prepared to pay for those additional costs or benefits that may be derived - - -

PROF WOODS: So the developer is doing - - -

MR HARNISCH: What I'm saying is that to get their return on their investment, they have to charge a much higher rent and, given that in the marketplace in sometimes it's \$100 per square metre less, tenants who obviously have an eye to cost tend to go for the lower rent buildings.

PROF WOODS: But wouldn't we be being told by those supporting this process that the tenant would recoup it through their lower power bills?

MR HARNISCH: I understand - - -

PROF WOODS: And therefore the tenant would say, "Gee, that's a terrific deal because I'll save 120 on the power bill."

MR HARNISCH: I understand what you're saying, but I also understand even the Commonwealth government is reluctant to take tenancies in these high energy-efficient buildings.

PROF WOODS: Is there any way of tracking down some evidence on that? I mean, some - I mean, I'm not - I'm totally open as to which way approves, but I'm just curious to get some good, hard data on what is the trade-off in the commercial mind of the major property developers, and to what tenant responses are they reacting when they're making these decisions. How could we get a firmer handle? Because, I mean, we're being given various views, but data would be really helpful.

MR HARNISCH: We're probably not best placed professionally to provide you with that sort of information.

PROF WOODS: No, property owners - - -

MR HARNISCH: The Property Council. It would probably be best if you perhaps talk to Peter Verver, the chief executive there, to give you that. I can give you local agents here who are obviously trying to place tenants into a proposed highly energy-efficient building in Canberra but, having spoken to them, you know, of very recent times, they simply haven't found the tenants to take up the space.

PROF WOODS: Well, if they were prepared to talk to us, if you could check with them before you reveal their identities, you could then get back to Mr Berlin, who is actively taking notes, that would be terrific.

MR HARNISCH: They probably might want to give it to you in camera as opposed to - - -

PROF WOODS: Yes, if it's a commercial in confidence matter - - -

MR HARNISCH: I shall give this gentleman a ring.

PROF WOODS: - - -we can do that, although clearly whatever is on the public

record is more powerful, but we can see how that unfolds.

DR BYRON: Yes. You made some comments in your opening remarks and in the written submission about the regulation impact statement process, and that's come up in a number of contexts in this inquiry, not just in regard to changes to the Australian Building Code, but also with regard to MEPS compliance. But my understanding of the role of the Office of Regulatory Review is that it is simply to check that a reasonable attempt has been made to look at the options, and they don't have the resources to do detailed benefit cost analysis of all of the thousands of things that come across their desk every week and were never actually intended to.

So unless we wanted to have a huge sort of central planning office, then I think the - it's not that the RIS should do more but maybe people should appreciate how little it attempts to do. But it's not a total vindication that, you know, everything in here is a hundred per cent absolutely correct. It's simply that there has been a reasonable effort at a process to look at whether this regulation is really necessary or not, and a plausible case has been made, but no more than that. So you were suggesting that the RIS process should be strengthened, I think, in the comment that - - -

MR HARNISCH: I suppose our call for that was more in our frustration with the efficacy or the veracity of the cost benefit analysis that is undertaken, where we believe there would be benefit, for instance, if the ABCB and its secretariat undertook more transparent - and was more consultative in terms of the way they calculated the cost benefit, listened more to industry in terms of perhaps how the - what the values of the data, in terms of the input, should be. What we've done in this submission is to demonstrate an example in Victoria where the cost benefit analysis, or the cost to the industry at least, was shown to be grossly underestimated. The reality is almost, what, three times, five times the estimated cost through their cost benefit analysis.

It was a point that we made during that period of consultation and weren't listened to. What it tells us is that something is wrong and something needs to be done about it. Now, whether we can get the ABCB and its secretariat to be more open and transparent about the process, and if they're not willing, then our view is that perhaps to impose that sort of discipline. There is perhaps a role for the Office of Regulatory Review, recognising that bumping up their resources there just adds to more regulations and obviously more cost. But if that's what needs to be done, we believe that's - that this is a case for putting that proposition.

PROF WOODS: Some sort of generic training or something of those who are undertaking RIS's - and the Office of Regulation Review does do a fair quantum of training, but as Dr Byron was saying, they're there to confirm that the appropriate

process has been undertaken, not to replicate the detail of the calculation. So there's a trade-off.

MR HARNISCH: Our comments weren't - it was not a criticism of the Office of Regulatory Review. It was more - - -

PROF WOODS: No, and you make that point clear in your submissions.

MR HARNISCH: Look, we're happy to accept the outcome of the referee, if I could put it that way, but we want to make sure that the outcomes are rigorous and stand up to scrutiny.

PROF WOODS: Yes, quite right.

MR EVANS: Could I just add something there. In the construction and the design of a building, every element has a range of costs and it might range from 1 to 10. For example, the cost to install a window in a single-storey house might be \$100, but to install the same window upstairs in a two-storey house could be \$500, because you have to put up perimeter protection, scaffolding, and provide that extra cost to have people working outside at that higher level. So if the minimum is always plugged into the equation, we're not getting a average real cost of what's happening out there, and we're saying that somewhere in the mechanism there needs to be a more averaging out possibly of what the real costs are, rather than just taking the minimum.. Because if you put that across every component and system within a dwelling, it's nowhere near the actual real cost.

PROF WOODS: You sort of refer to that in general terms in your submission. I mean, your point about the scaffolding, and then you've got to have all of the surrounding perimeter barriers and safety belts and harnesses and all the bits, but if any of your members have done some actual costings of those - I mean, we're not asking for a whole new world to be invented, but if you've got readily available data that you know somebody has gone to the effort for some other reason, and could present it to us, it just gives us a little bit firmer grounds to understand the issue.

MR HARNISCH: Yes. When we were preparing the submission, we got some quick preliminary advice from Victoria, because they've actually been building houses down there to five-star rating for about 12 months now, and that's when we came back and applied those figures that were conveyed to us. But we can go away and get some more detail.

PROF WOODS: Yes, if you can get some of the underlying data, just to supplement. That way we can get a handle on what builds up that information.

DR BYRON: The RIS assessments of the additional construction costs for class 5 to 9 buildings says that the estimate of the additional insulating and glazings costs varied by a factor of 2 or 3, depending on the source of the information, whether they used industry association data or Rawlinson's Australian Construction Handbook or whatever. So is there a general problem of somebody trying to a RIS, presumably with the best impartial intentions et cetera of getting it right, actually is faced with conflicting information on what cost to use? Is there some way to sort this out so that the RIS's use the best available information?

MR HARNISCH: I don't think we're able to answer that question in the detail you're asking. Do you know what data source there is, Neil?

MR EVANS: I don't, but I would - my first thought would be that professional estimators or quantity surveyors need to be at least plugged into this whole process and to give their professional judgment would help deliver - - -

MR HARNISCH: That information is readily available because there is estimating software which plugs all this data in and to an incredible level of detail, even down to almost each nail that goes into a building.

DR BYRON: But the - there's a draft regulation impact statement that's prepared and it goes out for public comment, as I understand it. And so presumably, you know, with the RIS for the Building Codes Board - sorry, Building Code - you've got the opportunity to comment and you do so.

MR HARNISCH: Yes.

DR BYRON: So what you're saying is that your comments don't seem to have been reflected in any revisions to the benefit cost analysis.

MR HARNISCH: Yes.

DR BYRON: Yes, okay.

PROF WOODS: Fairly clear.

DR BYRON: Yes. I don't think I've got anything else.

PROF WOODS: No, that's it from me.

DR BYRON: Is there anything else that you wanted to say by way of summary or - - -

MR HARNISCH: No, I think we've made our point. I think we'll just perhaps re-emphasise that we would certainly encourage the ABCB to become more transparent and open in terms of the way they calculate their cost benefit analysis. I think they should be more open to engaging the industry. If there is any sort of suspicion that the industry is trying to secure a result, I think that should be dispelled, because in the end we are more than happy to accept the outcomes, if obviously the case is there. But we're doubting at this stage whether that is the case, given the examples that we've put in there.

We're certainly fairly strong on the issue of local government, but we don't believe there's a role. I think the model of the BCA is a classic one. It was 20 years in the making, in terms of development. It has proved to be highly successful, and if you allow - for instance, at the 700 local councils, to set their own building standards, you would introduce such chaos and inefficiencies in the building industry that - well, there would be lots of inquiries, I suspect, in the future to sort of harmonise that.

DR BYRON: Sorry, I wasn't going to ask any more questions, but just on that. Isn't there a possibility that the Building Codes Board is sort of between a rock and a hard place in that there are lots of pressures to ratchet up, you know, from - make five stars compulsory et cetera, and if it's not in the building code then local governments will start doing that themselves anyway, and so it's better to have a uniform national approach to doing this rather than having, as you say, 700 different approaches to it?

MR HARNISCH: We're certainly for national harmony and national consistency. But the building code has always been about setting minimum standards of safety, amenity and health. We believe the rest is up to the marketplace. For instance, if the people decide that they want spa baths, gold taps, triple garages, wine cellars, theatres in their homes, then they are due to discretionary decisions rather than mandatory requirements. If people want a 10-star energy efficient house then they should be allowed to do so, but that should be due to market forces, not in terms of mandatory requirements.

PROF WOODS: That's the essence of it, isn't it, and that's the fundamental argument for a national harmonised system, and for local government to not add extra layers. It's that mandatory incursion into the marketplace that's the problem. If a client wants a particular outcome, provided it meets the mandatory and exceeds at 200 per cent, not a problem. There will be a negotiated contract between the builder and the client. So you're arguing for consistent appropriate minimum standards - - -

MR HARNISCH: Correct.

PROF WOODS: - - - and then let the marketplace operate beyond that.

MR HARNISCH: Correct, yes.

PROF WOODS: That's a fairly clear position.

DR BYRON: Well, thank you very much, gentlemen, for coming this morning and for the written submissions.

MR HARNISCH: Thank you.

DR BYRON: Next we've got the representatives from AEEMA, the Australian - hang on, I know what that is - yes, thanks. If you just make yourselves comfortable.

PROF WOODS: Electrical and Electronic Manufacturers Association.

DR BYRON: I knew that.

PROF WOODS: You knew that. I don't suppose I could nick out and get a cup of coffee?

DR BYRON: Whenever you're ready there. Gentlemen, if you could each introduce yourselves for the transcribers' benefit, and then summarise the main points you wanted to make today. Thank you very much for coming.

MR DOUGLAS: Thank you. Could I also say that as well as representing AEEMA, the Australian Electrical and Electronic Manufacturers Association, we are also representing the Consumer Electronic Suppliers Association. So, in effect, two organisations. Having said that, my name is Bryan Douglas, I am deputy chief executive of AEEMA, and I am executive officer and company secretary of CESA.

MR FOGARTY: My name is - I apologise for my croaky voice, sorry. The audio bloke is going to have real trouble with me, sorry. My name is Terry Fogarty, I'm from Fisher and Paykel, and we're members of AEEMA.

MR BROWN: And I'm Richard Brown, and I'm from Electrolux Home Products, and supplementing our friends.

DR BYRON: Okay. Thank you very much. Brian, are you going to lead off?

MR DOUGLAS: Yes, I'll make a short statement, a preliminary statement, and it just really amplifies a couple of things that we've said in our preliminary, our first submission. AEEMA and CESA both support - I'm sorry. I should begin by saying that our main interest, the main interest of AEEMA and CESA in this inquiry comes from the suppliers of electrical equipment and consumer electronics equipment. In terms of that electrical equipment, we supply whitegoods, our members supply whitegoods. They supply lighting equipment, motors et cetera and, obviously, from CESA's perspective consumer electronics, all kinds of consumer electronics. So, accordingly, our main interest in the inquiry is minimum managing performance standards, and I guess labelling as well.

I'd like to begin by saying that we support minimum managing performance standards, with some qualifications. We are aware that the commission was somewhat critical of MEPS in its draft report. I think our members recognise the

advantages to the environment that comes from MEPS. However, we also maintain that MEPS is more appropriate for some electrical equipment. More so - more appropriate for some rather than others. In particular, where the consumer has if you like little control or little input into the operation of the equipment, such as refrigerators, where you turn a refrigerator on basically. You might make some adjustments to the temperature control, but we believe that MEPS is quite appropriate for that kind of equipment.

However, where there is quite a bit of operator intervention, such as a clothes washer, in terms of the cycles that can be chosen, MEPS is much more problematic, and the savings are maybe not so apparent. We would say that it is very important for the regulator, in this case the Australian Greenhouse Office to consult with industry on MEPS, and generally that takes place in a reasonably satisfactory manner, but we really did want to emphasise the importance of that.

In around 1999 there was a fairly major shift in the MEPS - in the regulatory regime for minimum energy performance standards, where the regulator moved from, or foreshadowed a move from a no-regrets policy to a worlds best practice policy, and that caused or threatened to cause some significant problems, we believe competitive problems, in the industry. If it had been carried through to its final conclusions it could have resulted, certainly, in a reduction in competition. It would have forced, could have force, some suppliers in other words out of the market. But fortunately we were able to retrieve that situation, and I guess what is important is that Australia does not lead the world. If we lead the world that's where we get into problems from a competitive point of view. And I think that's probably all I wanted to say as a preliminary statement, unless my colleagues wanted to add to that.

MR FOGARTY: No.

DR BYRON: Well, thank you very much. I must say that I did find your submission incredibly interesting, particularly the observation about how dishwashers and clothes washing machines frequently have a very efficient cycle, which is the one that's tested, but if the user then decides that the economy cycle doesn't actually do the job, and then uses one of the others, the testing may be at best irrelevant or it was misleading. And that's something that frankly hadn't occurred to me before.

PROF WOODS: I guess on that one though, it would be interesting to know whether it changes the ranking of appliances, because that's also a consideration. So if they had a choice between two models, one on its efficiency - economy cycle was shown to be more efficient than product B on its economy cycle, but also the most used cycle, the most commonly used cycle on A was still more efficient than the most commonly used cycle on product B, then ranking is not a problem.

MR: It's not a problem.

PROF WOODS: It's only where the - - -

MR: The order in reverse.

PROF WOODS: - - - might actually change the rankings. Yes, please.

MR BROWN: We have done some work on that, and it does have quite dramatic changes in the ranking.

PROF WOODS: Do you have evidence that you could present to us, not today, but at some stage? Because, I mean, we can understand the point, but unless we've got some numbers it's a bit hard to back that up.

MR BROWN: There is evidence in the public domain on dishwashers based on some work done by the Australian Consumers Association. By comparing the information on a study that they did last year on dishwashers, on what they thought was - would be the most commonly used program, but is not necessarily what would actually be the most commonly used program, which - and if you compare that data with the data on the same models that's on the energy labelling web site, the rankings of those - that limited number of products is quite different. I can provide you with the references to the Consumer Association data, and you could draw your conclusions from that. It's a limited survey.

It brings up another point, which is that - I stress the fact that the cycle that they chose was the one they thought most users - there is an appalling ignorance in knowledge as to how consumers actually use the products in 2005, because the data on which the algorithms for labelling and the formulae for MEPS are based are based on behavioural data which was gathered in 19 - prior to 1995. I think some of it dates back to 1992. And that data was pioneering data, and at the time that we received that data we wished we could go back and do the survey again, because some of the questions were far from optimum, and didn't yield the information we needed, and one of the points that we have supported in your draft submission was the need to get more information on how products are actually used. It's serious in labelling, its critical in MEPS.

PROF WOODS: But I would have thought, as manufacturers - I mean, you goes would know to a sort of infinite detail how your consumers are actually using your products. Don't you have people with clipboards running around everywhere following us around to see what we turn on and off?

MR DOUGLAS: I wish we had those resources.

MR FOGARTY: Yes, people with clipboards cost money. On some of our products with our electronics we do have, and we can download that data, but that's specifically for our products. Right? And I guess getting back to sort of Neil's original question, is that when you get an energy label you have to do a performance standard, and so it's been quite good. But what the government is finding out is that people were labelling that tested program often some obscure name, which was the "super duper extra economy cycle", and what they were finding was that people are just going picking the normal cycle. So what has happened, and it's changing in the standards now, but it's changing dishwashers, and the other week we're changing it in wash machines as well, is the label program is to be called "normal". Because what we found out is that people just, when they get a machine, they buy the one with all the most gadgets in it - - -

PROF WOODS: And then use - - -

MR FOGARTY: - - - and then pick "normal" cycle, and that's it - - -

DR BYRON: You've been to our home, have you?

MR FOGARTY: - - - and don't find out all the 555 fantastic things we've engineered into the product, which is why they bought it, and they never use them. But, all right. So, yes, that will happen, because what we've found is that if it is normal and it does do the job and it saves water and it saves energy then we've all won. But we have to bring all those elements together.

PROF WOODS: Does it really cost that much more to make these things a bit more efficient? I mean, in some cases, when you're looking at the actual components and the evolution of those, you know, it's a big hard to see when they're mass produced that the cost differential is all that significant. So why - is it just because there hasn't been a push for energy efficiency in the past that there hasn't been the attention given to it, or is there a genuine cost in there somewhere that I keep missing?

MR DOUGLAS: Yes, it depends on the product, very much on the product.

PROF WOODS: Yes.

MR DOUGLAS: But if you take some lighting components, for example, there are substantial extra costs. For example, in lighting ballast you're looking at high grade electrical steel as opposed to a lesser grade of electrical steel. You're also looking at electronic components as opposed to ferromagnetic components.

PROF WOODS: Yes.

MR DOUGLAS: So there can be substantial costs.

PROF WOODS: Yes, the lighting ballast one I am familiar with, having gone through a bit of replacement and noticed the costs.

MR DOUGLAS: My colleagues may wish to comment on whitegoods.

MR BROWN: There's two elements there that I'd like to comment on. The first is that the - and with respect of whitegoods, I'm not talking about lighting here or other aspects, just in terms of whitegoods - the world industry has so far absorbed the costs of improving energy efficiency with not very much cost passed on to consumers. It's a little bit tricky, because some of the work has coincided with the growth of China as a world competitor, in a very price conscious area. So that the actual costs, if you just did an historical plot of efficiency versus costs, you would see that there's no cost increase. But this is partly due to the internationalisation of trade which has benefited everybody. And so the costs are - so far have been modest.

PROF WOODS: Sorry, that's the price in the marketplace has been - - -

MR BROWN: The price in the market - - -

PROF WOODS: Sorry, what I'm interested in is what's happening with - - -

MR BROWN: What you've got consumers to pay.

PROF WOODS: Yes.

MR BROWN: Yes.

PROF WOODS: What's happening to your price structures though?

MR BROWN: The cost structure?

PROF WOODS: Yes.

MR BROWN: The cost structure has risen more than that, but the usual reaction of a managing director in my experience, and conversation with others, is that when we're faced with a need to meet a higher level of MEPS or to be more competitive on labelling is to say, "Now, go away, solve this problem without increasing costs." So it's more in the - in terms of features foregone, for example, the use of a piece of

plastic instead of a piece of aluminium. You include costs - - -

PROF WOODS: Yes, a lot of substitution.

MR BROWN: We deal with the thing in totality. But I would say, despite that, not much has been given way in terms of loss of - in terms of increased cost or loss of features so far. Now, historically, if we go back to the 80s before labelling was introduced, and appliances in the main, energy wasn't on the radar, it just depended on the sense of social responsibility of your engineering team as to whether or not your products used less energy or not, because there was no information supplied to competitors on the energy efficiency of product, no way they could rate it, and it wasn't on the marketing radar.

Everyone claimed, if you look at advertisements going back, they all claimed they were the most efficient, but there was no measure, and so it was - it wasn't on the radar. Labelling put it on the design radar. You know, we then realised we needed to increase the efficiency, energy efficiency, of our products in order to get good ratings. And one of the points made in our submission was that it's the influence of design is probably more important than the influence on the consumer choice on what they see. If they've got a choice between three models, and they're all much better, they're going to make a better choice as a result of labelling.

When labelling first came in, because it hadn't been on the radar, there were lots of cheap improvements that could be made. But we're reaching the point now on whitegoods where it won't be so cheap in future. And - but technology keeps moving on, and we find more and more clever ways of doing things, or our engineers do. So, does that help answer, Mr Fogarty?

MR FOGARTY: I think that my answer is that there was a key word that you used in your question, it might be said, when they're "mass" produced, and you're quite right. That's the massed produced part, and when everyone is doing it, then the cost increase is not so great. Brian, in his sort of initial introduction, sort of said, "This business about world's best practice," which is a lovely political statement, and I'm in Canberra, I shouldn't talk about politicians. But, you know, they love saying, "We're world's best practice." The trouble with being world's best practice is, at that point you are not mass produced, and it is expensive. Brian sort of said that if there is, you know - on some things we can get world's best practice, and we might only be six months or 12 months behind. But trying to be the leader, which is a lovely thing to say, and everyone - - -

PROF WOODS: With our small market size, you can't recoup the R and E, and - - -

MR FOGARTY: That's correct.

MR BROWN: Take refrigerators. One of the key determinants of energy efficiency is the compressor efficiency. No compressors are made in Australia or New Zealand, we import them all, and we can only source compressors as efficient as the world's big compressor suppliers are going to manufacture. So if we pursue a level of efficiency refrigerators above what can be achieved with world-sourced components the costs would be astronomic.

PROF WOODS: Yes.

MR BROWN: So while we keep pace, and while we can buy components that will give us the efficiency we need. The Australian industry used to be vertically integrated, and we made everything. That's no longer the case. We, essentially, write specifications for product, for components, which we know we can source, and design our products around - utilising those components.

PROF WOODS: Isn't that the point about the consultation and the lead times and things then, with MEPS.

MR BROWN: Yes, certainly, yes.

PROF WOODS: Perhaps - I mean, if you took a fridge, a washing machine, and I don't know what else you'd want to choose, but to give an example of what proportion of that product in value is dependant on overseas world suppliers would be quite helpful in that respect, to say, all right, you know, you can't get more out of a fridge in efficiency than you can source, you know, from suppliers, you know, on the world market. I mean, even if not in detail, but just some illustration of those points.

MR FOGARTY: On the compressor issue, which Dick did raise - and this is a compliment to the Australian Greenhouse Office - is in the consultation on setting MEPS for refrigeration the point was raised about compressors, we ended up getting CDs of all the compressor manufacturers around the world. A professor from Acland University did a comparison, worked it all out on 240 volts, 50 cycles. All that data was done before the MEPS level was set. And we keep referring back to the refrigeration one, that was a MEPS done property, in consultation, and it worked, and it worked really well.

That doesn't mean that you can then do it for every other project and do it in a hurry, because what we've seen is that some of the other projects seem to have been hurried. In other words, the first one was done really well: this is a really handy instrument, MEPS, we'll use it for everything.

PROF WOODS: What are some examples of ones that in your opinion weren't done well?

MR FOGARTY: The one that's going on at the moment is airconditioners that is causing considerable alarm within the industry.

DR BYRON: That would also be largely about compressors too, wouldn't it?

MR FOGARTY: Yes, it is, but it's also the technology of the control systems.

PROF WOODS: Start ups and - - -

MR FOGARTY: A lot of them are now inverted systems as well. To give you an example on refrigerators, what happened was, at the stage, America was the world's best practice - highest standards. We got refrigerators from America; tested to their standard; brought out to Australia; tested in laboratories here; tested to the Australian conditions. Australian test methods, you actually did an analysis and you had a factor which then - well, you multiply the American one by 1.075 or something. That then applies to Australia. That's a fair comparison. That was all done. Then we set the levels. So real big tick to the Australian Greenhouse Office on that one.

On airconditioners, we haven't actually bought the airconditioners. We've set the levels. It's going to be in 12 months time, but we haven't tested the ones from Korea to the Korean standards and to the Australian standards. So that's a bit cart before the horse-type situation.

MR BROWN: There is another interesting point which Terry made in discussions prior to this hearing; that is, that on airconditioners, where we are very concerned are at the timing of the change in addition to the magnitude of the change. But the proposal from the - I'm not absolutely certain as to exactly where we are in terms of our negotiation. We have made our point. We do not know whether that point has been accepted, do we?

MR FOGARTY: No.

MR BROWN: Terry has been closer to airconditioners than me in recent times. This is - or events happening yesterday at a meeting that I wasn't at. The Korean standard proposal is written around the products that they are selling in Korea. In Australia, our airconditioners tend to be much bigger than theirs because we have more floor-to-ceiling windows and hotter climates and bigger rooms. The larger sizes to which Australian MEPS are being considered, they are still untested in Korea. We are saying, "Hey, watch this."

Now, we've said "Watch it". We don't know whether they've thought, "Well, they're just stalling and dragging their heels on the ground," or whether they've said, "Yes, this is a good thing." I don't know, and I don't think you know from the other meeting on Wednesday, either.

DR BYRON: Are there also concerns about the testing procedure that - - -

MR FOGARTY: Yes.

DR BYRON: - - -the aircons and refrigerators, I guess, are conducted at full load and, you know, a sealed room at 35 degrees?

PROF WOODS: We heard the 35 degree constant ambient temperature and sealed - - -

MR BROWN: The test methods for airconditioners in Australia are quite different to those in America. There are three standards around. There's the international standard, which is primarily European-based. There's an American standard and an Australian standard. There are also Japanese and Korean standards and so on. In airconditioners, there is a pretty good convergence between all of the standards so that international test method is - to all intents and purposes, there's not a significant difference in the test methods that I know of. When you get down to the detail, there may be - that I don't know of.

In refrigerators, though, for quite sound technical reasons which I'd rather not take your time up trying to explain, there are good reasons for the standards being different at present. I think within probably a decade there will be a workable international standard for refrigerators, probably much closer to the Australian one than any other. But international standards are extremely slow in development. The greenhouse office gets upset about the time it takes to change Australian standards; wait till they're trying to change international ones. It's very slow.

MR FOGARTY: It does sound extravagant at 35 ambient, but then you don't have door openings, whereas in real practice you do have door openings. In the Japanese standard there's a lower temperature, but it has more door openings. Some of them do them with loads; some of them do them without loads. So, yes, there is - yes.

PROF WOODS: Do they make a material difference to the relative performance of the appliances?

MR FOGARTY: Yes, they do.

MR BROWN: Spectacular.

PROF WOODS: To the relative performance, not just the absolute performance?

MR BROWN: Yes, relatively, yes.

PROF WOODS: The ranking.

MR BROWN: I won't waste your time on explaining it, but, yes, they do make a spectacular difference because one is to do with latent loads and the other is to do with static loads. Latent loads are dealing with the energy cost of dealing with moisture. They are quite different.

MR FOGARTY: I'll also raise - - -

PROF WOODS: Sorry, just to finish on that, does that mean we should or should not be confident that the MEPS that are being produced and therefore affecting what's happening in the marketplace for Australia for fridges is the appropriate one?

MR FOGARTY: Yes, you should be confident on refrigerators, yes.

PROF WOODS: In the long, long run, basically, at present the standard is focussed on what I might call static loads; that is - that's not quite the right word. But we're not interested - it doesn't measure latent loads, which is the moisture costing. As you improve the insulation and as you improve the gasket seals and things like that, the proportion of energy that goes into the static load will be decreasing, and ultimately you'll reach a point where the present model will no longer be valid. But as things are today, the model is still valid. Looking over the horizon, after the next stage of MEPS it probably will no longer be valid.

MR FOGARTY: Could I just add in there as an explanation of something which we've said in there - the airconditioner one reminded me of it. What they said was, "For heaven's sake, don't stop this MEPS thing halfway through because we've already engineered towards it, and if it's going to come in, in 12 or 18 months' time, we've engineered it now. We've spent our money and we're starting to buy components now." So it might seem a bit strange for us saying to you, "Don't hold up everything."

PROF WOODS: Yes, we did notice that.

MR FOGARTY: The reason behind that is because - - -

PROF WOODS: You're geared up for it.

MR FOGARTY: Yes. Once this thing starts - - -

MR BROWN: People who are doing the right thing get stung.

MR FOGARTY: Yes. For example, the airconditioner one, they just changed it recently, and one of the manufacturers said to me, "I'd order a production for this, so for six months my product is going to cost me 30 to 50 bucks more to make in the marketplace because they've changed the goalposts a little bit." So it's funny because the industry is saying to you, "Please don't change the goalposts."

PROF WOODS: Certainty is the very - - -

MR FOGARTY: But get them in the right place first.

PROF WOODS: Yes, get them right first. But certainty in itself has a value.

MR FOGARTY: Yes.

DR BYRON: Can I ask, what do you think would have happened in the Australian market for refrigerators, for example, if MEPS hadn't been introduced? Would we have seen the average efficiency of the fleet continue to rise anyway?

MR BROWN: It would have risen to some extent - and this is one of the problems where RISs tend to overstate savings. I don't think they make sufficient provision for BAU improvements. But to take refrigerators, for example, we make the point that if we're going to use the best compressors, the best compressors have to be available, and there has to be sufficient demand that they're affordable - even the best compressors. But if we did not have MEPS, a supplier could choose to use the cheaper compressor that is less efficient, because the compressor manufacturers charge a premium for the premium performance. That, in the mass-produced world - while someone has got the edge with a premium, one particular supplier has got an edge, they will charge much more than the cost.

DR BYRON: Welcome to the marketplace.

MR BROWN: Welcome to the marketplace. Exactly.

PROF WOODS: But then others will replicate that technology over time and the premium will come down.

MR BROWN: Over time, that premium will disappear. But for a while, you - and so this is one of the costs of world's best practice.

PROF WOODS: So are you saying, though, in answer to Neil's question, that there would have been some increase in efficiency, partly just because compressor manufacturers, et cetera, are improving, but that not necessarily the full degree because you can get cheap and nasty compressors out there that you could put into a fridge if there was no MEPS?

MR BROWN: Yes. That's just - yes.

MR FOGARTY: I think that what would happen is that we would become a global dumping ground for old product - old tooling real cheap; get the maximum money out of it. It would still be a refrigerator, but it wouldn't have been as efficient. And, yes, we are affected by that global market.

MR BROWN: I do know of a specific case of a product that was available from America. We were uncomfortable about its energy efficiency, and they said, "Okay, we'll put in a better compressor." So now in the absence of labelling or MEPS, there would have been no incentive for us to ask them to raise the energy efficiency of that product.

PROF WOODS: So what product range do you broadly support MEPS for, and where does it become problematic? If that's too hard to answer today, a supplementary list might be fine. But, you know, fridges are easy at one end - - -

MR BROWN: There's a quick answer, and that is that the MEPS cannot be set at a level such that we can't obtain the necessary high efficiency components at competitive prices.

PROF WOODS: But I'm talking about across a range of products. So, you know, it works for fridges, some problem for airconditioners, and presumably totally irrelevant for something else.

MR DOUGLAS: It certainly works for lighting products because again there is very little operator interaction.

DR BYRON: User discretion.

MR DOUGLAS: Yes, user discretion. Except with dimming technologies. It works for motors: it works generally for rotating electric motors.

MR BROWN: Where it doesn't work is the type of product where the ranking would be dramatically affected or significantly affected by what the customer - user - chooses to do with the product. Apropos of your comment about, "But surely you

know what consumers do with your product," I've been thinking about that very much. Our research is focused on what consumers think they need from a product and what they're willing to pay for, rather than how they actually use it when they get home.

PROF WOODS: So you shift them off the floor; not how you operate them, yes.

MR BROWN: Yes. We focus on what the customer wants. Or if we've got an idea they might want this, we would test whether we think they would want that. But whether they actually use it when they get home is unknown, except in some cases where they're electronically-controlled products and you can - you build a log in and you can get data that way. But not everybody does that.

The other thing is, putting this kind of information in the public arena, if you had it, would still be very fraught, because you'd really be giving clues as to what your future plans might be.

PROF WOODS: But what would be some typical examples of products where MEPS, in your view, just is fairly irrelevant?

MR BROWN: We cannot see a role for MEPS in both washers and dishwashers because labelling has got - the effect of labelling has been to reduce their energy consumption to quite good levels, particularly dishwashers. Less so perhaps in washing machines, but certainly in dishwashers. So the cheap and easy ways of improving the energy efficiency of a product are behind us. So what we come down to there is tuning programs to meet customers' requirements.

The standards have got two aspects. One is how to measure the energy consumption, but both washing machines and dishwashers - all the appliance standards have an element of, "It's no use just improving energy efficiency if it's not going to meet customers' needs." So there is a whole sweep of test programs for performance. Australia actually does lead the world in this respect. Our standards are the most stringent in terms of having very tightly-controlled performance requirements that you must meet.

PROF WOODS: Is that distorting the production process or is it, you're comfortable with it?

MR FOGARTY: No. Generally, we've been comfortable with it. I mean, yes, we do try and satisfy the customers' needs, and it seems to be that in other countries that isn't so much of their focus; their focus has been, just as Dick said, in energy savings.

MR BROWN: In dishwashers, for example, we've made an assumption that most

customers will accept a certain level of cleanliness. We seem to have that pretty well right. We know about that from customer complaints. If that was too low - - -

MR FOGARTY: We'd hear about it.

MR BROWN: But where we do have customer complaints is on the drying performance of a dishwasher.

PROF WOODS: But that's very energy intensive.

MR BROWN: People complain that they are - so when those occur, to satisfy the customer - it meets the standard and so on, but to satisfy the customer, we have to advise them, "Press that other button and it will dry better." Now, it dries better because it uses hotter water for the final rinse, which increases its energy consumption. At that point, MEPS has become a nonsense.

There are equivalent things with respect to washing machines as well. If a person wants it to wash cleaner, okay: the test temperature for washing is 35 degrees Celsius. If it's not coming clean enough, there's a knob there where you can wind it up to 45 or 55. If you wind it up to 55, you double the energy consumption of the product.

PROF WOODS: And scold the hell out of everything, yes. Terry, you were going to comment?

MR FOGARTY: Yes. I guess, in summary - and we did put it in here, I think, that it's depending on user behaviour - then that is a concern. The other thing that you would have seen as a theme coming through all the time was asking for consultation with industry. We've been a bit concerned lately that some of the stuff has just been coming in there without industry being aware that it was on the MEPS agenda. All of a sudden to announce that MEPS is going to come in for toasters or irons in 2010 - and it's obviously not the case - but that sort of thing has been a bit of a surprise to industry. So you'd see this thing of, "Consult with us and we'll work through it," because there's been a good relationship there. There have been some good successes on MEPS.

DR BYRON: I'm interested in the question of, is there any possible case for a cheap and nasty, as opposed to the sort of lapsed tradition of just - eliminate them from the marketplace. But I'm trying to contrive an example where somebody wants a dishwasher for the beach house and they're only going to use it, you know, once a month. For them, a slightly less efficient but considerably cheaper appliance could actually be the right one for them. So if you ban those from the Australian marketplace, you're actually eliminating that opportunity. If you had, rather than

MEPS, a labelling program, including negative labelling, that says, "This device is very cheap but it only makes sense if you're only going to use it once a month," would that work?

MR DOUGLAS: It would be easier, though, wouldn't it? I mean, the real issue is, are they going to then install it in their principal place of residence and use it every night?

MR FOGARTY: We've had lots of discussion on that one, Neil. Initially, we were just going to say, "No, we don't think disendorsement labels work at all." We would suggest that that is still the case in probably 95-98 per cent of the time. We could think of only a couple of examples. The one that we mentioned in our presentation was on water efficiency on a washing machine. We couldn't think of any on energy - and we tried. So we didn't say completely no, because there are the odd ones. Therefore, a person would buy that washing machine because they had an issue with allergies, and it would use a lot of water.

So if you set a MEPS level there and banned it, which would be a temptation for the regulators to do if it was a disendorsement label - but on water there is a disendorsement label. So, "It uses a lot of water," the person knows that when they buy it, but they're buying it because they have a - I'll call it a niche-type market.

DR BYRON: but that's a very special case, isn't it?

MR FOGARTY: Yes. We couldn't think of a general case where you can see a benefit there. That's predicated on the fact that you do MEPS right and that you give people the warning. Because if we know it's coming in, in three years' time, you won't lose market - all the competitors will still be there. They can plan and get round it.

DR BYRON: That was going to be my next question, because I had heard that there are a couple of distributors, I guess, a couple of labels that had disappeared from the Australian market when the new fridge MEPS standard came in.

MR FOGARTY: Two were originally pulling out. One of them did pull out, and they were a very small player. The other one went back to Japan, modified their products, and, yes, it's still on the market.

MR BROWN: I did that analyses, so I can tell you what happened. I went through what was on the register at a certain date, which is about four days before the submission reached you. At that time, we had been advised by one supplier that he was pulling out of the market because none of his products would meet MEPS 2005. There was another supplier whose products were not on the register at that time. I

thought that they had pulled out of the market, but in fact they hadn't. Shortly afterwards, their products started appearing.

DR BYRON: So there's no concern about narrowing the number of labels coming into the market?

MR FOGARTY: With time. If you're give adequate time.

MR BROWN: With proper planning.

DR BYRON: And proper planning, yes.

MR FOGARTY: That's very important because sometimes people will be tempted to bring them in early, and that would narrow the band, and someone would have a six or 12 month window where they would be the only people supplying the market; that that's not good.

MR BROWN: If the MEPS levels are set in the clear understanding that there must still be a good level of competition in the market so customers will not be taken to the cleaners, there won't be a problem. But if they're set even quite a small amount too tough, it could have a spectacularly bad affect on competition. So it's dependent on the level and it's dependent on timing.

PROF WOODS: So a properly planned MEPS in that sense you're fully supportive of?

MR BROWN: Yes. The MEPS itself must face the fact that there must be competition in the marketplace.

PROF WOODS: Is the problem with the loss of consumer sovereignty of the beach house owner the - you can't restrict it to the beach house owner and therefore the market gets flooded with these products which the developers would buy and put into the rented accommodation, et cetera?

MR BROWN: As we've said in our summing up, the key to this is the problem that it doesn't deal with the split-incentive problem, and the people who have got the biggest and would be most - the beach house owner who wants a cheapie is very, very much a niche market. But the developer who's putting appliances in high-rise buildings, we're talking of hundreds of thousands of appliances within a single development.

DR BYRON: You'd sell 10 times more appliances than there are beach houses.

MR BROWN: As we see it, the biggest single problem with the disendorsement label is the fact that it doesn't deal with the split-incentive problem. That's the key thing. The other thing that we are concerned about is that suppliers who are trying to do the right thing commit themselves to meeting - when there's a MEPS, they can commit themselves to meeting that MEPS in the certain knowledge that all of their competitors have to do the same thing. But with a disendorsement label, if you're trying to do the right thing, you don't want to have a disendorsement label on anything that's got your brand on it.

PROF WOODS: There are lots of others who wouldn't care.

MR BROWN: Really, it becomes a de facto MEPS for anyone who has any care about the reputation of their brand. It doesn't address the big problem, and it doesn't give people who are investing money and engineering effort into meeting greenhouse goals certainty that they will, you know, be competitive in the marketplace.

PROF WOODS: Sorry, Bryan, you were going to - - -

MR DOUGLAS: Just one quick comment. You asked earlier about, are there any products which shouldn't really be subject to MEPS. This might be self evident, but it's possibly worth saying anyway: obviously products which have really - their numbers are so low that they really don't have much effect on the overall energy consumption - and one I think good example is when we're talking about transformers, distribution transformers. We have MEPS 4 and there are tens of thousands of them out there on the electricity grid, but power transformers, on the other hand, relatively few. So we would not contemplate developing MEPS of power transformers, which are much larger and there are far fewer. So that's just an example in case the regulator wants to get carried away.

MR FOGARTY: The only other point that I'd make is, talking about high-rise developments and everything else, there is a concern that we have had - we made comment on your draft recommendation at 11.1. We said it's crucial local government does not erode the uniformity of minimum energy efficiency standards for new homes. That is a real worry for us. We're finding already some local councils - "Sorry, if you want my significant on the development application, you can have four-star clothes dryers," is an example. But, "Sorry, there aren't any four-star clothes dryers." "Yes, there is; there's a Miele one," and they'll say, "Yes, it's a wonderful machine. It dries two and a half kilos and costs about two and a half thousand dollars" - apologies to Miele; it mightn't be that much. But, "This is it. That's all that's available." And they say, "Well, you make one. Otherwise, we're not going to sign this development application." So we're just finding it scary that - - -

MR BROWN: According to that newspaper article as well.

MR FOGARTY: Yes. The classic one - - -

MR BROWN: Hot water heaters are the most affected by this.

MR FOGARTY: Hot water heaters was the one. Hot water services had MEPS done on them, electric hot water services. Then they'd done it and they invested their money. You've got new hot water services. Six months later, Queensland bans electric hot water services in new homes. Oops. That's a state one which just, you know, "Sorry about that." Now the water heater manufacturer is probably making gas ones as well, so they probably won't complain too much - well, actually they will, yes. It's a disaster, from our point of view, that these local councils are trying to out-green each other at times, and they're saying, "Only have these appliances in these developments."

PROF WOODS: We heard it from the builders and that's sort of fairly evident on the destructive effect it has, but the fact that councils are now working their way back in to within the fabric as to what the appliance standards are, that's - - -

MR FOGARTY: Perhaps the builders are getting very adept at answering their queries and now we're the ones who are suffering, I don't know. But it's a scary development.

DR BYRON: That subdivision covenant that I was talking about with the Master Builders Association, the one that we were given in Queensland, actually specified what the star ratings had to be on all the kitchen and laundry appliances of whatever buildings were put up in that subdivision. That seems to me to be a little intrusive.

MR DOUGLAS: Absolutely. It's from a position of ignorance, too, because they really don't understand the operation of these systems at all. So they're just arbitrary figures as far as - in terms of - - -

PROF WOODS: It seemed a good idea.

MR DOUGLAS: It seemed like a good idea, yes.

MR BROWN: The star ratings - that's a de facto MEPS. That's a quasi-MEPS, I think would probably be the right term. MEPS is a good instrument properly used, but there's very, very serious problems if it's incorrectly used. Using star ratings in lieu of MEPS as quasi-MEPS is a recipe for people ending up paying too much for the wrong appliance; there's no doubt about that.

PROF WOODS: Can you elaborate on that for us.

MR BROWN: For a start, MEPS are based on different criteria to star ratings. On refrigerators, there is, because of the need to preserve customer choice, there are different MEPS levels for different types of refrigerators. There is a different MEPS cut-off equation for side-by-side refrigerator/freezers to top-mounted refrigerator/freezers and bottom-mount refrigerator/freezers. For MEPS, the tightest regulation is on top-mounted refrigerator/freezers. When it goes to bottom mount, it's necessary to have a heater built in to the bottom of the fresh food compartment so that you don't freeze vegetables in the vegetable container at the bottom of the compartment and there are good reasons why it has to be at the bottom of the compartment.

So that the star rating - and then on side-by-sides, because of the inherent change in the balance of the wall temperatures, a much higher degree of surface area is presented to the ambient than in a top-mount or bottom-mount, they have a different equation again. Now, you can have the effect of both choosing a star rating to actually force people to buy a side-by-side which will use more energy than a top-mount that would do the same job. So it can be counter-productive in that respect.

PROF WOODS: Does that call into question labelling generally, or are you - I mean, I've got to say your submission - -

MR BROWN: No, labelling, you see, is based on - labelling, they use the same algorithm for all three types. So labelling leads you to the one that would use the least energy, but if you use that as a MEPS, it doesn't necessarily get you where you - are you with me?

DR BYRON: Yes.

PROF WOODS: Yes.

DR BYRON: So that both labelling and MEPS need to be used for the right purpose. So it's just a question of - - -

MR BROWN: Yes, they've got different purposes, they've got different underlying fundamental concepts and if you use one for the other - - -

PROF WOODS: So you should only use your labelling across products of a similar standard, not between different types of product.

MR BROWN: That's right.

PROF WOODS: Even if it's within the fridge category.

MR BROWN: In order to preserve (indistinct) a little bit upside down - - -

PROF WOODS: I don't think many consumers would understand the issues - - -

MR BROWN: - - - but you can see where I'm getting at and I know it's nearly 11 o'clock, but we can deal with that further if you want further information.

DR BYRON: No, that's very, very helpful.

MR FOGARTY: But the building one is the one that really worries us with the local councils. That's sort of - it's only a trend we've started to see and it worries - - -

MR BROWN: If we had time to deal with the Dubbo Council, I think we could convince them that what they wanted to do was the wrong thing.

MR FOGARTY: No, I don't think so.

MR BROWN: But we can't deal with any council.

MR FOGARTY: Yes.

DR BYRON: Yes, I don't think I have any other questions. But that has been extremely helpful this morning in sorting out some of the misunderstandings that we had and giving us new useful information. So thank you all very much for coming. We appreciate it. I think it's now time for a cup of tea and we'll resume at 11.20 with the Department of Environment and Heritage.

DR BYRON: Thank you very much, ladies and gentlemen. If we can resume the public hearing. We now have the representatives from the Australian Government Department of Environment and Heritage. Thank you very much for coming and thank you for letting us know in advance some of the things that you are going to say in your submission. If you'd just like to - - -

PROF WOODS: Identify yourselves for the transcript.

DR BYRON: And then introductory comment and we can talk about it. Thank you.

DR WRIGHT: I'm Diana Wright, division head of the Industry Communities and Energy Division of the Department of the Environment.

DR BYGRAVE: Stephen Bygrave, acting branch head of the Energy Efficiency and Communities Branch.

MS CRAPPER: And Victoria Crapper, Department of the Environment and Heritage.

DR BYGRAVE: Okay. Thanks very much for giving us the opportunity to speak to you again in relation to our submission to the draft report. I guess where we'd like to start off is pointing out that the Department of the Environment and Heritage's energy efficiency policies and programs are directed at the net social benefit, in this case the reduction of greenhouse gas emissions, and that energy efficiency remains one of the most cost-effective responses to reducing greenhouse gas emissions.

The department does acknowledge the importance of private costs and benefits, although this is not our sole focus. In our submission, we've referred to a number of areas where there are opportunities for the Productivity Commission to add significant value to the draft report on energy efficiency within a timetable of finalising its report by the end of August 2005. We consider that the key opportunity is clarification of the draft findings and recommendations to acknowledge the wider public benefit of energy efficiency, so as to avoid possible misinterpretations. There are also areas where the Productivity Commission might consider recommendations that acknowledge the need for further research and analysis.

We've grouped in our submission our comments on the draft report into five key areas: recognition of existing activities; clarification of findings and recommendations; clarification of policy statements; undertaking further research and analysis; and strengthening arguments in the text.

In terms of the first point, recognition of existing activities, we consider the

final report should recognise the status of a number of activities that are already under way or planned to be undertaken, particularly where the PC in the draft report has included such work be scheduled. I won't go into detail on these but refer specifically to the revised draft regulatory impact statement manual that we've attached at attachment C to our submission. That basically is work that's being undertaken to revise that manual for the appliance and equipment minimum energy performance standards.

We also note in our submission, in relation to draft recommendation 7.2, where there's a reference to an evaluation of the ACT Building Energy Rating Scheme, that that process is well under way. The terms of reference have been agreed with the ACT government and that will be going out to tender at the end of this month. We also refer in our submission to draft findings 7.2 and 7.3, in relation to the National Household Energy Rating Scheme and the fact that AccuRate, which is an updated version of NatHERS, is completed and undergoing final trials and that this tool will address many of the issues regarding existing software. I should also note an examination of AccuRate by both Adelaide uni and the University of Newcastle recently shows a high precision of that AccuRate tool in predicting indoor conditions and energy consumption for maintaining comfort.

The Productivity Commission in its draft report also refers to the National Framework for Energy Efficiency, Stage 1 Proposals, being deferred until independent evaluations have been undertaken. We acknowledge the importance of program and policy review as good government practice and would like to point out that, as part of rolling out the National Framework for Energy Efficiency, detailed program evaluations will be undertaken to inform the design and implementation of those individual programs.

In terms of the second point, clarification of findings and recommendations, we note that the PC on page 3 of the draft report does point out that there may well be a broader set of energy efficiency improvements that would be justified on the grounds of net social benefit (including environmental benefits). I guess there are a number of recommendations, draft recommendations and findings that potentially would have a different outcome if the net social benefit was considered, and we consider that the Productivity Commission could examine those draft recommendations and findings with that context in mind. Later on in the submission - and I'll refer to this again - we would be grateful for advice from the Productivity Commission, given our objective is to target the net social benefit - we'd be grateful for advice from the Productivity Commission on how to reduce or minimise private costs of our policies and programs, but keeping in mind our net social benefit objectives.

We note in relation to draft finding 7.2 and draft recommendations 7.2 and 7.3 that there still seems to be some misunderstanding about building energy rating

schemes and whether they are accurate, obviously, in determining or measuring actual energy consumption. We note that those tools were never intended to measure actual energy consumption. We agree with the Productivity Commission that to account for behavioural issues would really not be possible. I mean, it's not possible to measure human behaviour and account for that. So these rating schemes are really designed at the energy performance of the building shell and, given if you had - if you took out all of those other factors, if all of those other factors were held constant - behavioural change et cetera - and just looked at the rating, the building shell by itself, a higher-rated building shell will use less energy than a lower-rated building shell.

The department does acknowledge that there will be some private costs associated with these schemes. We acknowledge that these schemes may not be absolutely perfect, but we believe - and we consider that these rating schemes do have value. If building rating schemes do convey the misleading impression that they actually accurately determine energy consumption, then this is an information gap that needs to be addressed, but it does not necessarily negate the value of these rating schemes by themselves.

In terms of point 3, clarification of policy statements, there are a number of areas where the department considers there should be a revision of the wording to reduce any misunderstandings that may come out of reading the report. I refer specifically to discussion about a national energy efficiency target, as well as to the Building Energy Performance Ratings on paragraph 136 of the draft report. Again, we acknowledge that building energy rating schemes may not reflect actual energy consumption, but we believe that those schemes increase the information available to consumers.

In terms of point 4, undertaking further research and analysis, the department considers that there are a number of sections in the report that would benefit from a more thorough analysis of the available research or the commission of specific research. We do acknowledge, however, the scope, the large scope of the task that the PC has had in front of it. However, we believe in the time available up until finalising the report there may be some opportunity to examine existing research in more detail.

Indeed the department was looking for the Productivity Commission's independent analysis on a number of areas. Firstly, we were looking for quantification of private costs and benefits associated with energy efficiency improvements. We were also looking for and would be grateful for quantification of the social costs and benefits in relation to energy efficiency improvements. We would be also grateful for quantification of the environmental and economic potential from energy efficiency. And we would also be grateful for some

independent analysis on how the case study methodology that was used for modelling for the National Framework for Energy Efficiency could be used to get a more accurate figure, or if the whole approach undertaken for the National Framework for Energy Efficiency is flawed, then an alternative approach and a methodology should be suggested.

We note in the report a heavy reliance on a number of selected literature or papers, in particular the analysis by Sutherland (2003). We note this is a paper that did not appear in a review journal and that there are other and we have undertaken a preliminary search of the economic literature and note that there are a number of papers that directly challenge or address the analysis by Sutherland (2003) and those papers are attached to our submission.

In terms of point 5, strengthening arguments in the text, we note there are a couple of areas in the report where there are some inconsistencies, in particular the position on voluntary versus mandatory approaches and a discussion about the net benefits of mandatory energy performance standards, as well as discussion on energy market reform.

Without further ado, and to conclude, because I'd like to make time for as much discussion as possible, the department does acknowledge the challenges faced by the PC in its terms of references, and we understand the challenges and tasks involved very clearly, having worked on energy efficiency now for a number of years. This is why we were looking to the Productivity Commission report as providing specific C guidance on analysis and quantification of the net public cost and benefits of energy efficiency, the quantification of the economic and environmental potential from energy efficiency, analysis and quantification of the private costs and benefits of energy efficiency.

As pointed out in the opening statement to the hearing, our primary focus, the department's primary focus on energy efficiency is the net public benefit of reducing greenhouse gas emissions. Independent analysis by the PC on the points above would be particularly helpful to assist the design of our programs, in particular where we could reduce private costs while still meeting our net public benefit goals. Thank you.

DR BYRON: Thank you very much, Stephen. I'd like to thank all involved in the submission and the department for a very, very constructive, informative and thoughtful submission. I think we can take on board virtually all of those five points you've raised. There are a few points where I think there may simply be a misunderstanding. Perhaps we failed to express clearly enough what we had in mind, or we worded it ambiguously. But, no, on the whole I think that we may find ourselves in heated agreement, that there are areas of improvement which we will try

and take up.

As you know, the reason that we produce a draft is so that if there are pieces of the evidence base that are missing, they'll be revealed to us. If we have incorrectly interpreted or if there are flaws in the logic of analysis, then we encourage people to point those out to us, and you've got a few of those. So I thank you very much for that, quite sincerely.

PROF WOODS: Can I also add at this point that the way you grouped your comments into those five categories also helps differentiate what are the particular perspectives that you're trying to draw our attention to. That was quite a useful way of structuring the submission.

DR BYRON: Well, perhaps - should we go through in order of those five points. Is that okay? Well, firstly, with regard to recognition of existing activities, I'll say that we're pleased to know that some of these reviews are already under way. I guess we had assumed that, when the ministerial council on energy adopted the nine-point NFEE stage measures, that they were sort of committing to implement them. But I gather from what you're saying is that - well, you're now explaining it to us. There's actually reviewing evaluation process before they're actually rolled out. Is that right?

DR BYGRAVE: Yes, I mean, there is a commitment by the minister of council to implement the NFEE. We acknowledge the importance of program review. The end of that process is under way on those areas where there have been past programs and policies, and that will inform the specific design and implementation of those eight or nine packages.

DR BYRON: Because I think basically all that we were suggesting is that, where there have been antecedents, it would be a good idea to just confirm that (a) they work, (b) they don't generate any perverse or unintended consequences and (c) that they're reasonably efficient of cost effective to do that. And, you know, now that you're pointing out to us that those review processes are already under way, then I think that concern just evaporates.

DR BYGRAVE: I think it's a very good recommendation to make though, and we acknowledge the importance of the role of program review in informing the NFEE.

PROF WOODS: So on that point, the recommendation, in the sense sound, but we can then also point to progress in the various forms of program review that will give support to that, and we're happy to recognise those in our report.

DR WRIGHT: I think that would be really useful because the way the NFEE will be implemented is that considerable attention will be paid to the design of the

implementation, how this is done, because all jurisdictions are concerned to have schemes that work really well. So it's not as though it's all been set in concrete with that ministerial decision, that there's a lot of work to be undertaken to bring it into effect.

PROF WOODS: Yes. So it's not a matter of deferring NFEE until, but to recognise that in the implementation of NFEE there will be.

DR WRIGHT: Yes.

PROF WOODS: Yes, and that can be appropriately reflected.

DR BYGRAVE: It's probably also worth making the point that some of the policy packages in the NFEE are new. Some of them build on existing programs, and obviously those areas where there have been existing programs, review of those programs is essential and are under way, as I indicated. Those areas where there are new areas of work, there may be some limitations in the extent to which reviews can be undertaken, because they're new measures.

PROF WOODS: In this section 1, you raise the issue of efficiency standards for residential buildings. Are you happy that we delve into that a bit here, at this point in time, or do you want to leave it?

DR BYRON: No, okay.

PROF WOODS: You refer to AccuRate and that's it a better predictor of - in fact you refer to it as an excellent predictor of house thermal performance. I can't necessarily endorse "excellent" just yet. We'll see what it actually does do over time, but there still is debate and whether Accurate removes that debate is yet to be seen, about what is trying to be achieved in terms of the thermal performance of the fabric of buildings, and we've had submissions from various parties, including those in the building industry, those in the appliance industry who provide a lot of the white goods et cetera that operate within - lighting et cetera - that operate within buildings.

To what extent are you satisfied that regulation, mandatory regulation, will produce significant greenhouse benefits in this area of building fabric and - putting aside appliances at this moment, because we'll get onto MEPS and labelling later. I mean, is it a big game? Is it a big part of your operation? Because it's certainly creating various inconsistencies in performance and there's debate about whether the - deemed to satisfy provisions, give the same energy performance as those who analyse on a performance - separate analysis. So how important is this to your overall program?

DR WRIGHT: It's of significant importance. Energy efficiency overall is the largest contributor to greenhouse abatement in terms of meeting our 108 per cent target for Kyoto, and for example, the revised suite of energy efficiency measures that were announced in the last budget and the energy white paper have increased the abatement to be expected in 2010 from 8.2 megatonnes to 11.4. So this is a significant - we're talking around - sorry, I'm just looking for the total figure. I think it's in the order of sort of 50 megatonnes in total, going to our Kyoto target. That's the abatement you need.

So it's a significant contributor and certainly the most cost effective. When you look at other programs which seek to deliver abatement and - for example, the Greenhouse Abatement Program will deliver 6.3 megatonnes in 2010. That's based on the 2004 estimates. That is at an average cost of between six 6 and 8 dollars a tonne of abatement and that is with government paying only the marginal cost of abatement, not the full cost. So we have added to projects that are almost commercially viable and will deliver abatement. So our assessment is that this is a significant - energy efficiency is a significant contributor to greenhouse and certainly, from a government perspective and also if you look at the flow-on effects from an individual perspective, the most cost effective.

DR BYRON: Yes, I can see that in the broader sense, but I think what Mike was getting at was this morning the Master Builders' Association told us that, from their fairly simple calculations, the changes to the Australia building codes, to go from four star to five star for houses, fabric et cetera, according to the regulation impact statement the amount of greenhouse gas emission abatement that would be achieved by that change I think was a decrease of 0.029 per cent, which seems like a very, very tiny - and what they were trying to convince us of was that such a tiny adjustment to the total greenhouse gas emissions in Australia didn't seem to be worth all the additional effort and expense that was involved through the change to the building code.

Maybe later you could have a look at their submission and maybe give us some comment on whether they've got the numbers wrong or something, but it just seemed like the amount of greenhouse gas abatement that would be achieved by going from four to five stars seemed tiny, according to their calculations.

PROF WOODS: Yes, and I guess what underlies that issue is that if there can be focus on significant cost-effective energy efficiency improvements that the whole community can understand and get behind, that's one thing. But if you're trying to chase the energy efficiency of the toaster or the jaffle-maker or the alignment of the house, then are we dissipating the community focus and goodwill and performance in a whole lot of areas and that that may in fact prove counter-productive/ You know, are we better targeting the big issues that you can make some real progress, or do we

have to have this broadly based approach that starts to chase a few rats and mice?

DR WRIGHT: We'll certainly look at that submission really closely. To answer that question at a high level, government gave considerable consideration to how to tackle energy efficiency over the last two years, resulting in the energy white paper. And maybe unfortunately it is the case that you need to progress matters on a whole range of fronts to deliver full benefit, and the interaction between, as we've noticed - you've noted, between behaviour and the built environment in which we live, - and so it is a broad ranging approach targeting new dwellings which are currently quite a small proportion of the market.

However, if you look at the huge growth area in Queensland, south or Brisbane, between Brisbane and the border, they're predicting a 30 per cent growth in energy demand. That is significant, and the developers in those area are really looking at a whole range of ways of tackling the use of energy. So you're seeing a significant growth in green buildings having distributor generation solar panels, as well as the high ratings. So it is multifaceted and I think, as you've previously mentioned, in the current stock, the huge use of airconditioners, which is a high operating cost and has flow-on effects to demand on base load power generation, compared to upgrading buildings to just four star rating, and I believe that there are studies. They may be a bit dated now, and Stephen may be more current, but an upgrade would probably cost sort of 4 and a half thousand dollars.

You know, the difference between capital and operating costs and the broader costs on infrastructure is something that government is really conscious of. So that is why from a Commonwealth and state perspective, there are a broad range of measures tackling different points in the chain.

DR BYRON: Just on the energy performance of, say, residential buildings, if everybody seems to agree that the overall outcome depends on both the design and construction and on the user/operator behaviour, the suggestion I think that we got to with MBA was that there seemed to be a lot of effort in making very small improvements in the design and construction, the hardware stuff, and we seem to have done very little effort in changing the behaviour side of it, and maybe it was just the question of - it's not one or the other, but in addition to seeking gains in the construction, shouldn't we be also having other policy measures that would reinforce that on the behaviour side?

DR WRIGHT: I think you're absolutely right and there are some initiatives that are already in train. For example, under energy market reform, there's a trial of interval metering. Under the Commonwealth government's energy white paper, a program of solar cities, that looks at addressing a whole range of intersecting market barriers and behavioural changes, cost-reflective pricing, smart metering, energy efficiency

grid-connected PV to have distributive generation and local planning arrangements. There are, for example, local councils who for maybe reasons of heritage value have decided to impose constraints on the extent to which you can put grid-connected PV on your roof on the best side facing the sun and all of these intersect.

Under solar cities, we're trying to demonstrate that the whole is greater than the sum of the parts. So it will be a very interesting test of how to change behaviour through cost-reflective pricing, providing information to the consumer on their demand and how to manage that reducing barriers to the use of distributive generation, so it actually tackles a whole range of things. But this is the first time that that's been done in one place, and at a critical mass.

DR BYRON: Yes. We had a submission, a very interesting submission in Brisbane, about informative meters rather than smart meters. And I'm trying to figure out how that fits in, in the larger scheme of how we go forward.

Because even if residential and small business customers want to manage their energy consumption better, even if they're motivated, if they don't have the information on how to do that, because all they get is an aggregate one-line figure for their energy consumption at the end of three months. So the suggestion was that relatively minor adjustment of existing electricity meetings in Queensland, which would cost \$10 or \$15, would generate a device that actually could inform consumers so that they could then begin to actually manage - and that - this guy said he had savings of over \$100 in six months just through being able to get more information out of the existing metre through a display.

DR WRIGHT: Yes. That is what is in view with the solar cities program. Rather than calling them meters rather than integral meters is so that you can have an in-house display. The meters can be interrogated from a data centre by the retailer, and then the retailer can work with the consumer, and offer incentives. There are currently some ways that the market operates, and restrictions on pricing regimes, which would also need to be addressed.

But certainly there is huge potential if you go down that track, and studies done in the US, and California in particular, who have gone a long way down the track with smart meters, has demonstrated that there is significant benefit to the companies, because they are able to automate their reading of meters, for example. They can actually manage demand much better, and they can hedge better. So in its own right, from the perspective of the individual company, there are - there is information from California that shows that there's a strong business driver to do that in its own right, and in addition to the net public benefit of better demand management.

DR BYRON: But the old style meters were never intended to actually inform consumers, because consumers were never expected to even think about this, they just had to pay the bill once every three months.

DR WRIGHT: Indeed, and some jurisdictions have also had difficulty because of the software required in just doing simple things like putting greenhouse gas emissions on to the quarterly invoices. But under energy market reform there is a significant push, and there's a commitment, to roll out integral metering. What is being looked at - and I believe in Victoria - is how far do you go, and do you mandate an industry standard, and have that to be a smart metre, so that you're building for the future or not. You know, there's a balance between cost of roll out and longer-term benefit, and that's being looked at, at the moment.

DR BYGRAVE: I guess the other things to add there, in terms of influencing behavioural change and providing more information to customers, is the other programs we have in place that are referred to in your report, you know, the green vehicle guide, you know, the whole labelling scheme on appliances, is about providing information to customers.

DR WRIGHT: Yes. And in addition, within the Commonwealth we are also working on the development of green leases, which are a way of influencing and rewarding behaviour for the way buildings are managed and used. So this is after the construction phase, and there is interest by the commercial property sector in actually picking up on green leases. So that's - we're close to actually rolling those out across the Commonwealth, and it could be that they're picked up by the private sector as well.

DR BYGRAVE: Well that's very interesting as, again, coming back to master builders, this morning they were saying that property developers have talked to the builders about designing, constructing green buildings, and then they get to the point where tenants aren't willing to pay any more in spite of the fact that it would reduce their utility bills, and so, you know, our questioning of them was along the lines of, "Well, surely tenants must be interested in getting into a building that would have much lower operating costs, and if not, why not?" But it sounds like you're already addressing that issue. So - yes.

PROF WOODS: Yes. I guess what was underlying - - -

DR WRIGHT: And we could provide further information on green leases, if that's of use.

PROF WOODS: Yes, it is, because we also asked them for evidence where they were talking about tensions between tenants, landlords, building developers, and that

some buildings are very difficult to lease out, because to recover the higher capital costs of more energy efficiency there was tenant resistance. So if you can also supplement the database, that would be good. But what was underlying my question on the residential building efficiency, there's a bit of a tendency amongst some in this sector to say any energy efficiency must necessarily be a good thing, and we don't subscribe to that view, and it's just a matter of then working through the analysis on each one to work out where - what contribution it makes, and where it fits in the overall ranking of relevant policies and programs to pursue. So - - -

DR WRIGHT: I think we'd agree. It shouldn't be pursued to the nth degree. There's a point beyond which you wouldn't chase every last skerrick of energy efficiency.

PROF WOODS: Yes. Or even where at the moment it is still too problematic to be confident that what you are achieving is soundly based, and I think two demonstrations of that. I'm still personally not fully convinced on residential building current practice that it's going to achieve that is hoped. But the other is, in some of the areas of MEPS, you know, we had some evidence earlier that refrigerators, terrific, they're set and forget and highly predictable, and MEPS has been good, it takes out the bottom end et cetera.

But then when you get into more complex areas like airconditioning, with a multitude of different technologies and start-up formats and all the rest of it, that you really need solid, thorough consultation with industry to make sure that when you're setting your MEPS it is achieving what is desired and is commercially available, and will result in a good outcome for the customers. Because that sort of focuses on that trade off between what is good public policy of greenhouse gas abatement versus private cost effectiveness for individual producers and consumers, and - - -

DR BYGRAVE: Yes.

DR WRIGHT: I think on airconditioning, Stephen - - -

PROF WOODS: Yes, sure.

DR BYGRAVE: I mean, I can answer that question, I guess, quite briefly in the sense that, you know, it is acknowledged by ABNA - AEEMA, sorry, in their submission that we do consult very well with industry. I can quote from their submission, and we've referred to it in attachment B.

PROF WOODS: I think that's so for fridges, yes, but airconditioners, no.

DR BYGRAVE: They said, "Without that exemplary work the limits might have

been set too low, or there might have been insufficient competition in several sectors of the market," and that we've made a determined effort to consult with industry on the levels. So I think, in terms of consultation, you know, we're recognised for that. In terms of - - -

PROF WOODS: Sorry, can I just add on that though, do go back through the transcript of this morning, because there is a very clear difference between their views on consultation on refrigeration versus their views on what is being achieved on airconditioning. But I'll let the transcript speak for itself.

DR BYGRAVE: Okay.

DR WRIGHT: Well, we'll look at that, and we'll get back to you.

DR BYGRAVE: We'll follow up.

DR WRIGHT: Could I just go back. On one point, on residential buildings, there are other market drivers. Indeed, there are a number of developers who are keen for the star ratings on buildings to be extended, because they see that there's a strong business edge in building buildings that are one step above that which is mandated, and that they see it is a commercial edge, and also a strong requirement for those.

PROF WOODS: But where we got to this morning in some of our discussions was, you set the minimum to achieve your public policy outcomes, and then let the market - - -

DR WRIGHT: Yes.

PROF WOODS: And assist it. I mean, you can encourage it by having a, you know, five-plus star rating or something.

DR WRIGHT: Yes.

PROF WOODS: But you don't set that as your mandatory.

DR BYGRAVE: No.

PROF WOODS: So allow the market to support what you're wanting, or what collectively the community wants, in terms of public good for energy efficiency and abatement. But where you set the minimum mandatory has to be very careful, so that you don't set the minimum at the most desired outcome, you let the market forces achieve some of that over time. Now, if that then allows you to set your minimums a bit higher over time that's a separate question.

DR WRIGHT: Yes. I think again we're probably in heated agreement on that one.

PROF WOODS: Yes.

DR BYRON: Yes, the things like the accuracy and the reliability of the rating schemes, whether it's accurate or its predecessors is much less important if it's not mandatory.

If it's for information or to show people how well it's possible to do then nobody is going to quibble about exactly how accurate. But if it - once it becomes, you know, regulated as minimum then we start to get into all these very, very complicated technical details about whether it's always an excellent predictor of thermal performance under all conditions or only if it's under average conditions or for conventional designs and, you know, the - what we've been told in a number of places in that the standard software works brilliantly if you're talking about a conventional brick veneer house in Melbourne or something. But if you start talking about a pole house or a typical Queenslander in the tropics or something, then you're really getting outside the envelope for which the software is designed. So the question is, does it cope well with the extremities?

DR WRIGHT: That, again, Stephen can provide you with the detail. But that is why we have redeveloped the software in consultation I think it was with CSIRO and others, because it didn't cope well with Queensland, and therefore wasn't applicable as a national standard tool, and I think what business was also seeking was there were a whole range of different tools out there, and people were using different ones for different purposes, and it was seen by jurisdictions there was sense in trying to come up with a common tool that could be used across the nation, and that is what this new software has been designed to do, to take on board those criticisms that, it coped well with Melbourne and Tasmania, but wasn't of any use in Queensland.

DR BYGRAVE: And hence the reason for the trials that were recently undertaken in Queensland and Northern Territory, and those trials have actually shown a higher degree of accuracy than in the past. But, I mean, I think we do accept that no tool will ever be perfect, and obviously we'd be keen on reformulating and improving the design over time. But I guess we are - - -

PROF WOODS: Not being perfect is not a problem if it's not mandatory. But once you've made it mandatory you then introduce all sorts of potential distortions because of the inaccuracy.

DR BYRON: Unless there's a good appeal mechanism.

PROF WOODS: Yes.

DR BYRON: Yes. If there's some sort of process - - -

PROF WOODS: Yes, if there's an escape clause.

DR BYRON: - - - as an escape clause, so that somebody can say, "Well, the computer says that this wouldn't work, but based on dah dah dah dah I'm going to make a case that it's as good as," and I think the building code does allow that.

DR BYGRAVE: I guess the fact remains too, you take one building with a higher rating and compare it with another, and they do show, you know, differences in performance, and it's a relative measure as much as anything else as well.

PROF WOODS: Okay. Well, that got us through point 1.

DR BYGRAVE: How much time have we got.

DR BYRON: No, I think we've always leapt ahead a bit, because under point 2 there's discussion about the performance rating for buildings and so on. I guess one of the - yes, building on what Mike was saying before about the building code sets minimum standard, but it still allows people who want to have higher levels of energy efficiency to do that if they're sufficient motivated. But one of the questions that we've been grappling at is, why is it that so many people don't seem to care if their house is less energy efficient than it could be. And that is still one of the things that I don't know that we got a satisfactory answer to. You know, the logic says that if it's going to give greater thermal comfort, you know, as a place to live, and it's going to reduce their energy bills, you know, why do people persist in purchasing or renting inefficient places.

PROF WOODS: Yes, that is something we have made a point of, and your submission doesn't overly deal with it, and that is that if the cost to them of chasing the ground behind the teenage kids turning off lights or shutting curtains in the middle of the day or, you know, any other behaviours, the impact on their household budget is a couple a bucks a week at most, they'd say, "I've got better things to do with my life, thank you, than run around after the ankle biters."

DR BYGRAVE: I guess the point - I guess the point we're trying to make in the submission, and maybe it's hidden in there, is that, you know, energy efficiency may not be at the top of people's list of priorities, or it might not be at the top of their minds when they're making decisions, but take out all of the other factors that might influence their behaviour - location of a building to shops and schools, position, colour - take out all those things, and then when you get down to a decision about,

"Is this building over here, you know, it might - all other things being equal, this building over here, if it's more energy efficient than another," that they will choose potentially a more energy efficient building, once you've taken out all those, you know, size of the house, position, where it's located et cetera, and it's the same argument with makes and labelling.

DR WRIGHT: And to go back to an earlier point, that's why the package of measures that's being introduced is looking at different points in the energy efficient chain, and from physical structures to behaviours, and seeking to provide information that will surface, the benefits for individuals, that if there is progress on things like smart meters and meters in the house, then the consequences and the benefits will become clearer. We have some work to do in terms of linking energy use to greenhouse in the mind of individuals in residential areas as well. So it's sort of - there are information gaps. There is also, as part of NFREE stage one, work with the finance sector, and there are now a number of banks who are starting to offer green mortgages, as they already do in the US, but also - - -

PROF WOODS: We do in fact refer to Bendigo in - - -

DR WRIGHT: Yes. But also there are now emerging innovative approaches to upgrading your house, so that you can actually use - I think it's up to 15 per cent of your mortgage, you draw down more money against the equity in your house to make these sort of improvements. That is only just starting, and first base is actually getting information on the performance of - the rating of your house, the performance of appliance, ways of measuring the behavioural impact, so that individuals can see and place their own value on taking these steps. So that's where you actually start to bring it together, and we're at the start of that journey rather than the end at the moment.

PROF WOODS: But what - but, I mean, a lot of what that is, and linking bills back to carbon and all the rest of it. I mean, in a sense a lot of it is still second-best policy, because what you really want to do is to focus the consumer's mind on their energy efficiency, and the first best would be to hit the hip pocket with, what is the cost, the true cost, of them consuming that energy. I mean, what's the gap in your mind between that policy of proper cost reflective pricing of energy and all of these other things, putting tonnes of CO2 on their electricity bill three months after they've consumed their electricity? I mean, there's a huge gap in terms of how it would actually affect their behaviour. But what's your assessment of it in the department? How far short of optimal public policy are you in this?

DR WRIGHT: I think that's probably something that we would like to take on notice, and get back to you. That's quite a sensitive area where there are policies that have tensions in terms of their economic benefits, and clearly economically Australia

is well positioned because of its low cost of energy.

PROF WOODS: Yes, absolutely.

DR WRIGHT: And that's a comparative advantage that the government wishes to retain. On the other side of the equation, there are a number of states who are hitting peak loads, and becoming supply constrained, and there is a dynamic between trying to moderate demand and the cost of investment in new distribution and base-load infrastructure, particularly South Australia is probably most delicately positioned at the moment in that perspective, and they have introduced a summer pricing regime which is different to winter to try and address peak-load problems with airconditioning.

PROF WOODS: But in a sense, through picking your residential building again, you might be putting a five or 10 thousand dollar cost on to people for energy efficiency purposes, but through the cost of the housing they're purchasing, rather than putting a cost onto their price of energy that they're purchasing, which they would then say, "Well, I can actually do some saving on that by making sure that, you know - - -"

DR BYRON: The kids turn the lights off.

PROF WOODS: Yes, that (a) they turn their lights off, but (b), "The next home we buy will be oriented this way, or we'll put some insulation in." So you'd actually be getting them driving those of their own decision making, rather than all of this mandatory excursion into private behaviour that isn't always a perfect solution.

DR WRIGHT: Indeed, and I think as I mentioned, not - not much has been done in this area, and the benefit you would get of doing all those things in one place and at one time, and that's what solar cities is seeking to do, and to monitor and to learn from that, and to assess the relative benefits and the total benefits of both, you know, changing behaviour, changing pricing regimes and the like. In the longer term, though, it may be that both of those avenues will need to be harnessed by government if - as is increasingly accepted around the world - we need a 60 per cent cut in global emissions by the end of the century, then one way won't necessarily get you there, you need to suite of measures.

DR BYRON: We're not suggesting for a moment that all the regulatory mechanisms should be stopped immediately, and replaced by a large price signal. But what we're saying is that it may be necessary to use all the policy instruments simultaneously, but lined up in a way that they're mutually reinforcing.

DR WRIGHT: Indeed.

DR BYRON: And I think that the problem at the moment is that what we're trying to achieve through the regulatory and informative and persuasive measures is being contradicted by the fact that people are getting a price signal that says, "Hey, energy is really cheap, and it doesn't matter if we use it inefficiently." Now, I'm just suggesting that maybe we ought to get the price signal working in the same direction as all the other - - -

DR WRIGHT: I think that would be something that the PC could say.

DR BYGRAVE: Just one more thing to add I guess. You referred to the energy gap or energy inefficiency gap. I mean, you're aware and have critiqued the NFEE modelling, and obviously the underlying outcome of that is that stage one of the NFEE would only get 25 per cent of the energy efficiency potential, and that a financial incentive of some kind would address the remaining three quarters. Obviously, we've seen in the draft report a critique of the modelling approach and the methodology that was undertaken for the NFEE, but we haven't seen - I suppose I'm turning the question back to you in some ways.

PROF WOODS: Yes, you haven't seen what - - -

DR BYGRAVE: We would like an independent view.

PROF WOODS: We understand that.

DR BYGRAVE: If - I mean, and I understand the timing constraints, but I would like to get a quantification of that if that's possible from the PC.

DR BYRON: We'll see what we can do.

PROF WOODS: Mr Belin is working actively on it.

DR BYRON: Right now. Just on the subject of MEPS. We've talked about, you know, MEPS for appliances and MEPS for lift motors and, you know, other actual motors in commercial buildings and, you know, mandatory, I guess the - the equivalent of MEPS for housing and building construction. Is it an asymmetry that we don't have MEPS for motor vehicles?

DR WRIGHT: You do have international standards for motor vehicles, for the ADR standards for imported motor vehicles. So - and those are continually increasing. Also, there is the green vehicles guide which - - -

DR BYRON: But that's an information measure.

DR WRIGHT: That's an information measure we put into the public domain, and the fuel efficiency labelling, which is - - -

DR BYRON: We've got information and labelling that goes across, you know, houses, appliances, motors and motor vehicles. But when you look at minimum standards for energy efficiency, we've got them in houses, commercial buildings, appliances, commercial machinery, but not motor vehicles, and I'm just wondering why not. You know, why do we say, "Well, there we'll provide information, but we'll leave it up to individual consumers to decide whether they want to buy a five litre V8 or bigger, or whether they'd like to have a, you know, 1600 cc four cylinder car, or a Prius or a bicycle." And it just struck me as that there's a difference in approach, that suddenly when it comes to motor vehicles we'll use the labelling and the information mechanisms, but stand short of the mandatory minimum energy efficiency standards.

DR WRIGHT: You're right. There currently is a - - -

DR BYRON: I'm not necessarily suggesting there should be, or how it would be done. But I can imagine that some people would react very adversely if the government were to say, "Well look sorry, no more V8s, and you can't have a four-wheel drive unless you're a bona fide farmer, and to prove that you need one."

DR WRIGHT: The current approach is a range of information, and indeed it's where we started with appliances and with building standards, and they have - they have a long history. I think the relative importance of transport and its energy use - - -

DR BYRON: I was wondering if it was the cheaper thing.

DR WRIGHT: - - - is acknowledged. It's also - I think we have looked at this issue. It does have a number of international dimensions to it, given the global nature of the transport, the automotive manufacturing sector, and approximately half of vehicles produced in Australia are actually exported, and as you would know we don't make any small four-cylinder cars in Australia, those are all imported. Further efficiencies in sort of step changing efficiencies in motor vehicles, when we're looking at it from a - from our perspective, which is a greenhouse perspective, you are looking into research and development, which is undertaken largely overseas, and there is a long lead time for that to come to market.

So we're seeing that happen now. So it is not sensible to put in place when they can't be met because the technology isn't available. So at the moment we're operating on a basis of information, on fuel efficiency. The new labels have both

fuel consumption and greenhouse on them, and we have the green vehicle guide. We also have a target of 6.8 litres per 100 kilometres as an agreed target with the domestic industry for 20/10.

PROF WOODS: About a third of what my four-wheel drive gets, bit less.

DR WRIGHT: Priuses are very good, and selling like hot cakes at the moment.

PROF WOODS: They are indeed.

DR BYGRAVE: They don't need to advertise, evidently, because its demand is - - -

PROF WOODS: Yes. I'm wondering if in fact they've got a slightly wrong analogy there. I mean, if we take fridges. With MEPS you can't buy a highly inefficient fridge in Australia, they're banned from sale. So - but you still can buy a small bar fridge, a medium household fridge, or a whacking great double-doored whatever - - -

DR WRIGHT: Fits the purpose.

PROF WOODS: - - - and the big one will consume a lot more energy than the little bar fridge. So in that sense, the analogy is that you can still have different sized fridges with different amounts of energy consumed.

DR WRIGHT: The individual still has a choice.

PROF WOODS: But you just can't have an inefficient one that's little, medium or big.

DR WRIGHT: Indeed.

PROF WOODS: So in the analogy there actually, you could still have a bike, a Prius or a four-wheel drive, but you would just plan - - -

DR WRIGHT: But all of them have to meet Australian design rules to a certain standard, right?

PROF WOODS: - - - the minimum, yes, ADI. Yes.

DR WRIGHT: Thank you.

PROF WOODS: Is that right?

DR BYRON: So the Landcruiser would be okay, but not - - -

PROF WOODS: Well, as long as it's efficient within Landcruiser - four-wheel drive standards, not to mention any brand.

DR BYRON: No, but - yes, that's a correction.

DR BYGRAVE: Before we get off transport, I mean, we - I think when we met first we talked about the scope of the PC's task, and the terms of reference, and I think in the issues paper people were encouraged to give advice back to the commission on the extent to which you looked at different sectors. Obviously transport has been a sector that hasn't been looked at in as much detail, given the scope of your terms of reference, but I guess we would be looking, if there's time available, for some more specific recommendations or findings on the transport.

PROF WOODS: So would we, but it's been not an area that the participants have chosen to assist. I mean, we've done our own research.

DR BYGRAVE: Yes.

PROF WOODS: But if there are out there in participant land more people who wish to provide evidence to us within the time frame that we have left, transport and urban design are two areas that we would welcome further input, recognising that there is only a short amount of time left.

DR BYRON: Particularly if you've got any suggestions. I mean, we've covered the fuel labelling, national fuel consumption target. We've talked a bit in the report about TravelSmart as a way of altering behaviour, and I thought we were very positive and supportive about TravelSmart and so on. But in terms of sustainable transport or more energy efficient transport - - -

DR BYGRAVE: I think on the FBT in congestion pricing as well, to some extent.

DR BYRON: Yes, but, I mean, would you like us to particularly look more at congestion pricing or on-roads or - - -

DR BYGRAVE: Maybe we can come back to you.

PROF WOODS: Yes, that would be helpful. I mean, we've done within our resources some research, but we - and we've had some very useful contributions from some parts of industry, but it's not an area that has attracted a degree of focus.

DR BYRON: And in terms of this round of public hearings and the 40-odd

submissions that we received on the draft report, I don't think anybody has said anything about transport, with the exception of what you've raised, commenting on we're not doing much on transport. So - - -

PROF WOODS: Or urban.

DR BYRON: Yes, and the urban planning sort of issues that relate to that. Maybe that again comes back to the way the terms of reference are worded, but on the other hand, if we wanted to really get in to the implications of urban planning for aggregate transport efficiency and public transport and congestion pricing, I mean there's at least a couple of inquiries there and I don't know how much further we can take it within this - - -

DR BYGRAVE: I mean, given the timing constraints, commissioner, you might like to indicate in the final report areas where there could be further research and analysis. Rather than actually address that within the terms of reference of this, you know, inquiry, maybe provide areas of further analysis that may be of benefit.

PROF WOODS: I think that's your section 4.

DR BYRON: Help develop the questions rather than attempt to answer them.

DR BYGRAVE: Yes.

DR WRIGHT: And certainly the issues like congestion pricing are of interest, particularly to the states, and there are, you know, new initiatives internationally that have probably now been around long enough to see if initial behavioural change has been sustained, for example, in London. So - - -

DR BYRON: Are those sorts of issues likely to be picked up in solar cities?

DR WRIGHT: No, solar cities is energy - stationary energy focused, not transport focused. There is the potential for new approaches to look at abatement solutions in the transport area and their long-term impact. Such proposals could gain funding under the government's new low emission technology demonstration fund, which is a 500 million dollar fund, and that specifically includes transport and energy efficiency.

Any proposal that comes forward in that fund would have to meet the criterion of having the potential to deliver a 2 per cent reduction in greenhouse emissions from 2030. So you could conceive that there are transport solutions that could do that, and if, you know, proposals could be put forward for assistance to - like solar cities - to actually try out some of that stuff, demonstrate that it is effective under that program,

but it hasn't been done as yet and we will be going to market later this calendar year with that program. We've just had the draft guidelines signed off for public consultation.

DR BYGRAVE: It's far to say that transport remains an area of concern for us. I mean, it's - you know, it's a rapidly growing area of emissions. So we acknowledge that it's a very difficult sector because of the wide variety of areas you'd need to target. There's not a one-off sort of quick fix.

DR BYRON: Well, as you - in the draft report we tried to just aggregate that into the sort of the freight task and the passenger task, which is both sort of private motor vehicles and urban public transport type things. But - yes, I guess we could spend a whole inquiry just on the freight task.

DR WRIGHT: And indeed one of the highest areas of growth is in light commercial vehicles.

PROF WOODS: Yes.

DR WRIGHT: So there's another inquiry in that probably too.

DR BYRON: We're not looking for more work.

PROF WOODS: I think we could quite reasonably identify sort of unfinished business as part of this report and to recognise that there are areas that we've uncovered but that, within the constraints of this particular inquiry, we haven't dealt with them to the fullness that they deserve.

DR WRIGHT: I think that would be helpful.

DR BYGRAVE: Yes.

DR BYRON: I'm now looking at the point 3 in the clarification of the policy issues, and again come back to what we were talking before, about energy performance ratings for appliances and buildings, and I've just been reminded that we were talking before about how important is energy efficiency of a residence to prospective buyers or tenants, and the anecdotal evidence is that it continues to be relatively unimportant. Talking to real estate agents, for example, or even you do something as trivial as go to property.com.au and, you know, look for a house for sale in any area, it doesn't give you the option of saying, "First, I want a house that has a certain energy efficiency and then I'll ask what suburb it's in," or whatever. Location, location, location and then four bedrooms, three bedrooms. How many bathrooms, how many garages? And as far as I know, none of them even have a place where you

can inquire as to or specify that you want some minimum - - -

PROF WOODS: Well, in the ACT you get this little thing at the bottom that says, "EEO" something.

DR WRIGHT: EER.

DR BYRON: EER.

PROF WOODS: EER, and I never knew until this inquiry what that meant. I just thought it was some code that they put on - - -

DR WRIGHT: And it's the efficiency rating.

PROF WOODS: Yes. Yes, I had personally had no idea that that's what that was.

DR BYRON: But more worrying than that is the people who thought that zero was best.

PROF WOODS: But quite frankly, you see the number and it might be a 1 or 0.5 or something, but you read the blurb above, you know, "North-facing, wonderful location, four bedrooms, come and enjoy Canberra's winter." And so that will be the attractive words and then there's this little fine print at the bottom that says that but it actually rates as point 5 or 1 or 1.5, and there's this total disconnect between what the estate agent is - how they're selling the property and what this little number is down the bottom that, as I say, I out of total ignorance had no idea what that meant.

DR BYGRAVE: I guess the short answer to that is that the review of the Act program will give us some fodder - - -

PROF WOODS: Yes, and we see that.

DR BYGRAVE: - - -and advice here, and I guess the point I alluded to earlier, you know, take out all those other factors and you come down energy efficiency, people will make a decision on that - - -

PROF WOODS: But it's a long way down the list.

DR WRIGHT: It is currently, but again we're still travelling this road - - -

MS CRAPPER: Yes.

PROF WOODS: Yes, early days, understand that.

DR WRIGHT: - - - and the connection to the finance sector and this becoming meaningful to banks in terms of an individual's ability to repay the loan, and that's what starting to occur now with the changes in the products that they're providing, so we do have a way to go in connecting those dots.

DR BYRON: But on that subject, you might be interested in the submission number 99 from people who are coming after lunch this afternoon here - Virr, who is an architect, and Mr Paul Hanley, who is a building designer - on what they see as the disconnect between what the public want in terms of energy efficiency and what the rating schemes are actually delivering.

DR WRIGHT: We'll certainly have a look at that.

DR BYRON: It might be one that you'd enjoy reading.

DR WRIGHT: I look forward to it.

PROF WOODS: Can I at this point just ask about labels, just because I want to. Is that all right?

DR BYRON: Yes.

PROF WOODS: Thank you. On page 116 of our draft report, we've got a heading, Do Appliance Labels Change Consumer Behaviour, and we quote from the authoritative Department of the Environment and Heritage, sub 30. It talks about where labelling helps to differentiate the final two or three products after people have gone through a certain other selection process.

DR WRIGHT: At the top of the page.

PROF WOODS: Yes, at the top of that page, and then we quote some research that was undertaken for the AGO and this is the Winton stuff and we give the full reference to it in our report. Did that particular assessment sort of strike you as a reasonable representation of the issue and the summary that we make at the bottom, that labels are not a primary determinant but they do appear to have an impact on some consumers once they've short-listed models? I mean, does that offend you greatly or does that - - -

DR BYGRAVE: The only thing I can really say without reading it again in detail is that I scribbled against the summary and put a tick against it, in the sense that, I mean, that's the point I've been trying to make a number of times in this hearing, is that once they've short-listed other factors, that they are a determinant.

PROF WOODS: Yes. That's all right. No, it's just that we had evidence from a Mr Wilkinfeld - - -

DR BYGRAVE: But the discussion above that, I'd have to read it again.

PROF WOODS: Yes. No, no, and they're just quotes out of some research that we had, but we had a Mr Wilkinfeld give evidence that drew on some other data that said that energy labelling now rates as the second factor in people's choice, which seemed to be inconsistent, so - but I thought our representation was drawing on our evidence. So I was a little bit surprised with that but, no, that's fine.

DR BYRON: Just on labels. Am I correct in saying that you're not very happy about the idea of disendorsement labels?

DR BYGRAVE: I thought you might ask that question today, so I came prepared.

DR BYRON: Good. Thank you.

DR BYGRAVE: Look, you asked in the draft report for advice back on disendorsement labels and we provided some information in our submission back to the commission. I guess the long and short of it is, is that it is a possibility. It is a possible approach. I'm just trying to find it now. I had some notes of my own. I can't find it. Was it attachment C? It's straight in front of me. I've got it now.

I mean, I think it is an option that has been discussed with industry and it's obviously being adopted with the water efficiency labels and the standards for efficient showerheads, within the Department of Environment and Heritage. So it being used for other sectors as an approach. I guess it has similar issues to some extent, in terms of labels and maps, in terms of, you know, capital constraints for some households, the split incentive problem. In other words, you might get a landlord going and buying a product with a disendorsement label on it and putting it in his or her house, but the tenant sort of suffers the consequences.

PROF WOODS: Particularly if it's a large block of flats and they're buying several hundred of them in one go.

DR BYGRAVE: That's right.. So I mean, I guess it still suffers from some problems, but it is an option.

DR BYRON: Yes, well, we did ask the gentlemen from AEEMA about this earlier this morning and they were even less enthusiastic than you are and I think they may have even convinced us. But I mean, thanks for the feedback on that. It - - -

PROF WOODS: Yes, it's an area that needs to be investigated on a case-by-case basis, but there are probably very limited cases in which it proves to be relevant.

DR BYRON: Okay.

PROF WOODS: I think - I mean, I know we've sort of digressed from following numerically 1 to 5, but that was fun.

DR BYRON: Yes, I was going to ask you something about whether MEPS have the effect of manufacturers leaving the market, but your colleagues from AEEMA have already sorted out this morning so I don't need to ask you that one.

PROF WOODS: And again, refer to the transcript. To summarise, my take from their evidence was that, yes, you might get one or two small players who exit the market but, if they're a large player with a large market share, they might come back in once they've found an alternate source of supply of relevant components or something. But the important point was to make sure that the MEPS were set at a standard that allowed sourcing of large-scale commercially available product from the global marketplace. There's no point setting a standard where you couldn't buy compressors that were cheaply and efficiently made that wouldn't meet your overall standards. So it had to be commercially viable and real.

DR BYRON: And the lead times,

PROF WOODS: Yes, and lead times - - -

DR BYGRAVE: And coming back to our point before, I think we are acknowledged - - -

PROF WOODS: You are for fridges.

DR BYGRAVE: - - -for a consultation process with industry, and I guess the other point we'd like to make is that there are a number of other structural, you know, considerations within the industry that may also influence producers leaving the market.

PROF WOODS: Yes, absolutely, and this might just be an additional point that just says, "All right, that's an appropriate time to exit, because I can't be bothered retooling or - - -"

DR BYRON: They were about leave anyway.

DR BYGRAVE: And I guess to infer that a producer might have left the market because of MEPS, you know, you'd to take account of all of the other factors that that might be affecting that particular producer.

PROF WOODS: No, I think you'll find that section is sort of written with the various evidences now very clearly outlined. Sorry, Mr Berlin, was that a - - -

DR BYRON: Just again on the subject of MEPS, I guess I hadn't appreciated until the last couple of weeks the significance of the move in the criteria for MEPS from - you know, to world's best practice. From - what was it before? The privately cost effective or something. And that, it seems to me to be something I should have appreciated, that the - were there any definitional problems in working out what is world's best practice when it comes to MEPS? Can you tell us a little bit more about why it was necessary to change that objective away from, you know, privately cost effective to world's best practice.

DR BYGRAVE: Look, I'd have to come back to you on that, but I guess a related issue is that, you know, the International Energy Agency has looked at a number of OECD countries and the way they were implementing MEPS and Australia is acknowledged as being a leader in this area.

DR BYRON: Yes, well, there's the question of how far in front do we want to lead or do we want to be - you know, is it nice sometimes to be second rather than way out in front. But I was just grappling in my mind, what does it mean to be world's best practice for a manufacturer of appliances or world's best practice in assembling motors.

DR WRIGHT: I think that also goes to the lead time for implement MEPS as well, but we would prefer to take that on notice and consult with our expert.

DR BYRON: But one of the things that also occurred to me in thinking about that is that, if we were particularly asked to look at measures which are privately cost effective, maybe MEPS isn't even in that portfolio. I mean, the MEPS are no longer - they may have been once, as measures that were being introduced on the basis of being privately cost effective, but the way MEPS work now is that they are justified on the broader, you know, social, economic and environmental pay-offs of having MEPS. They don't make any claim that they will be privately cost effective any more.

DR BYGRAVE: I mean, as with all of our MEPS, you know, we have to go through the Office of Regulatory Review and, you know, that's a very thorough process obviously.

PROF WOODS: That's a process to make sure you've gone through the right process, but not a process to confirm that your outcomes are necessarily correct.

DR BYGRAVE: Well, I guess we do have the overall objective of the net public benefit with MEPS, and as I indicated to you before, we're keen to get advice back from the PC on how we can maximise that, the net public benefit issue, but also minimise costs, private costs, in that process.

PROF WOODS: Is net public benefit though- do you shorthand that for world's best practice? I mean, is that the policy that you're striving for in MEPS?

DR WRIGHT: Again I think that, in getting to the MEPS and the evolution of the standard, we would prefer to take that on notice and get back to you, and we'll do that quite quickly.

PROF WOODS: That would be helpful.

DR BYRON: I knew there was something else I wanted to ask about, and you've raised it with the RIS. Dr Wilkinfeld, on Tuesday, had mentioned the draft of the paper that he'd written to advise on RIS processes, which I found - the guide to preparing RIS for appliance and equipment energy efficiency programs. There are a number of things that struck me about that, but my understanding - well, what the Office Regulation Review tells us frequently is that they like to work with the people who are generating legislation or regulation from the beginning of the process and that it's an interactive thing. It's not meant to be an ex-post exercise that's done after the decision has been made.

But one of the things that, you know - I may be reading too much into it, but there seems to be an undertone that, say, with MEPS or the Building Code of Australia, a decision is made that we're going to have a regulatory approach. We're going to have new regulations here, and then we will outsource to a consultant to find the facts and figures that will come up with something that confirms that this is the right thing to do. Now, I'm being deliberately provocative and pejorative there. But when I talk to the Office of Regulation Review, it was never meant to be that sort of ex-post rationalisation. It's meant to be something that starts right at the beginning, in terms of, "Do we really need regulation here at all, and if so how might it be done?" with lots of exit strategies built in.

And it would seem regrettable if we get the stage where you right down the regulatory route and then just say, "Well, okay, you go away and prepare a RIS."

PROF WOODS: "Write the RIS that supports this."

DR BYRON: "A RIS that will get through the system, that won't get knocked back, so that we can do what we've already decided." Because, you know, the test there would be how often has the consultant, in preparing the RIS, comeback and said, "Look, I've looked at all the figures. I've done a benefit cost analysis. I've thought about other ways of achieving these outcomes and, guess what, you don't need to do a RIS because you don't actually need to do any regulation." You know, has this ever happened? Now, the way that the ORR talks about it, that's all part of the internal process, long before you get to making a decision to have regulations, not something that happens after. Now, am I completely wrong in my concerns about the RIS process is working?

DR WRIGHT: I think - and we might need to think about this a bit more - but there's - what you may be talking about is the intersection between sort of the whole of government processes and exercises like the government's energy task force and energy white paper deliberations, which look at broad economic benefits - I think it was 8 hundred million per annum - that could be achieved from energy efficiency, and various ways to achieve that so that policy and directions were being set at a high level and how that intersects with state processes.

And the RIS then is actually brought in to - is actually implemented - that without RIS's may indeed have been initially intended to operate the way that you say for individual items, but when you looking at sort of major policy directions, then there's - maybe there is a disconnect or there's an intersection between high-level strategic and then how those are actually implemented and I think the way the RIS processes have been used to implement government policy seem to be appropriate, but may not be using RIS's quite in the way that was initially intended, when you were talking about individual new regulation rather than broad policy suggests.

DR BYRON: Because the MBA were sort of having a bit of a go at the Building Codes Board and the way they do the RIS. But from the Building Codes Board, it has already been decided that there shall be regulation, it shall be done through the Building Code and it will pursue greater energy efficiency. So when the ABCB - they don't have the option of saying, "Should we pursue non-regulatory approaches here? Is there a different way that the private sector could do this?" Because the decision has already been made, you know, way above them, that there will be regulation and it will be done this way. And so it's a different - no wonder there are tensions in the way the RIS process works.

DR WRIGHT: Indeed, but even given that context, in order to pass through the RIS process, you do have to demonstrate a net benefit, otherwise it doesn't proceed. You haven't got the parameters right, and so you have to go back to the drawing board and consult with industry and go through the process again, if you want to do

that.

DR BYGRAVE: I guess the other point to add is that non-regulatory approaches have been - if we look at history, have been pursued in the past with, I guess, limited success and that's another reason why the regulatory part has been looked at.

DR BYRON: Okay. That reminds me of one last area that I wanted to talk to you about, is that we were told on Tuesday morning in Sydney that - and this is getting into the industrial manufacturing sort of area, which we haven't explored yet today. Energetics in their submission and in the hearing said, you know, Australia's managers are generally pretty awful. There's always lots of low-hanging fruit. "There are few energy efficiency gains that we can see, which the managers of these manufacturing enterprises don't see. But for various reasons they're too busy doing something else and they don't want to talk to us."

Now, if you imagine a situation where governments weren't concerned either about greenhouse issues or about the costs of building major new capacity additions for the electricity grid and you've just got business, some of whom are efficient, some of whom aren't, and you've got consultants who have technical analytical capability, who can see - you know, normally, some contracts would be made. Those who got good advice would do well and they'd prosper, and their competitors wouldn't. But because governments are interested in the greenhouse and the costs of major new capacity additions to the electricity grid et cetera, governments now have an interest in seeing those energy efficiency measures adopted, you know?

So some people have suggested to us that there should be an accreditation scheme for energy efficiency consultants and that it should be run by the government. The other proposal is the mandatory energy efficiency assessments, which will require the businesses to employ the consultants to reveal these low-hanging fruit.

I'm trying to think of a way whereby these win-win opportunities - and I believe they do exist - how they might be exploited more and more often without necessarily involving your department or mine or government in general. Is there a private sector approach here, rather than regulating? Companies like Origin and AGL say, "Yes, we will provide energy advisory services as part of our customer relations," sort of thing.

Before we pursue the mandatory measures of requiring energy efficiency assessments, have we thought through all the non-regulatory approaches? I guess that's what I'm getting at: if we can identify precisely why businesses aren't just getting together and exploiting commercial opportunities where both the consultant and the manufacturer make a bundle of money, is the only way out of it government

intervention? Let's try and be more creative here. Why doesn't it happen?

DR WRIGHT: There is intelligence from programs like the Energy Efficiency Best Practice program which was run through the industry department that shows surfacing the information on energy use within a company can often be quite difficult. The information is fragmented in many places and many sources. Some fairly major companies who participated in this program and who are also members of the Greenhouse Challenge - and most of the abatement in Greenhouse Challenge actually comes from Energy Efficiency - they have said that they were able to pick the low-hanging fruit in their companies in one way, which was, in the first instance, making someone accountable for energy use and energy efficiency, that it was that person's job and they would report on that and be accountable for that. That surfaced the information and caused analysis to be undertaken. So it was a decision-making factor within the company, and that without that it was actually quite difficult.

We have found through the government program on energy efficiency, which ran for three years - and the commonwealth government set itself a target to achieve on energy efficiency. It reported in the public domain on that annually. Agencies were ranked in terms of their ability to deliver on the target. Those at the bottom of the ranking were inundated with calls from energy efficiency consultants. They actually took them on board because they didn't want to be at the bottom of the list again. So that was a way of actually, within government, setting a cross-government target but agencies reporting on their performance. Then there was market pressure, through information, to do better.

DR BYRON: Could that be pursued further? Could we take that further more aggressively? Because not only is the government showing that they're serious about improving their own energy efficiency, but it's also creating a market for energy performance contractors, et cetera, and it's also providing us with a demonstration affect to other businesses of how savings can be made. Is that something that governments might pursue more vigorously?

DR WRIGHT: It could be. I think we would need to look at that. Looking at that sort of incentive, clearly the energy efficiency target is one line of thinking in how you could progress those sorts of things. Looking at it requiring under sort of normal reporting requirements for companies, that they can in their annual reports put this sort of information into the public domain to allow comparison across time and between companies might be a way of going, but probably one would want to do that on a voluntary basis and in the first instance. It's quite a tricky area as to how to get the focus and how to surface the information to all players in a way that it is meaningful to them.

But as I said, there are some very big companies who have said that this focus

within the company was their first step to uncovering what could be done. Clearly, that sort of thinking is behind the government's energy efficiency assessments - is to say, "We're encouraging companies to have a look. We're not saying that you need to pick these up, but please have a look and report that in the public domain."

DR BYRON: One of the CEOs that I spoke to cited Edward de Bono and said, "The biggest problem you've got is the problem that you don't know you have." Because they haven't had the metering systems and they haven't been following energy consumption across the plans or whatever, for a long time they didn't even know that they had a problem there, let alone how to progress it and what to do about it.

DR WRIGHT: A lot of this information is captured by many and varied systems and many and varied government programs across jurisdictions. There is a current exercise: a joint working group has been set up across the Ministerial Council on Energy and the Environment Protection and Heritage Council to look at streamlining energy and greenhouse reporting to government and in the public domain. We, this week, have been holding consultations on that to look at what can be done to make information collection less painful for companies, and also to look at the systems that are in place to do that and what use can be made of that data. So there is a process that may go some way towards facilitating that direction.

PROF WOODS: Which brings out the question of program innovation and review. That's a nice watch. The message that comes loud and clear from businesses is, certainty is very important in their business planning. So whenever governments change programs or change criteria within programs or impose new conditions, if they felt confident that that was a five to 10 year horizon then they might accept it better. But then they think, "We don't know what's down the road in one year or two years or what this other jurisdiction where we also operate in" - so in the formulation of policy, certainty is a very important criterion.

DR WRIGHT: That issue has surfaced in looking at the requirements for reporting across jurisdictions. My recollection is that we've identified some 22 programs across jurisdictions which, depending on which company you are, you might be caught by. There are a number of companies that would be caught by at least nine of those programs. That does raise the question as to, not only can you streamline the collection and adjust the consistency of data that's collected, but is there any appetite for going further and actually looking at the programs themselves. That's something that ministerial councils will need to grapple with.

DR BYGRAVE: In terms of the certainty, also, the mandatory energy efficiency opportunity assessments is over a five-year timeframe and more, so that does give enough - firstly, it gives enough lead time for companies to be involved, but also it's

over an appropriate timeframe to give certainty to the industry.

PROF WOODS: In the interests of time, I won't have any more long and convoluted questioning.

DR BYRON: You'll leave that to me. Yes, in the interests of time, I think we're going to have to let you go. Is there any concluding summary statement that you'd like to make?

DR WRIGHT: I think the five key points that we've brought to your attention are really sufficient. We would appreciate anything that the commission could do in looking at how the public benefit can be referred to in the context of the report.

DR BYGRAVE: Very happy to work with you over the timeframe remaining to the final report and to assist you in your task.

DR BYRON: Well, thank you very much. We've heard your five points loud and clear. Thank you for coming.

PROF WOODS: That was a very helpful submission. Thank you.

(Luncheon adjournment)

DR BYRON: Ladies and gentlemen, we will resume the public hearing of the Productivity Commission's inquiry into energy efficiency with Mr Virr and Mr Hanley. Gentlemen, if you'd just introduce yourself for the transcript so they'll recognise the voices later on. Thank you very much for the written submission, which we've read and appreciated very much. If you'd like to take us through the main points of it, then we'd like to discuss it with you. Thank you for coming.

MR VIRR: Thank you. My name is Laurie Virr. I am an architect based in Canberra. The draft report - - -

PROF WOODS: Mr Hanley, could you also introduce yourself, please.

MR HANLEY: My name is Paul Hanley. I'm a building designer in practice here in the ACT.

MR VIRR: The draft report to the Productivity Commission illustrates what a complex matter the relationship between energy efficiency and the environment is in a country where democracy and individual freedoms are taken for granted. Business regulation in Australia has doubled since the 1980s. Surprisingly, the Building Code of Australia has represented a move in the opposite direction, with deemed-to-comply provisions displacing many of the previous mandatory requirements.

For those of us who hold that the size of a citizen's kitchen or the height of the ceiling in their bedroom is nothing to do with government, this is a welcome development. The incorporation of mandatory requirements for energy efficiency into the BCA would be a retrograde step, in our opinion. Innovation requires that accepted rules and standards be broken. Joseph Haydn broke the rules, allowing us indirectly to listen to the sublime works of Wolfgang Amadeus Mozart.

There is not one magic formula for the design of a solar house as the zealots for the current legislation would have us believe, but rather as many as there are folk who want them. The whole history of the human race revolves around the old, regardless of physical age, telling the young, regardless of age, that certain things cannot be done. The young in spirit have moved in the direction of their dreams and found them capable of achievement. Were it not so, we'd still be living in holes in the ground. Paul Hanley and I can justifiably claim to have had a measure of success in the design of solar-efficient buildings, but the means by which this has been achieved are almost diametrically opposed to the structures of the various house energy rating schemes.

Here in Canberra, every impediment is placed in our way by the planning

department and its advisers, yet our work has attracted interest overseas. In 2003 I was invited to address the students and faculty of the School of Architecture at the University of Minnesota, Minneapolis where some of the best research in the world is being conducted into energy efficiency. Much of my career experience with government planners and building authorities has been involved in attempting to persuade them that a little imagination can make for significant changes in building regulations. I have been successful in that regard, but it's been a terrible grind to have to do it.

Planning is not like the law or economics, in which professions one can have a distinguished career in either government or private enterprise. A planner of imagination and ability is usually attracted to private enterprise, and the others generally work for government. We really need some regulations, but the fewer of these that we have administered by the present planners the better, really. Thank you.

MR HANLEY: The house energy rating system, the way it's implemented at the moment here in Australia with the stars on it is a whole academic invention. It basically gets misconstrued here in the ACT, where we were supposed to get it right. This was the test bed. Out there in the community, governments promoting or bodies like the AG.O., Australian Greenhouse Office - have been promoting million dollar houses that have got these so-called fantastic points, yet I've achieved higher points and never been put into the system.

The whole concern comes down to the fact that, basically, the house energy rating computer program basically just is a window-shuffling program. We've been trying to tell the people that that won't assist them; that, you know, just make mandatory insulation requirements. Before they brought it in, we went into mandatory insulation requirements, but there's no policing of the whole system from when we do find a house at fault - we've been in tribunal hearings for three days for some people, giving our time to stop some projects going ahead.

But on the policing - just using their own medicine back to themselves, they've never sort of pulled the reins on the developers in these particular cases where a house has got two and a half stars and you're supposed to get four stars legally. The house had been fiddled in this particular case by having the north-point on the site plan all wrong. You just move it round. They never police that.

I'm finding out there on the coalface, where I am - I've got friends in the trades - they crawl in ceilings in new houses and developments and they're finding houses built today without insulation. So the whole thing is a theoretical system up front, rather than a checking system behind. The way we run our building system, as we de-skill, and have less real trades out there, everyone's just in there on a role of

liability, basically. Is it the whole practice of building certification?

So when you look at whether the insulation is installed, I ask a building certifier, "How come I'm finding houses out there that haven't got any insulation in them?" They're saying, "We don't really inspect that. We just want to see a certificate." So it's just a paper chase. So we're getting all this paper, and people out there are sort of saying, "Why isn't my solar house working?" I've had them myself, and I'm sort of wondering, "Well, I would have thought this would work better myself." So, "Can I go for a walk up into the ceiling?" I got up into the ceiling: no batts or the batts have just been thrown up into one corner, and the installers have left the job.

You inform the authorities; there's never anyone brought to task for it. Don't want to review it. Why is this so? And there's all this academic sort of extrapolation of the star system itself. If you go to buy an appliance here in Australia at the moment, you'll see the little fridge there with one or two stars and the large fridge with three stars or four stars, because the house energy rating system works on an inverse square law arrangement: the more volume, the easier to achieve those points - like these large buildings around here, they get those points very easily compared to the small houses.

So the government is implementing conspicuous consumption. They're saying, "You really need to buy a bigger fridge than you need or the bigger house," the McMansion as we coin it today. I can give an example. I tested an old aged pensioner walking up the footpath this morning, and my mother was another example with a small fridge she'd won - and said, "Look, this is great; it's got one star on it." I said, "No, that's not the way it works, mum. You should have five stars." Then I sort of come to it and said, "No, my mother is right. One star is right." Because they're telling us that we've got to have the big two-door fridge that gets five stars.

I'm saying, back in 1987 that the solar congress at the ANU here - I said, "Why are we going off on a new tangent here in this country compared to other countries, the way they run energy rating?" I'd been privy to sort of seeing the way they run them in the US of A. Like, a fridge is sold there by dollars, the energy dollars. If you take the example of a two-door fridge in America with an ice maker, it uses \$600-odd of electricity, and the one without the ice maker uses \$150. So it really sank into me. That's the way you've got to communicate with the public; not this esoteric sort of shuffle of stars in some academic sort of thing, and then you've got to read the kilowatts.

So they give people this brain exercise which basically makes the eyes glaze over, sort of effect. We've got to get it explained as with car fuel efficiency. That's the way it should be. You've got a sticker on the windscreen these days when you go

to buy the car, if they haven't removed it Okay?

But it's not advertised what the efficiency is. It's not been put in, the fact, the requirement, that if I want to go and see the price of that car that uses only so many litres per 100 kilometres, that's not even being conveyed. So there doesn't seem to be a marrying up of how we put energy rating or convey it to the public. There's a great cynicism here in Canberra, any time when they bring up the issue of house energy rating on a radio program. The radio program jams up. I recently wanted to put my little two bob's worth in, and I couldn't get on the air, it just got people so upset. They just know it's just to comply, its bureaucracy in general, and there's people making great deals of money just to print out basically an energy rating, telling you how many stars in a house.

Even when we find wrong ones that have been energy rated, they still - the authorities don't police it. They've never brought anyone to task. Also, living in an island, inside of New South Wales, we've got to try and comply with different systems. Over the border there we've got NatHERS. Here in the ACT we've got a First Rate Victorian based system, and they've been shuffling the numbers over the years. The score of a few years ago doesn't mean anything to do with a score today, yet the implementers of it told me, "Paul, I don't know why you're so upset about it. Your houses should be getting 15 and 20 stars." No, I don't - I still get five stars, let's get it right. They don't sort of listen.

So they've brought in another token six star into the ACT, to sort of appease people like me, and that's all they've done about it, you know, so I still don't get the 20 or the 15 stars in the scoring. So it doesn't even help communicate to the people. When I've taken my own little polls out there on people that do ratings, and the real experienced ones who have seen the system from its beginning, and they're in these societies I'm in, the Solar Energy Society and the Alternate Technology, I've asked, "If we had to live with a system with the bureaucracies, which one would you pick, you know the NatHERS or the FirstRate?" "Really, none. I go back to the very first one they had, the simple one, the tabular, where people could do it themselves. "

It's a manual system, you'd tick it off, because house energy rating, I'll go back to it, that it's basically just a program that shuffles windows around. They just say a window is north, south, east or west. The wall surface areas are just taken as a bulk. And here the Australian Greenhouse Office tells us how great it is to have passive solar energy design. They give a really bad example, a house that's already in shadow because of the extended surfaces - or walls on the front face, and then they've got a disclaimer here with an asterisk, saying, "The house energy rating system is basically here to model, you know, artificial heating." Their telling us on one hand you can achieve heating by the sun, but the program will not sort of tell you how your house is going to work with using the sun.

MR VIRR: So the program is - excuse me, the program is designed - the current program, FirstRate, is designed to rate the capacity of the house to keep artificial heat in, not the other way around, and they're just dodging and weaving and trying to keep this system going. I'm sorry.

MR HANLEY: Yes, but I can see the role of the government here, and the people to run the system and police it should be bringing these things into, you know, sort of bringing people in and saying, "Well, why have we got a house out there with no insulation?" They don't want to know about it, because of this trail of litigation they're worried about. You know, if there's a certificate there you've got - that is all they want to know. This is how business works in Australia. If someone goes bankrupt, if they didn't install the insulation, you've got Buckley's chance of getting so many cents in the dollar to get that insulation in, and I've had clients in that situation. So when you try to do the paper chase it don't matter, you've just got to buy the insulation again.

So they're just fobbing everything off, because the inspectors don't inspect any more. All they want is certificates from the installer and the liability goes down to the lowest common denominator, the bloke that's gone out and decided he wants to go and install insulation. And then there's big business out there, and small businesses that are making all these claims of so many R values on insulation. We don't even - we haven't even gone down the path of even occupational health and safety sort of things, whereas if you go to the US these days you can get a so-called fibreglass batt. It's an encapsulated batt, it's got plastic surfaces on it, so you don't have to get that itchy stuff all over you. We can't even understand why we can't even get manufacturing to do that, and actually stamp on the face of it the R value from that manufacturer. There's no indication of the thickness. When you see a batt up in the ceiling it could be just any generic batt. There's all this sort of people going out to do ratings. They do ratings over the phone here in the ACT, because it will cost you too much if we really had to go out there, and basically the disclaimer is that the information was fed by the client, and the real estate agents do this via the client. So they've put the liability down the line, so they can give you all these nice numbers and pump it up. But in the end it doesn't mean a lot, and the cynicism is out there to back it. And all you are doing is converting the converted when you say you've got a five-star house.

The rest of the community don't really know or care. Like buying new appliances. There's bigger issues too in this world of globalism. We've got different voltages in the world for appliances and electricity. You hear the things like phantom power supplies. We've got these remote controls of television sets. You should be turning your television set off at the power point. The technical side doesn't equate with the theoretical side. If you go and turn that television set off

every day at the power point the switch will fail, it's not robust enough, it's been made to be turned off by remote control - you'll end up having to buy a new TV set, because it's cheaper to buy a new TV set, because we're in this disposable society where everything is made in China pretty much. You know, the obscenely cheap products we have.

But with the globalism of making computers, printers, anything, we've got all these power supplies that sit outside of the units, so it can be made for a world market, and they make a non-switched transformer. So there's no regulation on products to have all these phantom power supplies. The other thing is, talking about transformers, we can go in that direction. All the lighting, down lights these days, all running on car lights. They're basically adapted car lights, so they step them down with a transformer that generates heat. That 50 watt light still takes another 10 watts to run heat up in the ceiling, and a house energy rating doesn't actually take into account that people want these trendy new down lights for their kitchen with casting shadows, because they look like a nightclub sort of approach to the kitchen.

And the whole thing is that these down lights are acting like little heat tubes - like what's called a stack effect, the chimney effect, and they're sucking heat out of the building. Yes, the first thing when an electrician goes up there, he puts those lamps in, he tears the insulation apart so the transformer won't cook. So there's no official advice out there, although there's some of these 'Owner-Builder' magazines. The officials don't tell people what a horrific thing and direction we're going in. But industry sort of ignores it all like it doesn't happen.

DR BYRON: Can I come in there. You talked about the way the American appliances are labelled in terms of the, you know, the typical running cost of this ..(not transcribable)..

MR HANLEY: Yes, so that really communicates to people - - -

DR BYRON: Could that - could you do that for a house? I mean, I've asked other people and they've said, no, it's impossible. But I don't understand why, given that you can say that a car - - -

MR HANLEY: Litres per 100 kilometres.

DR BYRON: - - - driven at normal speed, with the tyres properly inflated, with four people and their stuff in it, will on a highway use X litres per 100 k - couldn't you say this house, if occupied by, you know, two adults and two kids and a dog, or whatever, and if used normally, you know, through a full year, this house should expect to have an electricity bill of 1000 bucks, one of your houses you would expect to have an electricity bill of 50 bucks, or whatever? Is it possible to devise a way

that would actually give that information?

MR HANLEY: Exactly. That's the way I'd like to go, and in the US and Europe these days they do what's called a blower-door test. They test on air infiltration, but it's measured in the field. We've got to go out there and measure things. Infrared photography, we can do that by audits.

The utilities in the US have to actually do an audit, the public don't even pay for it, they've got to give energy advice through the utility on how you can improve your house. The nerds out there who want to have us have house energy rating programs says, "No, we can't do it the way you just said, because we've got gas that's sold in kilojoules, and electricity is in kilowatts," and I can't see why you can't have a conversion, and even extrapolate some sort of thing. It's even like they said, they were anti-me with the energy dollar system that Americans communicate with. I said it can be Sale of the Century dollars, you know, we've seen these programs. They don't have to be real dollars, but the cost communicates to the world, no matter where you are on the planet, it's the money thing. It really does communicate. So if we extrapolate an energy dollar thing as a hypothetical thing - - -

PROF WOODS: Are we trying to get too sophisticated with some of these?

MR HANLEY: Exactly.

PROF WOODS: I mean, if you said you've got to have roof insulation, wall insulation and maybe under floor insulation, if you don't have a slab, you've got to have eaves that are - - -

MR HANLEY: That's wrong.

PROF WOODS: - - - a sensible size, not the big 900s sitting here in Canberra - things, you know, so that you get maximum winter sun penetration, and north orientation to the extent relevant. So just sort of, you know, pick four things and say, "Well, you've got to have those," and then, you know, other than that - you know?

MR HANLEY: Again, it's formulating, saying you have to have an eave size. I can design a house that doesn't have an eave, and still works.

PROF WOODS: Yes.

MR HANLEY: But the first thing, I had an event at the counter of the planning authority yesterday, and the bloke said, "Yes, I agree with you, you know, because I - yes, you can have the right eaves." I said, no, I've been trying to tell people, you have more flexibility with a bit of shade cloth does more work than an eave.

PROF WOODS: Yes.

MR HANLEY: You know, and - - -

PROF WOODS: Okay, but a solution, yes.

MR HANLEY: It's formulating design, basically.

PROF WOODS: Yes.

MR HANLEY: That's what they're trying to do. So they stifle design and input. Because we get discounts against the other designs - and they're still coming out high, real high scores.

MR VIRR: If you don't have a 900 eave then you're penalized- you don't get as many points. Sorry.

PROF WOODS: Yes, 600.

MR VIRR: If you have a shorter eave you don't get as many points as if you a 900 eave, and that's ridiculous. And the other aspect, which is common in most of the literature that's put out about solar houses is that houses should be sited, say, true north. When we started in - in the 1960s, when I started in the 1960s I sited houses 10 degrees east. Our experience has shown that in a place like Canberra in the winter that very often the mornings are foggy, and there's no sun, and so you're best off to be around to the west. Now, if you're around to the west in the national house energy rating scheme, you lose points for that. You're getting the useful sun say from 12.00 till 3.00 on a foggy day, and you're penalised for it.

PROF WOODS: Yes, because it's built for Sydney and Melbourne. Well, Melbourne is getting fogs these days, but yes.

MR HANLEY: Yes.

PROF WOODS: Yes.

MR HANLEY: It's all about - yes.

PROF WOODS: It's all about just the main centres.

MR HANLEY: There's initiatives in the federal spheres there. We're supposed to be going down the solar cities path, and we can't get things even right there. We're -

me and Laurie have been trying to pedal the solar access legislation - the International Solar Energy Society - I should say the ANZES, the Australian-New Zealand Solar Energy Society, has taken it on board after all these years that we should get the horse before the cart sort of thing, and get the solar access legislation going. So we can overrule - silly town planners who are saying the wrong things at the moment. Like the Tele-Communications Act in this country, they can go and put a power line through your house or a mobile phone tower.

Until someone demonstrates the fact you can't do a lot about it and, you know, we have to get something locked into federal legislation so that you haven't got Victoria doing it one way and Sydney doing it - New South Wales, doing it another way, or South Australia, and that's what's happening. Their house energy rating schemes don't agree with one another, like, you have to carry a rating licence out in the ACT, there is a different system to just going over the border, NATHERS. Like I say, that asking people with experience in doing ratings who are enthusiastic of their preference, not trying to create enemies there. A simpler tabular system seems to be the better, you know.

Basically, just tell people as a guidance, so they can use it as a tool for their own interest - and again there are insulation batts that claim an R value of 1.5. Whereas another company will claim R2. Like, I say, polystyrene products I'm very familiar with. One company claims for the same thickness R3.7, and another one R2.88. And I said, "Where's the science in that?" And no building authorities are bringing people to task, and there's no government rules. People use American R values, which are based on the square foot rather than the square metre, which gives hyped-up values, and people sort of sometimes erroneously try to give you higher R values.

DR BYRON: You've just solved a mystery that's been - doesn't matter.

MR HANLEY: Yes, it's over a square foot, that's why they've got higher R values. If you divide them by 5.68 you'll get an Australian R value. So that's where, yes. Dr Peter Lyons will tell you that one, who's one of the, companies which have been trying to implement our house energy rating, and WERS, the window energy rating system.

MR VIRR: You see, if you design a solar house, each time you design one you really have to wonder if it's going to work. It doesn't matter how much experience you've had, because you can - as I've said in my submission there, or our submission there - you can build two houses which appear to be identical - - -

MR.....: I just read that.

MR VIRR: - - - and you get completely different results. So this, the whole process is really based on experience, and sitting on the site for days at a time to see what happens. That sort of thing. And there are - there are all sorts of considerations which are not taken into effect. There are breezes which operate between 75 and 150 mm off the ground. CSIRO has done a lot of work on that. It's possible to berm a house, and exploit those breezes. None of that's ever mentioned. This is the crudest possible system that you could imagine. There's no sophistication in this at all, and there's very, very little experience. The chief advocate of this scheme in the ACT has designed, to my knowledge, three houses, one of which was reasonable and two of which are ghastly, in a whole career.

PROF WOODS: Yes. Can I just confirm an earlier statement that, in terms of the stars that it was, you know, as you put it, an inverse volume law, so that the larger the house or - the analogy of the fridge and that, it's easier to get the points.

MR HANLEY: Easier just to get the points. The bigger, the easier to get the points.

PROF WOODS: So in fact there's an incentive for over-consumption.

MR HANLEY: Exactly. That's what we're trying to tell you.

DR BYRON: Is that how McMansions get up.

MR HANLEY: That's how.

MR VIRR: Yes, it's easy, easy.

MR HANLEY: Yes, the McMansion will get over the line for the 1.7 children family in Australia. I've got plenty of them out there. I have to try and talk people down on the size. "Do you really need it?" Because it all comes back to square metres, but they'll get over the line a lot easier. But I never have had a problem with getting over the line, but they're houses - you just increase the size and they'll get over the line easier. Laurie, you know of particular people who have got houses rejected, haven't you, because they weren't big enough?

MR VIRR: Yes.

MR HANLEY: They couldn't get them approved. It didn't matter what they did to them.

MR VIRR: Didn't matter what they did. And people who have had designs rejected because they wanted to take benefit of a view - - -

PROF WOODS: Yes, that's - - -

MR VIRR: Government shouldn't be involved in that sort of exercise.

PROF WOODS: Yes, and you make that point here, and it's quite compelling.

MR VIRR: Yes.

MR HANLEY: The small fridge sort of story tells you that one. It doesn't communicate. Yes. The scary part about it is, we're going to lead into another area of academic sort of hypothesising about greenhouse gases. We're going down this embodied energy path. They're pushing - the same people now are pushing another new industry for themselves, because they're outsourced. Government industries as I call them. They're the public servants that sit outside of the public service, and they get paid a lot better, and they do pretty well. But the embodied energy audit side of things are going to have purely arbitrary results, where advocates are hypothesising which materials takes the most energy to produce, without being fully aware of the source of that energy, and the country of origin.

But you don't take that into consideration - you've got a window, it's in timber. But whether - they don't take into account the fact how much weathering goes into that window, and how much you have to apply later to keep that serviceable, and it's just all academic. There's architects around Canberra that are building mud-brick structures to make them sound like they're green and squeaky clean. But they've got steel frames sitting inside the mud-brick structure, and I can tell you right out at our visitor centre at Tidbinbilla. It's sort of like, you know, you're pretending on the surface, like a Hollywood set, but it's all held up by the greenhouse consuming steel, and we tend to know the engineers that have to be involved in these sort of things, and the whole thing is just a greenwash out there.

That's what I'm scared of, that another greenwash is coming over our society. And, simply, I'd like to see government come in and, say, enforce the R values. Make R values printed. I'm out there in the real field, and I know what's going on. The batts are being torn in half on some jobs. They can buy the ply, and the builder tears the batts in half, they go twice as far, you've got half the value, R value, because no-one actually - and they think - they all think it's a joke, it's not serious. People are only getting half an insulation.

DR BYRON: Well, we've heard about the insulation that's only for - - -

MR: Around the electrical - - -

DR BYRON: - - - around all the power points, because that's the only place people ever check.

MR HANLEY: Some might do too.

MR VIRR: Yes, that's out in Gungahlin. That house was out from Gungahlin.

DR BYRON: A number of other people have pointed that out to us. But we also have a colleague who was talking about - bought a house, got the EER certificate, eventually did get up into the roof and, yes, there were batts, but they were still piled in the corner.

MR HANLEY: I had that on one of my own jobs. It was an addition to a house I did, these people come to me because they were so impressed with how well it worked on another job of mine, and then they said to me, "We thought our place would work better," and I was standing around and I said, "I can feel it's not working. Why? It's like it's got no insulation," I said. "I can just feel it's going up through the ceiling." I just have this aptitude that I can feel it. Like I said before, I said, "I bet if you went up into the ceiling - there they were, the batts were just piled up over the garage." They took them up but never installed them, but the liability falls back on the builder, and the certifier would have just said, "Have you got a certificate there?" They did put them up in the ceiling but they didn't spread them out.

DR BYRON: Well, there's this colleague of ours, who said that he wanted to sue either the vendor or the person who'd written the certificate and when he talked to the ACT government, they said, "No, there's no requirement for the certificate to be accurate," and he said, "So somebody's paid to get the certificate but I shouldn't believe it."

MR HANLEY: It's just basically a course of liability certificates. It's all on paper. Like I said, you know, even my best-laid plans of designs and I can say, I want an R this and an R that, and stepping down the R values through the structure and it really means nothing if it's not built like that. As we know, we've got a de-skilled building industry out there. It's very hard to even get people to turn up now. It's just, you know - building contracts have gone by the way in this city. We've got a very sort of, like, top heavy society here with very few people hands-on. The builder turns up when he wants to turn up. He wants to build the house in a certain amount of time, there's no 13-week contracts, they're all disappearing, unless you go for the production line house out there in suburbia and that's sort of been the way. Now we're getting this new BASIX system where you can actually appease the energy rating system and basically get dispensation for putting in a token water tank. I mean, they're token. They're just a few hundred litres and or a few low thousand litres which don't do anything for droughts. And that goes into another area where

you use energy again, to put a bit of water on your garden so the coal fired power stations are just winding up more just so you can spray your garden.

DR BYRON: I'm glad you mentioned that. I used to have a house in Canberra that was without doubt the most comfortable house I've ever lived in, summer and winter, with very little external input at all. The orientation eaves, the quarry tiles inside the - anyway, it was beautiful. When I went to sell it, I pointed out to the agent that this place required virtually no heating in winter and no cooling at all in summer and he said, "Nobody's interested in that stuff. Don't bother even mentioning it." I thought that that was the most fantastic attribute of the place but the advice from the agent was, no, we're not interested. The point I was coming to is that I attempted to replicate that place on BASIX, on the web site last week and even though, from my own experience, it was very comfortable and very cheap to operate, there's no way I can get it through the BASIX system.

MR HANLEY: That's right.

MR BYRON: And that really surprised me.

MR HANLEY: There's a failing already. We get that all the time. But they're telling us how they've got the answers and we haven't, or other people haven't got the answers. As you probably know, the 'Owner Builder' magazine is always criticising the system that you know, those people put a lot of thermal mass in their houses. They put very little prominence on thermal mass in the house energy rating. Of course it doesn't model thermal mass very well and it has a very low priority. If you get your thermal mass up enough, like you were probably in a house with a lot of thermal mass by the sound of it, it gets a capacitive insulation effect, basically, the insulation is a loss factor over time.

If your building can hold the heat, even it's not that efficient, but the program will tell you - it will tell you it doesn't work straight away because it doesn't take that into account. I like to put a bit of overhead glazing in because I believe the seasons, in practise, don't work the way every year, like most people formulate. They tell you that the sun comes round and sits at the midday angle, like the Australian Greenhouse Office and the person who designed that house, I'd take them to task, it just comes and parks itself around at midday all day, but it doesn't matter if you're got wing walls or other things shadowing it. It's like they're sort of living in fantasy land sort of designs and a lot of them - they think the eave does that and the sun will just move on and there's a summer setting and there's a winter setting sort of thing.

It doesn't work that way and I believe you have to have tunability of your structures, that you have passive people for active houses. That's why you go and switch the appliances on to warm it up. And active people for passive houses, and

I've been proclaiming that it's got to be like sailing a ship, and they don't allow us that sort of input. They don't even want to know about it. They're not even trying to adjust it. All they've done is with the rooms and they've discounted wet areas in the last few years under the new First Rate system here in the ACT. You don't get any rating of the bathrooms, the utilities or laundry aren't even counted in the actual envelope of the house. A lot of people live with their laundry door open into the house or whatever, and you know, as well as the bathroom but that doesn't count as part of the envelope.

MR VIRR: Those are the areas where fans would be operating you see, and sucking heat. None of that counts.

MR HANLEY: And we should be going down a measured audit system - I think. Like you say, there's academia out there. We can get the heads together and say, you know, we can formulate a way of telling people this in dollars. I think that's the best way to communicate. Or going in and doing an air infiltration test on the house. No good saying, we'll allow so many points for leakage and you know, for curtains that you don't put in, or curtains you put in. It's all just extrapolations of sort on a piece of paper. Like I say, it should be checked and the certifiers should be making sure that people get insulation in their ceilings and their walls and there's got to be more care in the building envelope, not on the plans.

I can draw really good plans and put them there but it doesn't mean anything. I'm the proponent of it, yet it's working against me because of this liability course in which no-one wants to take responsibility for it. And I do know, even with cases of people installing insulation, here in Canberra. I've had people ask me, can you go and have a look to see whether the insulation has been installed correctly - not even my own jobs, and I say, yes, I'll just do it, to see. I like to find out for my own good what's going on out there and I've done it a few times, and people have got these new beaut fantastic fat batts put into the roof and I've had to get on my belly and sort of crawl through and where the roof comes down to a low point, where it starts to touch at that low point, there's nothing there.

That's the highest loss factor in a house and if you see the way they implement energy rating in the US, they basically have guidelines, how that's to be checked, where these areas of failing are. It's just a guidebook for inspectors to say, go and check this, see whether the areas are where the weakness is and where they can hide it from you, because they do. I don't know if you know people - you see it on Current Affair every day.

My mother has been a victim again, having a car that had a five-year warranty. She has a partner who is as shrewd as they come. He marked all the spark plugs and checked the oil and he was a mechanic himself, but booked it in. If business can get

by without actually doing the job and give you the bill at the end of it, they will. They didn't change the oil and that. It's the same process in building. You've got to actually have a checking system. It's no good putting pieces of paper out there to basically tell people how great it is when it's not great.

DR BYRON: I think that comes through very loud and clear in your submission, that these sorts of ex ante computer simulation things don't actually predict what's going to happen in practice partly because it all depends on how the construction works and whether it's properly installed and fitted and all that sort of stuff, whether there are cracks and gaps left and so on.

MR VIRR: That's right. You see, to build a good solar house is more expensive and the Australian building industry is not geared for building mass into buildings. Instead of having, say masonry, inside a house, they have masonry as a skin on the outside. If you're going to build brick veneer at all then you should reverse them so that the mass is on the inside. We're still finding places in Australia where people are building timber floors. Up on the North Coast of New South Wales it's less expensive to build a timber floor than it is to pour a concrete slab.

MR HANLEY: Most of my market is an owner-builder market and the people are really enthusiastic to have a nice house. They know they've got to go out there and do it themselves and they don't cheat them selves. Bureaucracy tries to hinder them with trying to make them do a course even though nothing is relevant to the way I'm going to build or have the house built. There's a product which is fairly big in the building industry at the moment. There's lot's of companies that produce it, called insulating concrete forms. I've been using them for 15 years. They're polystyrene blocks, and you fill them with concrete. You can build a house, like with Lego.

The house energy rating system, in its arrogance, has never brought it on board and never put it into the system. And like I was mentioning, those two polystyrene products, one underrates it and one overrates it, but basically - you just tell the operator, "Put that R value number in," and you'll fly past. But they've been arrogant enough, because of the deskilling in the building industry. These products come from Germany originally, where they lost most of their labour force through immigration after the war. It goes back that far, and they came up with the Hebel block system. They put the Hebel block system because big business went down that path promoting it. I've built in Hebel and it has its problems. It's a good fire rating product. I'd put it at no more.

I don't know if you watched the Inventors, or the New Inventors program. You probably saw a Tone Wheeler just give advice recently about, "That's great, we need houses with more mass in it." But Hebel, that block which you pour the liquid fill in, is not a thermal mass product. It's meant to be an insulating aerated concrete and it's

a misuse of the word - and there are architects here promoting it here in Australia, that using Hebel as a thermal mass. But if you go and look up the book and you go and get the product from CSR, they'll tell you that it's an insulating product. But I don't know where - there's someone that got this - gone off on a new tangent and saying it's got mass in it, you know.

We do have concrete blocks these days to lay for deskillling building. You know, the mortar less systems. It's not a new thing. You can fill them with concrete and you just click them together and put some plastic spacers in. So there's an ineptness right through the whole building industry and an arrogance that we're deskillling very fast, and in the next few years I don't know where we're going to be. We're going to have bricklaying schools. Like in Western Australia. Western Australia had to meet its own problems. They built a lot of brick houses over there, but the brick companies opened up schools to train bricklayers, but I don't know what the status of it is today on that side of the country.

MR VIRR: If I could tell you about my experience with my own house, this will give you an indication of how obdurate the planning system is, the planners are in Canberra. I designed my house in 1975 and I went to the NCDC, as it was then, and said, "Look, this is what I propose to do," and they said, "Fine, that that would be fine". I took the design drawing to them, and then I produced the working drawings and it was made very, very difficult for me to build the house. I couldn't find a contractor who would do it. I had to do it myself.

27 years later, I met a man who is now a building certifier. I hadn't seen him for years and years and years. He said to me, "Laurie, whatever happened to that house that you designed?" and he described it. And I said to him, "I've been living in it for 20-odd years now." And he said when he was a young man working in - I think it was then the Department of the Interior, those drawings landed on his desk and he'd spent all day looking at rubbish drawings, and this was a good set of drawings, you see. And he opened them up and he said, "Wow." He called all the other people around in the office to have a look at it, and they looked at it and they said, "We'll soon stop that." That was the approach. I'd been 27 years without knowing that, about how difficult they made it.

My approach was to eventually tell the building inspector to get off the site and I never wanted to see him or any of his like again. And so that house has never been given a final certificate, yet 17 - more than 1700 people around the world have come to see it. Why do we have to have this resistance to any ideas of change? The first house I ever designed in Canberra, when I came back from the United States, I put in for approval and I was told that it wouldn't be approved because it didn't look like a house, and this was from an architect. And I said to him, "Well, what does a house look like?"

Why should we have to tolerate this sort of thing? They want to keep the status quo. I've had builders and architects - a builder in particular said to me, "Laurie, a house is 7.2 metres wide." That was it. I said, "Not in my book." This is a rigid industry with very, very conservative people, and the best planners don't work for government.

MR HANLEY: Yes. If we want to go down the road of a sort - if you're going to have a theoretical system, again I'd like to sort of put the point which really amazes, that no books tell anyone about it, but there are about six North systems in Australia. We've just got the information from the experts on North here at GEO Science Australia. They were promising to have it together for this, to put it in this submission, but they never got it to us in time. So even though it's sort of sitting in the memory of my computer, it's even more confusing when you read it.

But people out there have taken this point North, which they rate on a plan as gospel. There's so many North systems. There's magnetic north, there's true north, there's solar north, there's grid north, In Canberra itself, it has three North systems apparently, according to the document released the other day. Because I'm just sort of getting sick of surveyors getting True North wrong - I have got to the point that to get the house in the right position, it sort of seems a bit of luck. Whether you get north, because they don't denote which north it is. North is basically an N with a little arrow. That could be your magnetic north, it could be anything, unless you go back through and check the bearings and how that north was achieved. And the way they set blocks of land out, some divisions are done on magnetic, so they take that as a magnetic north.

If you go down to Tasmania, I think you're really round about 45 degrees East from, your point of True North, and here in Canberra it's 12.35 to be exact. People will tell you any number in the day if you ask them and so-called witnesses who want to defend this system will tell you it's not that big a deal, but it is a big deal. Because 12 and half degrees just here in Canberra - and we've got the perfect climate, as you can see out there. It will be a cold night but you're getting all that sun in, and if - but you've got to get the house in the right position to work correctly. So - - -

MR VIRR: 12 and a half degrees is - - -

MR HANLEY: That's just here in Canberra. As you go down to Melbourne, I think it would probably be about 15 degrees East.

MR VIRR: 12 and a half degrees is significant, you see. If you've got useful sun from, say, 9.00 in the morning till 3.00 in the afternoon, that's all you can hope for at

the Winter solstice. That is an arc of 90 degrees. If you take 12 and a half of that, that's really significant.

MR HANLEY: So there's all this misinformation out there, and people are trying to get advice. Someone thought I was being a pariah to the whole system. He's just gone and done the house energy ratings course. He's got me designing his house now, but now he sees where I'm coming from, because he rang up the so-called experts. One of them here is an architect who is actually in the training system. He rang up their office and asked them where actual true north is. He was given the declination to the west, whereas it is actually to the east. So it would have put his house way out of whack. It wouldn't have been a solar house in any classification.

Because we live in this world of acronyms like alphabetical soup, even the information by GEO Science says AG north, and there's NGA north, and there's all these different norths and it's got another number with the date it was set. Before we go into solar access legislation, federal government implementing solar cities, we've got to get that right. We've got to all agree on one system there. I'd like to see that as a mainstay, rather than energy rating. We'll just get the basics right and lead by example. People in general, there's a psyche out there. They hear about the good house. I reckon it's the touch-and-feel syndrome.

My first indication at how successful solar energy would be in this country was visiting Colorado in the USA, 1984. I just went for a drive and just headed up into Colorado and I accidentally found this place where they had solar access laws, and back in 1984 it had already been implemented. The houses in all the subdivisions sit there at an altitude height of Mount Kosciusko, perma-snow, and I'm walking into the house and what's the heating system here? You know, it says Terrasolar, the house I can remember. It had the earth bermed up to the back, quad-glazed windows. It isn't even in the psyche of the country or most of the world but there are these quad-glazed window houses, and I walked in, I said, "Gee, this is really good." And there was snow sort of sitting around on the outside.

That converted me so hard. I just couldn't believe it. You can make solar houses work in these conditions. How easy it is here in Australia to get by. Our climate is nowhere near as severe, and that's what brought me on board in a big way. We can build our houses with the wrong, you know, orientation. Allow people to do that. But the main contributor to actually saving energy by not running the turbines up there in the big coal-fired power stations would be to put more emphasis on installing solar hot-water systems. We have them fairly successfully sought out now.

I know a person from Austria who used to have a business in Victoria, Solartech. He wasn't allowed to stay in Australia with immigration laws here or something, he didn't fit the criteria. He was an expert in solar energy. He'd been

heating houses all through Europe, thousands of units of supplying heat, active solar heat. So you can build houses with the wrong orientation, and do it actively if you want to. You don't have to do it passively. And he was very successful with hot water heating systems.

I had people here, clients I'd specified his hot water units for, and they were worried about the warranty on them. I had to ask him about this: he was a bit confused about the warranty. In Austria the company was 70 years old and they hadn't replaced a hot water tank in any house, only one in store. Never replaced one. The obsolescence wasn't there. He couldn't understand why you replace a hot-water system in Australia after 10 years.

I couldn't understand when in Austria they have these gynomous mountains and they have a 350 kpa water pressure limit. And he said, "Here in Australia you've got it so wrong with water pressure." I let him stay at my house and you know, whilst installing solar units here and basically the only customers he had in Canberra were people from like Germany, from back in Europe who wanted to make an old guvvy over in Weston. There was one where they'd committed \$25,000 to heating their house. Rather than having the plasma screen TV set or something, they were real energy conservation purists from Germany. And it was just amazing, a different psyche there.

But he said, "Here in Australia you go and put all these water-saving devices on". He said, "All we have to do is bring our water pressures down". I say "it's like driving a car, putting your foot on the accelerator flat to the floor and controlling speed by using the brake. That's the way we implement water pressure in this country. I was surprised that countries with bigger mountains and ability to get higher water pressures do it differently to us. I don't know why, when people get on a plane, go somewhere in the world, they just don't look around and see how people live. You know, it's amazing, and we're going down this academic shuffle.

DR BYRON: Can I change the subject very slightly. You're a bit scathing in the submission about the Sale of Premises Act and the mandatory disclosure of the - all the anecdotal evidence I've heard from friends and family in Canberra and from real estate agents is that it doesn't seem to often affect people's decisions about whether to buy the house or not.

MR HANLEY: Not at all.

DR BYRON: If you like it you like it, even if it's a zero.

MR HANLEY: In the submission, I think we have it in there, we had expert statistician advice on the way the perpetrators of this system tried to justify it. The

outsourced perpetrators feed themselves on the system, issuing media releases that say how a five star rating actually promotes you, makes for better sale value. Like you know you just go to any real estate agent, it means nothing. You go down to the foreshores, it means nothing. They're more worried about the view out the window. But they have produced erroneous statistical data which the statisticians have said would be a bad example in any school of statistics.

DR BYRON: But the people who are your clients, who come to you to design, they are obviously I guess a relatively small part - - -

MR HANLEY: Word of mouth.

DR BYRON: - - -of the total population who really do know and care about these things.

MR VIRR: They're enthusiasts. We can't expect to have any other clients than enthusiasts at the moment because the price of energy in Australia is relatively cheap.

DR BYRON: Yes, well, that's what we say too.

MR VIRR: I've had some wonderful, wonderful clients. I think I mentioned in our submission that the last house which I finished, the owner was a real enthusiast. He set up indoor/outdoor thermometers everywhere around the house. It didn't vary 1 degree Celsius for three months. You've got to be a real enthusiast to do that sort of thing, but for him it was worth it, for him he was making a statement about how we could live.

MR HANLEY: You want to go into the way that energy efficient housing is promoted by government and business in Australia, whether it's a HIA, the MBA, the Institute of Architects. They're all self-serving organisations at best. Only if you're paying fees to any of those bodies do you actually get an award. I've actually won an award from the HIA. It's was only just because one of my clients actually happened to put it in, and was willing to pay all the fees, to go to the dinners and sit there like idiots to get this award because it got the high score, and then they conveniently lost all the photos and everything for the Australian finals. I only got the ACT and regional award and I could have made a big debacle but the builder at the time said it was so unfair that I wasn't recognised. They put his name on it only because he was the paid-up member, but I provided all the information. The owners are very proud of the house the way it works, but I've got it on the wall of my house.

The Australian Greenhouse Office hasn't independently made its own sort of awards. The houses it promotes tend to be those that get the MBA and the HIA

awards. Rather than independently going out there and assessing houses it claimed that a house awarded with 30 points at the time was the most energy efficiency house in Australia. I had an 88 point house. I don't know how, but their house was a million dollars. My house was I think, \$250,000. I thought the communication exercise was giving the wrong message to the public: that you have to be really super rich to build a house that can get to this. So they're doing a disservice to themselves and the whole community in promoting energy efficiency. Nothing less.

MR VIRR: Isn't it incredible that somebody here in Canberra, with no knowledge of building and no experience, can do a course lasting 2 days at a cost of \$750.00, and then by producing house energy ratings assessments, including those required by the Sales of Premises Act, and earn more than the Chief Justice of the High Court of Australia. It's just absurd.

MR HANLEY: It's just a matter of getting good turnover, that's all it is.

DR BYRON: Again I've been told that you just provide the information over the phone or send it by mail and they put it through their laptop and send the certificate back to you.

MR HANLEY: I could sit back there doing ratings myself and it'd be an easier life.

MR WOODS: Not very satisfying.

DR BYRON: Do you have any more questions?

MR WOODS: No. I think we've pursued most of the issues that the submission raised. It was a good submission.

DR BYRON: Yes, I think we are going to have to wind up shortly.

MR HANLEY: We'd hate to see this Sale of Premises Act imposed on the rest of Australia.

DR BYRON: You made that point very clearly.

MR HANLEY: If you're going to go in a positive direction I'd like to see implementation as we know how the progressive tax system works in this country. People could be a bit altruistic then in using energy rating or whatever. Some people have to live in rented premises, they're on an ever increasing slippery slope of never being able to get their own house in this country because we've had a cost blow-out about three times in the last four to five years of housing. In world terms it's quite horrific.

DR BYRON: One of the things that is very interesting in that regard is that we've seen some information from the Australian Bureau of Statistics that says that people who live in rented housing tend to have higher utility bills. People who lived in housing rented from government, welfare housing, have even higher utility bills because the government housing isn't insulated typically.

MR HANLEY: You're on the money there.

DR BYRON: We suggested if the government really cared about helping people on welfare they might insulate the houses they give them to live in.

MR HANLEY: That's right, keep them off that slide even further. Most of us know how the tax system works. If you've got an investment property you can normally claim the costs of that insulation. Imposing that on the rental properties would actually make them to a minimum standard of insulation. Once you put a house on the market it has to meet a certain environmental standard. I would think it would be a better sort of scenario for society if people aren't paying these big utility bills and heat is not going through the ceiling. In most rental properties you will see the ceilings are all mouldy, here in Canberra, and that is because the vapour pressure is basically sort of condensing on the ceiling and you're getting black spots everywhere because they never insulated.

MR VIRR: And there are no vapour barriers. I think we made the point that there are no vapour barriers.

DR BYRON: Yes, that's in the submission.

MR VIRR: Vapour barriers are mandatory in other places. We're missing the bus every time.

MR HANLEY: There's a school out here by some prominent architects in Canberra that's proclaimed as being the most energy efficient school. I had to pay money to go on a tour for a building science forum recently. They've just got a job to do, the new medical school in the ANU. But the science is wrong, even there on the first few seconds of being told that the school was going to be a passive solar school, it was heated by solar energy. I thought, "I've got to come and see that, this is really wonderful." So I go out there, the building is everything but. It's got eaves for living in Cairns, it's got these humungous eaves that hang out.

They've got single glazed windows. I asked what sort of glazing- they said they're lower emissivity glass. But it's single glazed. It's an oxymoron. You can't have a lower emissivity glass with single glazing - so the science is wrong. You can

check that through Dr Peter Lyons, who does research in windows. He'll tell you straightaway that you can't have both, because you'll get a superchilling of that surface; aluminium extras, louvered windows too, in this climate. On top of that, even worse so, was all the insulation. They've got these corrugated iron Colorbond ceilings with perforated holes, but the insulation is open to the atmosphere with no vapour barrier at all.

I asked, "How did you achieve the vapour barrier?" "What do you mean?" "It's a blanket?" That kills all the noise echoing in the room, but all the vapour goes into the insulation. It's like wearing a wet jumper under a spray jacket, you know the feeling. I have to communicate these things to the public out there, and they understand what's going on. But fairly big architectural firms don't seem to understand that, but do this greenwash on society. The bureaucrats don't even actually look around for people that have been in practice there - it's been their forte – but they don't get the jobs in this city. So we haven't even got a solar office block. I've been in competitions and got into the finals, it was with ERDC. It was a commission, wasn't it, it was set up back under the previous government, Energy Research Development Corporation?

DR BYRON: The ERDC, yes.

MR HANLEY: I had an invitation to put in as submission, I worked for about a week for nothing, putting a design proposal – I would have liked to have won an office block design competition here - to build Canberra's first solar office block. I had been judged by Prof Ballinger and other people on the board, and they were more worried about where I went to school than how the building worked - but he was taken by the design. At the end of it, I said, "How come the competition design has moved its parameters from being a solar office to an energy efficient office?"

The parameters had gone away from the original brief - because it was too hard, and based on the other applications coming in. You can drive through the city of Denver, Colorado, and as you drive around on the main highways you can see all the office blocks face south and they harness that solar energy. That's just at random of travelling somewhere and not having a research grant to go and find out how successful something has been done.

So they built the geological science offices out here, and put that big sort of bread tin building, as I call it - I worked for the firm of architects myself, and know how much they know about solar energy. I got a job there because they were quite impressed. They said, "You're into solar energy, are you, "sort of thing", when I was a bit younger then. I got toured on some of the projects. They had a big house out at Murrumbateman. I thought, "This office is getting things right," but when I got there, it had the science wrong.

It had timber particleboard floors, no thermal mass. The house was in the millions of dollars out at Murrumbateman, and it had tinted, heavy dark grey windows; and I was a bit shocked about that. I said, "What's the idea of the dark tinted grey windows?" "That's to take the glare off." You can't have it both ways. Then it had all these collectors heating up floors. This is what's going on in architecture. A lot of them out there, even with this so-called presumption that they're doing it right - but that Symerston building there, it's got heavily tinted, highly reflective glass windows facing their north, if you have a look.

But it uses the science which you see in the US, they're called light shelves, to use natural lighting. But you can't have that when you go and put tinted and reflective glass, and have it both ways. It looks good, because if you see the process of most architectural firms, they're sort of editing designs from around the world, saying, "We like that bit, that looks great. It's a nice solid feature." But that isn't proof of an energy efficient building which basically relies on these so-called efficient heat pumps that try to take the heat out of the air, rather than trying to take it out of the ground. We're on a winning path already, but no contribution from the sun really.

DR BYRON: I think we're going to have to leave it there, gentlemen. But it's been fascinating, and I thank you very much for coming and sharing all that practical experience, and for the written submission, which I'm sure we'll refer to. Thank you very much. I appreciate it, personally as well. I said this morning that if anybody else was in the room and wanted to come forward and make a statement for the public record, they would have an opportunity before we finished.

MR HANLEY: I would have invited a few more people if I knew that.

DR BYRON: In the absence, I guess I can declare us adjourned until Monday morning in Melbourne. Thank you very much, ladies and gentlemen.

AT 2.46 PM THE INQUIRY WAS ADJOURNED ACCORDINGLY UNTIL
MONDAY, 6 JUNE 2005

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