



**TRANSCRIPT
OF PROCEEDINGS**

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PRODUCTIVITY COMMISSION

INQUIRY INTO ENERGY EFFICIENCY

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

TRANSCRIPT OF PROCEEDINGS

AT SYDNEY ON TUESDAY, 16 NOVEMBER 2004, AT 9.07 AM

Continued from 15/11/04

DR BYRON: Good morning, ladies and gentlemen. I'd like to resume the public hearings of the Productivity Commission's inquiry into energy efficiency. Ladies, if you could just introduce yourselves in your own voices for the transcript and then if you could summarise the submission that you make - Mike and I have both read that - and then maybe we can talk about it for half an hour or so.

MS COLLEY: Okay. That sounds good.

DR BYRON: Thank you very much for coming.

MS COLLEY: Thank you. My name is Tracey Colley and I'm here on behalf of the Australian Meat Processor Corporation, which represents red meat processors, which incorporates abattoirs and some rendering plants as well. We've made a submission, based on both our experience through a number of our members who are Greenhouse Challenge members, so who we have energy auditing data on and who we've been assisting for the last three years in completing their annual returns for the Greenhouse Challenge.

PROF WOODS: Sorry. Could your colleague introduce herself for the record, please.

MS PARKER: Sorry. Irene Parker. I'm the member services manager for the Australian Meat Processor Corporation. I'm in the admin side of the business, so we generally look after the members.

PROF WOODS: Thank you.

MS COLLEY: Great. Sorry about that. I'm also involved with MINTRAC, which is the Meat Industry Training Council, which AMPC co-funds with Meat and Livestock Australia. In the MINTRAC certificate V courses I teach environmental management, utilities and energy, and legal and business compliance. So part of that is assisting the industry in developing an understanding of energy efficiency and key performance indicators, and how strategic it is to their business. But I guess also the MINTRAC training is vocational and it's very practically based, particularly in the utilities and energy unit; they basically have to actually identify an energy efficiency - have to do an audit in their plan on a specific area: identify an energy efficiency project and implement it.

Amongst other things this has given us a fairly clear understanding that there is fairly wide potential for relatively low capital cost projects. But as we mention in our submission, the nature of the industry is that the organisations are very flat in terms of their hierarchy, their structure. They're generally very resource constrained in terms of - they're not like large multinational corporations that have vast resources

for their use: a lot of them are sort of single sites, family-owned companies. The industry as a whole generally has had reducing profit margins due to pressures such as the drought and availability of stock, but also the increasing level of regulation in other areas of the business has meant that combined with the fact that utilities as a whole is generally less than 10 per cent of the cost of production, means there is really not that much focus on energy efficiency even though there is huge potential.

In our submission we looked at both the supply side and the demand side issues, and definitely on the supply side there are a number of areas where, because of the nature of the industry there is potential, but I guess nothing has happened so far. We're continually looking at other programs overseas that are offered to meat processors in competing countries, principally the US and Canada. Looking at that as an alternative, I mention in my submission there is only one operating cogeneration plant at the moment in a meat processor, but because of the nature of the heat and power load at the sites it's actually an ideal application for cogeneration, reciprocating engine based systems, which are ideal for the sort of size that we're looking at.

The problem really is that the industry doesn't see it as a core business, because really their core business is either increasing their production or improving the quality of their product, increasing market share. So it's not a strategic issue for the industry and as yet, because of the regional nature of a lot of these businesses, there haven't been a lot of third party developers who have been willing to link up with sites and develop cogeneration projects. In terms of both biogas and biomass we have been doing a bit of work with the AGO through the Greenhouse Challenge program, but the problem for us is they don't really have specific funding for this, so we have to go individually to state governments and ask them to assist us in investigating it further.

On the demand side probably the biggest issue overall is a lack of government programs to support companies to actually implement projects, given that the person who is looking after greenhouse or energy efficiency type issues may be the plan engineer, may be the QA officer who is also the environmental officer because of the resource constraints in terms of human resources. So a program like the New South Wales DEUS Energy Smart Business program would be ideal if we had that in every state because we could assist sites who are more proactive and who are involved in Greenhouse Challenge to get involved in a program like that which actually assists them in implementation.

We do have resources amongst the industry, which is fantastic. MLA have put together the Eco-Efficiency Manual for the industry, which is available from the Queensland EPA web site and it's a sister document to the food industry Eco-Efficiency Manual which you've probably already seen. It provides indicators

but not sufficient detail for time-strapped people to be able to actually implement projects. There is still further work required.

The only other thing would be, the meat industry has an absolutely superb quality management system which we've gone towards. It's computerised, it's going away from a paper based system and has been put in place really because food quality is such a key strategic issue for the industry, and allows greater traceability and auditability of the system. AQIS have now accepted that and what we would ideally like to do, given that's up and operating in plants, is be able to add onto that, rather than create any stand-alone system, whereby we can include environmental and particularly energy efficiency issues which currently don't really have a priority in that sort of a system, whereby everybody is used to the auditing forms, the reporting forms, the formats. That sort of thing. So that's pretty much a summary of our submission.

DR BYRON: Thank you very much, Tracey.

PROF WOODS: I have to say I was very impressed with the range of topics you covered and the way you structured it. I'm wondering if after our discussion you may be able to reflect and spell out a couple of these things. What I'm thinking of in the report - and who knows where things land on the cutting floor - but I could envisage potentially a box illustrating your industry to demonstrate a whole range of points.

On the one side what you're saying is that, you know, you've got your flat management structure so that you're resource constrained. You don't have, therefore, the capacity to have somebody whose focus is solely on energy efficiency because they're doing a whole lot of other things as well; you don't often get economies of scale across sites: whatever one does for their site, they don't own the next site or the next site, so they're all only focused on their own; you've got a very high compliance load in terms of occ health and safety, waste disposal, food safety. All of those things are very rigorous and very demanding, and take up a lot of what management capacity you have.

Utilities. If you could spell that out. You said less than 10 per cent. I'd suspect it may even be less than that in terms of total operating costs. So if you could tease that figure out even further to demonstrate that even if you got a 1 per cent - well, say a 10 per cent saving, but it's 5 per cent of your total costs; you're talking very small margins there - and faced with a range of different programs that you're trying to tap into so that the government is giving you a plethora of things. So it's not an easy menu to work your way through in terms of government assistance.

So if you had all that on one side, but then on the other side you told the story that you've just told about how many members are part of Greenhouse Challenge, how you're getting practical advice through EPA sites and things - you know, what successes you've had. That actually makes quite a nice contrast. Here are all the constraints and limitations and why things don't pop up as the number one priority for every management meeting of every abattoir, but nonetheless, within that you've achieved this, this, this and this.

I think that makes a very neat story, but it would help if you could provide us with more stats like the number of sites that are single owned and the typical management structure of your abattoir, and spell out a bit more the various regulatory requirements: your occ health and safety, food safety, waste disposal, et cetera. Just give a very neat picture of the context within which you operate and where energy efficiency fits into it, and yet despite that, some of the things that you've done. Does that make sense, Neil?

DR BYRON: Yes. What I find really interesting is that so many of the members have been as enthusiastic as they have been, given those constraints and very sensible limitations.

MS COLLEY: Yes. For example, of the 27 members we currently have on the Greenhouse Challenge program, there are three sites of Teys Bros in the program, which isn't all their sites, and there are also three Nippon sites. They're probably the only multiple-owned sites of all the participants. Pretty much all the rest of them are single-owned sites; they've got the one site and they're family owned and they're regionally based.

PROF WOODS: So for those 21, if you could sort of do an average profile of what they look like in terms of their management structures and the fact that they are regionally located.

MS COLLEY: Yes.

PROF WOODS: So it's not as if they're sitting in a metro area where they can run in to the man from the EPA or from the electricity retailer and have a chat. They're out beyond the major provincial centres.

MS COLLEY: Yes. I guess the regional location also comes up in terms of any sort of engineering technical support. Because most energy auditors are located not in regional areas but in capital cities, it means - for example, in Victoria where the sites on our program have had to have a kind of a SEP for greenhouse energy audits for those who have EPA licences, it basically meant in addition to the auditing costs they also had to pay the travel and accommodation expenses for the auditors as well.

PROF WOODS: Yes, those sorts of things. If you could give us some hard and fast facts to give strength behind those assertions that would be really helpful.

MS COLLEY: Okay. Yes.

PROF WOODS: I can't guarantee how it will ultimately be used in the report, but it certainly will affect our thinking. It has the potential to create a little illustration.

DR BYRON: You've just reminded me, though, of another issue when you were talking about the sites in Victoria. Is it because they're an abattoir they're required to have an EPA licence and then everybody that's EPA licensed is required to have a greenhouse strategy?

MS COLLEY: Yes. Absolutely.

DR BYRON: I was talking to the operator of a trout farm in Victoria who was asked to produce a greenhouse management plan. His comment was that the total greenhouse emissions from his trout farm were sort of less than half an hour of the lights at the MCG, but because he came under the EPA umbrella, for other reasons he was therefore required to look at energy efficiency.

MS COLLEY: Yes. For the Victorians who are already on the Greenhouse Challenge program, they weren't actually really given any credit for the fact that they're on the Greenhouse Challenge program at all. Because our members have been members since about - 98-99 was when the first and second round of them joined up to the Greenhouse Challenge program - and because the Australian standard for energy auditing was developed subsequent to that, the original audits weren't done according to the standard of course, because they were done before it was formalised, and the Victorian SEP required them basically to audit according to that standard.

So because the audits had identified in many cases action items but the greenhouse savings or the financial savings - which is why our members, I guess, had a problem with trying to implement them when they didn't actually know if they were going to be cost-effective or if they were just pie in the sky ideas - they weren't actually given any credit for the fact that they had been voluntarily reporting on greenhouse for two years prior to the SEP coming into play. So that was difficult for us to explain to our members, as to why they were getting another level of regulation when they had been doing the right thing ahead of time.

Overall, our view would be that we'd like to be able to support our members who are proactive and have shown their proactive nature in terms of energy

efficiency by being involved in the Greenhouse Challenge program and be able to provide them with special incentives, rather than it becoming a regulatory requirement, given that most of our sites will be under the five petajoule. Probably only some of the very large processing sites, like some of the Teys Bros sites and AMH sites, will actually be large enough to fall within the compulsory category.

DR BYRON: Were any actually disadvantaged because they had taken prior action?

MS COLLEY: Not so far as I know, although I guess we haven't specifically asked our members that. We have had an instance where, for example, one regionally located site was in an area where there was a constraint with water and because as part of our Greenhouse Challenge reporting - to give value to our members, we helped report back to them various key performance indicators which were a bit beyond the requirements of the Greenhouse Challenge program, but we feel give our members value - and because water is important in terms of energy consumption anyway, because it's used as hot water or steam - we report back to them on kilolitres of water per tonne of product; kilowatt hours per tonne of product; gigajoules of energy per tonne of product; boiler fuel use per tonne of product, so that they have a bit of a benchmark against their previous year's performance and against some industry averages.

In one regional location where the area was constrained in terms of water, we were actually approached by the state EPA, them wanting us to provide information on their key performance indicators for water and how they compared against industry averages, because they had been identified in the local area as a major user and they wanted to use that data to try and negotiate with them. We're a bit concerned about us trying to create a culture in the industry of developing key performance indicators - using that to reduce your inputs to consumption and reduce the amount of wastage in your plant, and that then being hijacked by other interests for regulatory purposes. So that's a bit of an issue for us as well.

DR BYRON: You mentioned that with all the other regulatory pressures, utility bills and energy efficiency isn't always high on managers' radar screens. What do you think it would take to make energy efficiency issues higher priority?

MS COLLEY: I think in terms of costs, it's unlikely that the utility costs in this industry will ever become that substantial that the industry will pay as much heed to it as it does other issues. The issue - particularly depending on their location and what the electricity network is doing in the area - might become a reliability issue, and definitely at some of our regional sites, for example, on their electricity bills, don't currently have a demand charge, they just have a usage charge, so there is quite a bit of variation between regional sites, in how they're currently charged for utilities.

I think, as in any industry, there's a certain percentage of the members who are more proactive than others, and it doesn't necessarily come down to cost. The value of a lot of these businesses being regionally based and family owned is they have a lot of good links with the local community, they're major employers, they're big supporters of the local community in terms of sporting groups, local charities, that sort of thing, so they do things which don't necessarily always come down to the dollar. But I guess the industry as a whole is looking for a lead from government, and having a government program which assists them in implementing energy efficiency would be a good sign that the government is actually interested.

PROF WOODS: How do you define "assist"? Some people define "assist" as, "Thank you, we'll get lots of subsidies and financial support to improve our bottom line," but I don't suspect that's what you're thinking of.

MS COLLEY: No. I think really it's - the sorts of programs which would be of practical use to our members are a scheme really like DEUS in New South Wales, Energy Smart Business Program, where basically you're given an energy management consultant who helps do an audit, they identify action items which are going to pay back within a given period, you sit down and work out what the time frame is, and that consultant can then assist the sites in investigating and implementing the projects. That's the sort of practical assistance we really need. Particularly, the New South Wales scheme subsidises the travel costs of the energy management consultants for regional sites, so they're not disadvantaged by the fact that most of the consultants are located in major metro areas.

PROF WOODS: And also, if you got a couple who became more expert in abattoirs and then did the circuit, they could be constantly doing a quality improvement loop around the members.

MS COLLEY: Yes, and through the New South Wales program there probably are a couple of energy management consultants who have had experience with the industry in New South Wales, so yes, that's absolutely right. It builds knowledge amongst the consulting industry as well in terms of our industry needs.

DR BYRON: But in some ways this industry is a classic example. What we've been told is that there are lots of opportunities, that engineers can come onto the site and say, "You can do this, this and this," or - you know, cogenerations - and yet managers are basically too busy managing the existing business to explore all these things that may well be potentially low cost or even profitable.

MS COLLEY: Yes.

DR BYRON: Some of the people we've spoken to have difficulty believing that there are all these things that have very short payback periods, and if there are immediately profitable measures that could be taken up, even with relatively low utility prices, why aren't they being done, and the answer seems to be that people are already busy doing what they have to do.

MS COLLEY: Absolutely. The industry is so compliance focused, and that's really key to the strategic needs of their business that really that's what they revolve around. These are all nice to-dos, but in terms of the overall production costs because it's such a small component, it really - and the thing we've seen from the training is that almost every student can identify a project that has less than a two-year payback. In some instances it's been eight months, but it's only because they had the specific task of investigating an energy efficiency issue as part of their assessment task, that they actually looked at it. I guess that creates a culture of thinking about, well, who knows how many other potential energy-saving measures there could be in the plant; it's just a matter of we don't actually have the time to allocate resources to go and look at it.

PROF WOODS: Your regional locations again, where you talk about training, there's a nexus there, isn't there? You know, if you're a manufacturing firm in a metro area, you can spare one of your people for two hours or three hours to go to a training, but if you're in a country town in western Queensland, you can't spare them for the three days - the day travel, the day attendance and the day back - but if somehow training could come to you or to a nearby provincial centre - - -

MS COLLEY: Yes. I guess that's what we've tried to focus on with the Greenhouse Challenge, and what we actually have received a little bit of funding for this year is developing training resources, audits that we can send out to the site, so that it's like a training video that will then have support material with it so that they can actually - not necessarily know anything the system, but know enough to go around and check and see if there are any other potential action items where they can save money. It will have included in it simple calculators, so that they can actually not just look at the hypothetical but actually work out if it's going to save them money.

PROF WOODS: So it has got to be practical and relevant, to give some immediacy.

MS COLLEY: Yes, and it has also got to be relatively easy to use whatever tools you develop, because if it's a massive program that you've got to download from a web site and then read a 40-page manual before you do it, it just doesn't happen, whereas if it's a simple Excel calculator with a few boxes where you fill in the numbers and it does the calculation and then you get a quote - put in your capital cost

and it works out what the simple payback period is - that sort of thing is useful, versus terribly techno tools. Really, time is the big driver in this and if people can - - -

PROF WOODS: Just management attention.

MS COLLEY: Yes.

PROF WOODS: Anyway, if you could develop that up, with some hard and fast stats, and perhaps even if you bounce a draft off of Paul, who is sitting there and who will give you his card, in case we can identify some other areas where, you know, it would be nice if you could tease that bit out or if you got some stats to demonstrate this point or something.

MS COLLEY: Yes.

PROF WOODS: It is, as you said, a classic case, isn't it?

DR BYRON: Yes. When you talked about bracketing the energy efficiency measures with the existing QA, do you think there's a possible risk there by trying to put too much on the quality management or the mandatory compliance framework that you have, that you could possibly overload it? I mean, it's got one task at the moment and it does that very well. Is there a risk that if you add extra tasks to it, that you degrade the whole - - -

MS COLLEY: We suspect not, because quality is so key to the business that the environment will never degrade that, and it's the part of the business that is most heavily regulated, so that's unlikely.

DR BYRON: It could reinforce it.

MS COLLEY: It's reinforcing it and reinforcing the management structure approach to managing the environment, so it's about developing objectives and targets and developing key performance indicators and monitoring those, developing action plans that relate back to the objectives and targets and the performance indicators, so when you implement projects you can actually measure the improvement in your key performance indicators and you can track that as you do any other business metric. It's really, I guess, making environment and utilities and energy management more - making the way that is managed more consistent with the way that other key business issues are managed in the organisations that we - - -

DR BYRON: So it becomes part of the overall continuous improvement mentality of the management.

MS COLLEY: Absolutely, yes. So it's using the same sorts of procedures and management skeleton, if you like; it's just the frequency and the issues that you're dealing with that are different. But because everyone is familiar with that system and it's a key part of the business, people are used to how it operates, it then means the amount of organisational learning to adopt the same approach to environment and utilities and energy is that much less, so hopefully the amount of cultural change required is less to be able to achieve that.

DR BYRON: That suggests to me that the role of any government program, Commonwealth or state, would be best if it could reinforce that existing system and build on it rather than cut across it.

MS COLLEY: I guess it's the baseline management system which would be used within the company. What we need is some sort of external support that's consistent with that and - for example, the DEUS system in New South Wales - it would just really be a matter of the key performance indicators and objectives and targets would be internal to the company, the action items would be something that was shared, and that both the external energy management consultant and the company were working on together. But it's not necessarily mutually exclusive, it's really compatible - we see it as being compatible - and definitely information provision as well, in terms of when objectives and targets are revised or action items are completed and companies are looking for new things to do to improve their performance, that information exchange is really key.

The industry as a whole as well is quite secretive about information, and sharing of information, and it's a historical thing, but it's just the way the industry is, and probably any other industry with a similar make-up is the same, which is why we think government assistance would be helpful, because if you have government assistance then you can produce a case study. That's really part of the involvement of government.

PROF WOODS: Making information more public domain.

MS COLLEY: That's right, and more detailed information that can be shared amongst, for example, members of the Greenhouse Challenge program in more detail, so that other sites can implement projects as well.

PROF WOODS: Just on that information-holding management system, you've got a phrase in there where you're talking about enabling sites to manage these issues on a more frequent basis - weekly, monthly - rather than an annual report. Is that just a systems problem there? What prevents more regular management?

MS COLLEY: It depends on the sites. Some of them are already looking at it on a monthly basis and, for example, get their bills from electricity retailers electronically rather than in hard copy.

PROF WOODS: Yes.

MS COLLEY: But also, once again, it depends on where they are and what their retailer is doing. Some of them don't have that capacity. But I guess that, once again, it comes down to the priority in the company and for a lot of the companies it's not necessarily a key indicator, although they might look at particularly water consumption, if they're in a water-constrained area. They might look at electricity consumption as an indicator of overall production efficiency, but it really, I guess, depends on the company.

Some of them, for example, look at it on a daily basis and they have monitoring equipment equivalent to a building management system, which tells them the usage rates on different shifts, in different production areas. Obviously that sort of equipment is very expensive. It tends to be the larger multi-sites that have that versus the smaller sites who really want to do it but, I guess, don't have the resources to implement expensive computer monitoring systems.

PROF WOODS: Okay. It's just that the phrasing read as if there was an externally imposed constraint, and to the extent that, say, the billing systems of the energy retailer and that provides some constraint, I understand it, but other than that it's more a management focus issue.

MS COLLEY: Yes, which is why a management system would be great in terms of it allows people to input the data and use it more effectively.

PROF WOODS: It can't be that hard.

MS COLLEY: No. What we want to do rather than having the quality management system, which is the key system for all the businesses, and then a dinky little EMS system hanging off the side, is really integrate it. I guess that's what I say is moving towards having integrated environmental safety and quality management systems anyway, because quality really is the key driver.

DR BYRON: I've just got one last question: are you familiar with the national energy efficiency target idea? One of the items in our terms of reference is to explore the idea, the workability and so on of national energy efficiency targets.

MS COLLEY: Yes.

DR BYRON: Any thoughts on that?

MS COLLEY: So this is the idea of having a target for an industry group, sort of equivalent to a key performance indicator?

DR BYRON: That's one way.

MS COLLEY: Or technology. So it could be compressed air systems or - - -

PROF WOODS: Yes, it would be more industry rather than technology.

MS COLLEY: It's more likely to be industry based. Yes, the meat industry probably has done that a little bit already in terms of the Eco-Efficiency Manual and developing the key performance indicators. Definitely we support that. I guess it was done in the UK years ago for industry sectors. The way that we market it is, it's a de facto cost indicator in terms of your unit cost of production. Although that's only a very small proportion it is still something that's within your control. The industry has done some work already on developing the key performance indicators, which is what we use in our training and what we use in our greenhouse reporting back to members.

I guess there's additional work that needs to be done there. At the moment it focuses on the primary product, which is the meat, but a lot of the plants also have rendering plants, which produce meal and tallow. So the sort of work we really need to do is to work out how we allocate some of the energy to those by-products as well. So we would definitely support it.

PROF WOODS: If it was a mandatory one? How would those members who have already made significant progress feel about having to meet the same target reductions as those members who haven't yet got their act into gear?

MS COLLEY: To be honest, the thing is that the key performance indicators aren't necessarily a measure of efficiency, because some of the plants that have, for example, really low electricity consumption per head of production, it's because they still have a manual chain and they are not as automated, whereas some of the more up-to-date plants have more equipment and so their kilowatt hours consumption per tonne of product is higher, but they have basically just exchanged labour for machinery and really in a way that's the way that the industry is going, particularly from an occupational health and safety point of view and a quality point of view as well. Really, the key driver for the industry is quality and safety and environment comes below that, given that they are the key drivers for the industry.

While we support the idea in principle, we are very concerned about anything

being used as a mandatory requirement, when the range of the key performance indicators is very large, which reflects not necessarily the efficiency of the industry, but sometimes the installed technology. For example, sheep processing plants that have a pet food section and run a processing section have much higher water consumption, but that's just because they do that on site versus some plants that sell that to someone off site who then do it off site.

So that's part of what we, as an industry, are working on as well: doing some more work on the key performance indicators so that they reflect the actual unit operations on the site and they are not just so global that they are meaningless, and really at the moment that's almost what they are, other than a gross indicator, and for most sites it's actually more relevant to compare against their previous year's performance than to compare with the industry average, because they can give themselves a full sense of confidence that they are doing well or, on the other hand, doing badly, when it really might just be the equipment they have installed.

PROF WOODS: So a mandatory reduction in energy usage could inhibit greater automation, which in itself is being done (a) to improve quality and (b) to remove levels of harm to workers.

MS COLLEY: Yes.

PROF WOODS: An interesting consequence.

MS COLLEY: And I guess that from a quality point of view as well, a lot of sites have actually, over the last few years, increased their water use and bore the fuel use as well, because of increasing requirements from a quality point of view. Quality will always be the primary driver. You know, if you don't have a quality product you're out of the market. So really, putting a constraint on the industry reflects efficiency. It's not a false indicator, if you like. I guess that would be the issue, making sure it's a real indicator and really reflects the needs of the industry, and doesn't unnecessarily penalise people for really just trying to meet the other business requirements, which are quality and safety.

PROF WOODS: Can I ask a slightly unrelated question, just while we have you there. The labour force for the industry: are your sites able to get the appropriate skilled workforce and have some stability in that workforce? Are there pressures emerging or is it just purely a regional issue in certain regions?

MS COLLEY: The industry as a whole probably has had trouble attracting workers in certain locations. For example, some plants have recruited from New Zealand. The issue tends to be in regional locations, particularly in areas which have mining, that mining companies can offer skilled tradespeople far more than our

industry can support. So it basically means people come in and work enough to learn about your plant, and it's really almost a career progression. For example, for electricians it is to do domestic work. You know, work in a meat processing plant, get some industrial skills and then move on to the mining industry. It's difficult for our industry particularly to compete with mining, which is the major, I guess, drain on the human resources from a regional location.

PROF WOODS: Is it likely to get better, worse or is it - - -

MS COLLEY: Yes, I guess that's something probably the industry is trying to - - -

MS PARKER: They're working on it, putting in training with the plants, but there's a problem.

MS COLLEY: Yes, we probably can't compete in terms of dollar value of a wage, but there are additional benefits that the industry can probably provide. Like, the industry has a very comprehensive in-house training through MINTRAC for all levels in the process. That's linked to occupational health and safety and quality. So training is a really key issue in the industry.

PROF WOODS: Thank you for your indulgence.

DR BYRON: Thank you very much for that. That was extremely helpful.

PROF WOODS: If you could liaise with Paul then, that would help.

MS COLLEY: Okay.

PROF WOODS: I appreciate your time.

DR BYRON: Thank you very much.

DR BYRON: Next we have got the Energy Retailers Association, if you would like to come forward. Good morning.

MR RUSSELL: Good morning.

DR BYRON: Make yourselves comfortable.

MR RUSSELL: Could I load up a presentation, please.

DR BYRON: Yes, go for it.

DR BYRON: Thanks very much, gentlemen. If you could each just introduce yourselves for the transcript.

MR RUSSELL: I'm Deane Russell, executive director of the Energy Retailers Association.

MR PHILLIPS: Alastair Phillips, director of policy and research, ERAA.

MR WRIGHT: Steve Wright from Origin, which is a member of ERAA.

DR BYRON: Deane, if you'd like to just summarise the main points of the submission that Mark and I have read, then we can discuss it briefly.

MR RUSSELL: Good morning, and thank you very much for the opportunity to present this morning. I'd just like to thank the commission for the support of their staff in particular. They've been excellent, thank you very much. We'd like to focus our presentation on the slides on one very single point, even though our submission covers many points. I'd like to take you through consumer behaviour in Australia. We think that there are some issues there that need to be addressed.

In Australia, the growth in the Australian economy is changing the way in which people consume energy. We think there are a number of factors: lower interest rates, more disposable income, more employment, growth in household wealth, availability of different types of credit, lower costs of appliances. There are also changing lifestyle expectations. Changing construction techniques in private dwellings, and the number of new dwellings, are adding to the way in which domestic consumers are consuming energy. For the purpose of this part of the presentation, we'd just like to focus on domestic consumers. We think this has an impact on the way in which energy is being consumed in Australia.

We think airconditioning is actually changing the energy business in Australia. We think there are enormous amounts of money being invested in the energy sector to take into consideration the way in which airconditioning is changing the business. For instance, metropolitan Sydney will require \$3.5 billion in network investment over the next five years, and around 80 per cent of that investment is needed just to meet the 20 per cent peak load.

In this diagram - and this is in our report which is the first chart in the slides - we can see several load factors here which we show: summer day without airconditioning, workday without airconditioning. Then this line here is a workday with airconditioning on a very hot day. This is time of day. You can see the loads start to grow throughout the day for the domestic airconditioning, in residential load profile in Sydney. This is important for peaking times and prices in the market, which we'll show in a minute. This slide here - and it's expanded out in our submission, but we wanted to demonstrate here the very hot day with airconditioning. This was presented by Energy Australia at the World Energy Congress in 2004 on airconditioning use in summer. This chart clearly shows a very hot day and the demand, the increase in demand in the network - the generation required.

PROF WOODS: Can I just clarify? Are we talking about total load on the system or are we talking about total household load, however you are able to define it; ie, those who operate on a tariff rather than on a demand?

MR RUSSELL: This slide shows the consumer demand profile by Energy Australia for domestic consumers.

PROF WOODS: So this is your domestic tariff component. Underneath that, there's a whole industrial load churning away, doing its own thing.

MR RUSSELL: Correct. And what's happened in New South Wales, the regulator has made a decision to increase the prices for network charges, but also increase the time for the peak charges, so that the large industrial users are paying more for their energy, but the domestic consumer isn't changing their behaviour, because there are no pricing signals.

PROF WOODS: Why I asked the question - and sorry to interrupt part-way through the presentation - is that that shows the airconditioning usage is almost doubling your standard load, but this is a doubling only of the consumer component of the load, so it's not doubling the total load on the system.

MR RUSSELL: Correct.

PROF WOODS: What margin are we talking about, of the total load on the system?

MR RUSSELL: I'll have to get you that information.

PROF WOODS: It would just be helpful to know whether we're actually talking about a 30 per cent increase because of airconditioning or a 1 per cent increase because of airconditioning once you put the total load on.

MR RUSSELL: In our submission we're trying to demonstrate the behaviour of domestic consumers in Australia; and we'll have to get you that information.

PROF WOODS: I'm just trying to understand the overall importance of it, because if this is just a blip on a line, then it's interesting but not overly relevant. But I don't know that.

MR RUSSELL: In our submission we'll show that New South Wales households without airconditioning are subsidising those with airconditioning to the tune of \$70 per annum. We also demonstrate in our submission that a one-kilowatt airconditioner - the real cost is about \$300 a year including network charges, et cetera, while the customer is only paying \$12 a year for the use of about 100 hours a year.

PROF WOODS: And a one-kilowatt would be at the bottom end of airconditioners for domestic use these days?

MR PHILLIPS: That was just used as an example, as a basic example.

MR RUSSELL: Yes, there are bigger ones: one and a half, two and a half.

PROF WOODS: I'm personally very conversant with larger ones.

MR RUSSELL: We also show in our submission, using the Bureau of Statistics household expenditure survey, that households are spending an average of \$2.55 per day for domestic fuel and power. That household expenditure survey was 98-99 and their latest one I think is due this year, soon; so it will provide other information. But we just wanted to show that overall, to power lights, fridges, those types of things, consumers are paying relatively low numbers. We try and demonstrate by income group as well, because I want to get onto different incomes.

One of the things that we're also trying to highlight in our submission is that even though there's an economic issue with the demand in airconditioning and how that affects the amount of money having to be spent on networks, et cetera, there is a

social issue that we think the commission has to take consideration of. What I'd like to point to is, the South Australian regulator has commissioned a private company to undertake a survey about airconditioning use for domestic consumers in South Australia. In the submission we've quoted a fair bit, but in summary in South Australia about 90 per cent of homes have airconditioning.

They looked at two income groups: low-income groups and regular income groups or middle-income groups. People turned on their airconditioner around about the same time - I don't know how they arrived at 32.5 degrees, but there's a methodology in the final report. The airconditioner was used for 11 and a half days per month over summer. Those from low-income segments were also more likely to indicate they had specific cooling needs due to illness, disability, age or other. So there is a social issue for using airconditioning. We're not suggesting, in our submission, that people stop using their airconditioner. We think there are other ways of providing a benefit to consumers, to use their airconditioner and change their behaviour for other ways they consume energy.

The other interesting thing about this survey is that in Queensland, for instance, the penetration of domestic airconditioners is only about 35 per cent. Now, that is growing. So each state has a different use of airconditioning. For instance, what we're saying is that we don't think there's any one policy that will solve this problem. We don't think there's any silver bullet for this. We're suggesting that the commission has to carefully think through some of these issues.

Also in our submission I'd like to turn to some inefficiencies in the way in which greenhouse gas abatement schemes are implemented and administered in Australia. I'm sure you've had lots of data on this, but for the first time we're presenting information here where the ERAA has undertaken a report on the actual dollar cost per household for abatement schemes in Australia. We've got quite a lot of evidence in our submission and we have in fact other reports, if you want to have a look at those. We're trying to demonstrate here that the increase in electricity charges due to abatement schemes is not really changing consumer behaviour.

Retailers have to administer the schemes, bear cost and risk for volatility in the market to administer the schemes, and it's not changing consumer behaviour; and presumably you have abatement schemes to change people's behaviour. We're trying to demonstrate here that airconditioning is growing. The load factors are growing. The need for peaking generation is growing and yet in our view consumers don't seem to be aware of the cost to them for these abatement schemes and they're not changing their behaviour. So greenhouse is another component in this equation.

Why would retailers be interested in changing consumer behaviour? You'd think we'd be in the business of selling unlimited amounts of energy. This slide is a

screen shot of a software program which you can have access to. It's called NEM Watch. It's watching what's happening in the market. This chart shows - and it's not very clear on this slide, but I think it is in the presentation - the volatility of the price in five-minute blocks by state, in real time on the market, over time. So you can see this is in the morning. The different colours represent the different states. We come in here in the afternoon and as the temperature rises the demand for energy or electricity increases and the price fluctuates in the market.

This chart here shows the demand and load per state. This chart here shows the actual physical temperature in those areas, because that has an effect on the price. This map here shows the price per kilowatt hour in the wholesale market per state and the flows of energy from the generators into those states through the transmission. We're trying to demonstrate here how volatile the market is for a retailer. Of course, we have hedging products and those types of things and there are some newer products coming on the market.

I'll just show you the next slide. On 13 October, for various factors, the price in the wholesale market spiked to \$5000 a kilowatt hour from a very low base of \$30-odd, \$40. It jumped throughout the day, so this is a 24-hour period. Something happened in the market. I think there was an outage.

MR PHILLIPS: It was a combination of outage and temperature. It was a 38-degree day in Sydney. As a result, the price got to \$5000.

MR RUSSELL: For quite an extended period - so they're the risks that a retailer has to bear and what we're suggesting here is, of course, that the consumer is not seeing these pricing signals. They're not changing their behaviour. There's no signal to change the behaviour to maximise the benefit for the consumer. We haven't talked about industrial consumers in our submission and Steve will be talking about that shortly, about load shedding and benefits in the market that we provide.

So in summary, Australians are increasing their demand for energy. Penetration of airconditioning in households is rapidly increasing. Households are paying very low prices for their energy and non-airconditioned houses are cross-subsidising airconditioned households in some areas. In addition, there are no incentives for domestic consumers to change their behaviour. What we're recommending is a removal of price caps and regulated prices in Australia. Large amounts of uneconomic capital are needed to overcome very few peak demand days per year, so demand-related network tariffs are in play there. Greenhouse gas abatement and energy efficiency schemes are fragmented, costly and not transparent to the consumer and do not change behaviour.

I've got one or two more slides. We think there is no silver bullet solution, and

we're worried that some state jurisdictions are introducing regulation to solve some of these problems, and we think regulation is not the way to solve this problem. We think open competition will resolve some of these issues. We think that good policy should attack the demand-side management, demand-side response, and of course, the supply of energy. We believe that demand-side response and demand-side management, in itself, will not be enough.

You cannot create enough efficiency on that side of the equation to overcome the future demand in Australia for energy. You have to also increase the supply side as well. So we think those three things have got to go hand in hand. I'd just like to pass to Steve Wright now to talk about some of the demand-side response parts in our submission.

MR WRIGHT: I wasn't going to talk in too much detail about this, Deane, but was there anything else you wanted to cover on your slides?

MR RUSSELL: I just want to talk about the demand-side response requires load shedding, exposure to pricing signals, suitable metering, appropriate building standards and education, and I've just got one more slide.

MR WRIGHT: Deane has pretty much covered it. I guess the main message from the ERAA is that because of a lack of cost-reflective pricing at certain times - or a lot of the time, but it has exacerbated at peak times - you might not be getting the right amount of energy efficiency or cost-effective energy efficiency. Those cross-subsidies are inefficient to the energy market but they may also be causing a less than efficient amount of energy efficiency to be invested in. I think our main view is that if the energy market reforms continue on the path they have been going, which is to have more cost-reflective pricing where there's a net benefit, then to a large extent, you're going to solve the energy efficiency problem if there is one.

But outside of that - outside of energy market reforms - and just looking at energy efficiency as an industry, for example, as a particular problem, we don't think there's a strong case for special regulation of energy efficiency per se. There might be interval metering solutions or there might be demand-side management things at the network level that regulation can assist with, but beyond that, it's not clear to us that there's a case or an externality, if you like, that requires extra energy efficiency. So there are various things in our submission that we don't think governments should be doing in this area, things like mandating energy efficiency audits, or more importantly, that firms implement the results of audits.

Another key issue is that we don't think there's a case for a national energy efficiency target. It's not so much the target part, but it's a mechanism that would mandate that capital be spent on energy efficiency projects and diverted from

somewhere else.

MR RUSSELL: For instance, retailers are very active in the commercial and industrial sector where there's competition and there's open contestability for customers. So they go and see customers. They talk about their load profile. They offer them different products. They offer them different metering. They offer load shedding where they share the profit. If the price spikes to \$5000 like we've seen on the slide, then one of our retailers might offer a customer and say, "Well, if you turn motors off; if you change your behaviour or do it remotely, we'll share in the benefits."

So there are things like that in the marketplace, and to regulate for that, to say there's a natural regulation where you can regulate every business to create further efficiencies, we don't think is an efficient way to run the sector. For instance, one of the states has brought in a regulation where they're going to have a mandatory role out of interval metering for domestic consumers.

PROF WOODS: Are you referring to Victoria there?

MR RUSSELL: Yes. There are two questions: (1) who bears the cost of that; (2) are you actually going to change consumer behaviour? In Victoria there is a pricing path to open prices, and if customers are offered different prices in the market, the question is will a domestic consumer actually change their behaviour throughout the day or just pay more or less throughout the day? In other words, you're still going to have to invest in the networks because they're going to have demand. We're not saying that we're against interval metering. Quite the contrary.

PROF WOODS: Isn't it determined in part though by your peak, and if that moves - your peak - doesn't that change your investment pattern?

MR RUSSELL: Yes, it does, but from a retailer's point of view, at the moment they're capturing for domestic consumers four bills a year - data to provide four bills a year. If you capture data in half-hour blocks from every home in Victoria, what do you do with the data? Does it actually change their behaviour? You have to send them pricing signals. We think pricing signals is one of the answers. There is new technology around, which is, when a price goes up or the load goes up, the fridge might turn off for half an hour or the pool pump might turn off. We're not telling people to turn their airconditioners off. We're just trying to flatten out the load. So we think there's a technology answer. There's a pricing answer. There are building codes. There is education, those types of things.

DR BYRON: But no one single magic silver bullet.

MR RUSSELL: No one single magic silver bullet, and we think some short-term policies can be effective, and some are medium to long term as well.

DR BYRON: Because I think even in Victoria where they are talking about the mandatory roll-out of interval meters, I don't think they're talking about interval pricing; they're simply talking about measuring quantitative usage in half-hour blocks. They are still some way from allowing retail prices to vary, and I'm not even sure if they're considering that.

MR WRIGHT: My understanding is that the mandating of interval meters will provide retailers with time-of-use information, and they may still offer a flat price to the customer, but there would be groups of customers that would get a higher flat price than others, if you like, and they would be able to structure products that targeted segments. Consumers will still presumably prefer a flat price and they will have to pay a premium for that, and the retailer will use that premium to buy the hedge, but at the moment, if a retailer looks at all its customers and some of them are using airconditioners and some aren't, there is no way of telling when, and for us to buy power in real time. We can't do it as efficiently without that information. So the product that the consumer gets at the end of the day might look very similar but it will reflect preferences and customer characteristics in different groups.

DR BYRON: So it enables the suppliers to profile the households.

MR WRIGHT: Yes, more accurately. Yes, exactly. It has been done very bluntly at the moment with guesses and other things, but accumulated meters, as Deane said, gives you four bits of information a year per customer.

DR BYRON: Yes.

MR RUSSELL: The other question there is, as you know, Australia is moving towards an Australian energy regulator, and one of the challenges there is to try and harmonise rules and regulations for retailers. If you're a retailer in Australia, you have to seek a licence in every state before you can retail energy. The question is, for instance, for interval metering, if it's brought out in Victoria, and there are certain codes around that issue, does it automatically follow that all the other states are going to follow those codes at the moment?

I've been told there has been no agreement on that at all, so that you're getting states making decisions based on their own particular circumstances: increasing regulation, increasing complexity, and if you're a non-Victorian based retailer and you want to start selling energy into Victoria, and the same with the gas abatement schemes, your IT systems, your billing staff, your customer service people, there is enormous cost involved in organising that, and we also touch on that in our

submission. The Commonwealth and states are working towards harmonisation.

PROF WOODS: Can I pick up a couple of things? You put great store on cost-reflective pricing as a way of driving improved energy efficiency, and you make a statement on what I have as page 24. Goodness knows where it has ended up in the final, but anyway it says that in relation to mandatory energy efficiency audits, you say that mandatory auditing is unnecessary, because energy customers have a strong incentive to demand services from retailers to potentially lower their energy bills and improve efficiency of their operations.

So you're saying, "There's your incentive structure," and that people will respond accordingly, and yet we have evidence in pages 11 and 12 which show that domestic fuel and power comprises the grand total of about two and a half per cent of average weekly expenditure. So even if you racked up a very significant, say 10 per cent, decrease in consumption through improved efficiency, you're going to change the grand total of a quarter of 1 per cent of household expenditure, not a factor that is high on people's priority lists, I wouldn't have thought.

The meat industry just gave us evidence of quite a high range of things that are on management priority and the fact that power is, in their view, less than 10 per cent, and I suspect the actual figure is probably 5 per cent or less, so a 10 per cent increase there is half of 1 per cent of their operating costs. Again, they're saying it doesn't matter what the power price will be, it's never going to get itself up to the top of the food chain in policy language. How do you reconcile those two things?

MR RUSSELL: I'd like to make two points. The first part of the document talks about domestic consumers, and that is a very good point you make, that if you even doubled the price of energy for a household to \$5 a day, the question is: would people change their behaviour? The second part at page 24 refers mainly to industrial customers, where retailers are actively trying to get their business and show them that they can change their business and create efficiencies and lower their power bills. So perhaps we haven't been clear on that, and maybe we need to come back on that.

PROF WOODS: That would be helpful, but if I could just elaborate there: the point I was not trying to make is that it's not worth pursuing but that you're going to have to do a whole range of things to get it up that policy food chain.

MR RUSSELL: Yes, and we think there have been enormous benefits to the economy and large industrial consumers with reforms that have been made, so we think that there have been significant gains made, and the main point that we're trying to make is that large amounts of capital are needed in the network for domestic

airconditioning, and are they going to change their behaviour under the current circumstances, and the answer is probably no. So the question is: what is going to change their behaviour? You have to provide a benefit.

You can penalise some people, and we're saying that very low-income earners in South Australia rely on airconditioning for illness and other reasons. So we're not saying we want to penalise those people. This is a balance and it's a challenge and there's no one silver bullet. For instance, building codes, we know the issue there with a new building that is going up without eaves and - - -

PROF WOODS: We're running a parallel process on building.

MR RUSSELL: Yes, because that's a medium-term kind of change-around, isn't it? We think there need to be some energy efficiency standards on airconditioning units, and perhaps we can track down - I think there's some evidence around that shows that if, instead of having your airconditioner set at 21, you have it set at 23, there are significant power savings. There is new technology around that I've seen that some networks allow - - -

PROF WOODS: Presumably you wouldn't make it mandatory that nobody is allowed to set it at 21, but somehow you would signal to them that you're getting a 10 per cent increase in power for every one degree of temperature change.

MR WRIGHT: If the retailer was able to capture some of that benefit and offer a product that did that, say by some smart metering of communications, then in a way the retailer could sort of do all those calculations and approach customers of the product that gave them the option, it would be like voluntary loan reduction on the customer's part. It would be voluntary. You're absolutely right that power is often a very small proportion of the total spent either in a business or in a home, and our issue is not that people should use or spend a certain amount of money on power, it's just that if you do give them the right signals, they will make the correct trade-off for themselves, and that's the right level of energy and efficiency.

PROF WOODS: Assuming the rest of their household is listening and berating them for putting the temperature up.

MR WRIGHT: Yes. I should say, there's the case of the small consumer end with appliances and whatnot. There is information, clearly, and the standards are already in place. Maybe I didn't make it clear: we're not suggesting that those things should be taken away or they're not justified, but at the bigger end, we don't see a case for intervening and setting a level of energy efficiency that everybody should aspire to. Rather, get the price signal correct, and then the energy efficiency will be a function of that.

MR RUSSELL: And if I could just touch on - there is some technology that I've seen that's a little plastic box that you stick on your power point and then you stick your appliance in the back of it. It's not available at the moment, but there's ripple technology in the networks, and they seem to signal down; it turns all those appliances off, so that's a choice thing that you do, and you might be offered a different price in the market, but if you have those products that turn a pool pump on, turn the fridge off but leave the airconditioner on - and it's just that load.

If I could also just clarify a point. Where retailers are in the market with load shedding and a benefit for the large industrial consumers, they will pay them money to turn machinery off or freezers down or close a plant for a period, so there's a mutual benefit, you know, where there's this spiking. One thing that's going to be interesting that I think the commission should maybe take account of is when Basslink opens up, what may happen to prices then.

We haven't done any work on that and we don't know, but presumably over time, when a new peaking plant comes in - there's a coal-fired power plant in Queensland that's been announced - so they will have effects in the marketplace, and this is sending pricing signals for the right investment to overcome supply, and that's the point we make in the supply side as well. You won't create all efficiencies just by demand side. The growth of energy demand is three and a half or four per cent a year, and supply side must come into that, and so the right pricing signals must be given to the market.

DR BYRON: Just on that supply-side response, is there any particular problem in terms of embedded or cogeneration type of plant responding to these spikes in the national electricity prices and so on? Is that starting to happen?

MR WRIGHT: It is starting to happen but it hasn't gone far enough in all jurisdictions, and I don't know all the details - in terms of network regulation I mean. Our view is that network regulation should give the distribution network owner a commercial incentive to go to third parties and say, "Have you thought of cogeneration or embedded generation versus us augmenting this network? It's actually cheaper for you to do that," and if the network can capture some of that benefit in terms of its regulatory price determination you'd want neutral incentives in that regard, so you're not expanding your distribution network when there's a cheaper way, if you feel like it, of either doing it on site or having that plant reduce its load or some other way, but you want the network to have the incentive to go and find the best option, and that's not necessarily the case.

DR BYRON: On those occasional days when it's 42 degrees in Adelaide and prices are spiking, do people who have got stand-by generators in the basement of their

office buildings suddenly decide to crank them up and either stop buying at high prices or start selling - - -

MR RUSSELL: There's some work being done by a particular company - and we'll make a note and we'll send you the details - where they're trying to, for retailers, pool all those stand-by generators so that the individual retailer doesn't have to go to the individual building. Now, whether that's going to be profitable for that company or not remains to be seen, but there is an attempt to try and have a single company that will buy stand-by power off all these buildings and offer that price, that amount of megawatt hours, in a price to a retailer, who may or may not buy it at that time.

So there has been quite some work done. I think there are cases in retailers where there's quite some large generating plant around - that there may have been some cases where individual retailers have purchased stand-by power from people. The Energy Users Association is working on some of this stuff as well, and we're working with them on how we might move that forward. There are a lot of technical reasons how a plant can cut in and out for the networks and that type of thing, but there's work being done on it.

PROF WOODS: And it's too late 10 minutes after the spike to decide to fire them up.

MR RUSSELL: But that software doesn't show. There's some actual new software which is trying to predict prices so that people can come in the market more quickly.

PROF WOODS: Yes, but when you go back to that slide, there were only five or 10-minute periods between down there and up there.

MR RUSSELL: Well, it may be only the four days a year that it happens and that particular day wasn't the day, and so people know that in February there's going to be hot weather coming along and it's already there - - -

MR WRIGHT: You might have a contract with triggers well before that.

PROF WOODS: Yes, exactly; you're going to have to.

DR BYRON: On page 35 you talk about the disincentives to invest in demand-side management via network service providers. Could you just elaborate a little bit more on some of those disincentives and how significant they are.

MR WRIGHT: What page is that?

DR BYRON: The bottom of 35 on my copy.

PROF WOODS: Is this retail level?

MR WRIGHT: That was the point that I was making before regarding networks and the negative revenue of the consequences of load reduction, and there's a benefit to the consumer and I guess to society if they don't spend on augmentation, but not to the network owner necessarily. I think IPART are sort of leading the way to some extent. They have some mechanism where the network can have load reduced and not have its revenue - - -

DR BYRON: Improvement factor?

MR WRIGHT: Yes, that's the one. Thank you. So we think that's probably the best way to do it and it should be done for all distribution in all jurisdictions.

DR BYRON: I was a little surprised at the incredibly low figure: all domestic fuel and power, \$2.55 a household.

PROF WOODS: That's per day.

DR BYRON: Per day, yes. About the price of a cup of coffee per day or something for light, fridge, TV, computer, dishwasher, clothes dryer, et cetera, and then I started to think, well, if I did all these things around the house that would improve the energy efficiency and let's say I made 10 per cent saving, that would be maybe 25 cents a day.

PROF WOODS: Yes, that's the figure I came to.

MR RUSSELL: Could I put something else to you.

DR BYRON: It's hardly likely to inspire me to rush down to Bunnings and buy as many energy efficiency devices as I can - - -

MR RUSSELL: And that's why we put the slide up at the airconditioner only costing a person \$12 a year, but someone is paying \$300, right, so who is the someone? If airconditioning demand continues unfettered in Australia and 100 basis points per annum have to be spent on network upgrade, new generation peaking, to overcome four to 10 days a year, the question is this: can the economy afford to pay 100 basis points for ever, year after year after year after year, for that airconditioning or would it be better to change their behaviour, it only costs you 80 basis points or 60 basis points or whatever it is, and use the other remaining basis points for hospitals, schools, roads, whatever? I mean, this is a huge amount of money, 65 billion by 2020, for basically 10 to 20 days a year, without the natural growths in

energy, if you know what I mean.

DR BYRON: The basic driver behind all that is, as you say: the people who have these fairly large airconditioning units in their houses don't actually pay prices that reflect the full cost of the generation, transmission and distribution, et cetera, on the couple of days a year when it gets hot.

MR RUSSELL: That's right, and if I could put it another way: if we had the same for petrol and prices were capped for petrol at 60 cents a litre, I buy a Rolls Royce, basically the economy is paying for the difference for me to run around in a big V12 Rolls Royce. It's not sustainable, and, as retailers, is that our argument, about economic capital versus better ways to use the money? What we're saying is that the reason why the prices are low in part is because they are capped for political reasons, and this is why we're trying to point to a social policy that we are trying to develop with some state governments about vulnerable customers, so we can find out who these people are. We can provide them with a product and a service so the lights don't go out on them, that their prices don't go up beyond their means yet the ones who can afford it pay a true price for it. It's a challenge, and we think it's going to take some time as well.

PROF WOODS: Talking challenges, has anyone challenged your costings on your abatement scheme report?

MR RUSSELL: We had an independent person - - -

PROF WOODS: Yes, I saw that - independently verified.

MR RUSSELL: Yes, and we can provide you the details of that.

PROF WOODS: Yes, but that wasn't my question. My question was has any other side of the industry been saying, "Oh, I don't think you've quite got that right"?

MR WRIGHT: Not that we're aware of.

MR RUSSELL: This is the first time we've released it. It's only a very new report.

PROF WOODS: Very good. No, we're certainly very keen to have a look at it because an awful lot is said about the benefits of abatement but it's actually quite nice to find out some hard detail on the costs. So as long as it's rigorous and stands up to scrutiny, then that's very helpful.

MR RUSSELL: Yes, and the other thing is, it's interesting about greenhouse emissions. A majority of the green groups talk about emissions after they've been

admitted, but they don't talk about preventing the emissions from being admitted. If you had higher prices, you wouldn't have the unfettered demand for energy. It's a very interesting conundrum. I mean, you could speak to the green groups and say, "If you had petrol capped at 60 cents a litre, you'd probably be chained to every petrol bowser in the country," and yet nobody seems to be in this debate about stopping emissions from being admitted. They're taxing them or penalising them after they've been admitted, and I know this inquiry probably isn't looking at that issue but it's a very interesting political debate - - -

PROF WOODS: We're actually trying to reduce the detriment before it occurs rather than worrying about the cost of the detriment after it has occurred, so that's all right. It fits into our bailiwick.

DR BYRON: Just elaborating a little on that last point, one of the effects of the national electricity market reforms of the last five or 10 years has been to, I think, generally reduce electricity prices. Is that correct? It may well have been some surplus capacity that has eventually been taken up. To a certain extent, I imagine it's been very difficult to focus the minds of electricity users, households or industries, on energy efficiency at a time when energy prices have been falling in the marketplace.

MR RUSSELL: That's correct, and what you'll probably find in the next several years is that the benefits of reform which have flowed through with lower prices are probably starting to bottom out and the demand is now starting to kick in again, and that's why pricing signals are being sent - you know, Origin and others have announced investment in generation plant for peaking and base load, so there are signals back in the market, and the question is, are there sufficient signals?

MR WRIGHT: Just on that point, I think that we can accept that energy prices are low in Australia, relatively speaking, and, looking at energy as one input to production, that it might be quite rational to not have the highest energy efficiency standard in the world compared to, say, a nation where energy is very expensive as an input. It might be rational for them to invest in higher standards of energy efficiency, but not cost-effective, given that there are other inputs into production.

DR BYRON: Well, then you'd agree with what a few other people have said to us: that we shouldn't be looking for the highest levels of energy efficiency; we should be looking at the right levels of energy efficiency.

MR WRIGHT: Correct, but that's our position, yes.

MR RUSSELL: If I could just make one other point, too: we've tried in our submission to look at the benefits of competition which in part is prices, and so we've

put in a measurement there of churn, customer churn in Victoria for instance, so that may be one measure you could have a look at. There are 14 energy retailers in Victoria, where there's a lot more competition, and so customers are being offered different products. So price is one. Some of our members are offering other benefits and bundling. Some of our members bundle Internet, telephone and other things as well. So it's a bit hard to measure the benefits of competition, but one of the things we've also tried to demonstrate is full retail contestability in different transition phases in different states, shall I put it that way, for their own reasons. We think there needs to be thinking on that as well. So if you had a single, national retail licence, you had open contestability for customers and you had cost-reflective prices, that is the type of market that we're thinking about that will drive benefits to consumers.

DR BYRON: Right. Thank you very much.

MR RUSSELL: Thank you for your time.

DR BYRON: I thought that was a pretty good summary just then, but unless there is anything else you want to say.

MR RUSSELL: No, thank you.

PROF WOODS: If you could follow up with those additional points that would be good. Great, thank you very much.

DR BYRON: Thank you for coming. Thanks for the submission. We will take a break now and resume at about 10.45.

DR BYRON: Thank you. When you're ready, just settle down and make yourselves comfortable. If you could each introduce yourselves for the transcript, then you might like to summarise the submission. Thank you very much for getting it in; so comprehensive and so early. Then we can talk about it for a while.

DR LAIRD: Pleasure. Thanks very much for the invitation to appear. Since the submission was lodged and was placed on your web site, it has since been endorsed by the Railway Technical Society of Australasia. So as well as appearing on behalf of the university, I will be appearing on behalf of the Railway Technical Society of Australasia as well, along with Mr Andrew Honan from the Railway Technical Society of Australasia. Very briefly, we were formed in 1998 as one of many technical societies of the Institution of Engineers Australia.

We have over 800 members, five chapters based in mainland state capital cities. We organise a biennial conference on railway engineering, most recently in Darwin in June attended by nearly 400 people. Like Engineers Australia we support ratification of the Kyoto Protocol to assist in the reduction of greenhouse gas emissions. I would now like to hand over to Mr Andrew Honan of our government relations committee who will summarise the submission.

DR BYRON: Thank you, very much.

MR HONAN: Thank you. My name is Andrew Honan, and I represent the Railway Technical Society. We have made an executive summary of Philip's submission, and we endorse Philip's submissions to the commission. The Railway Technical Society of Australasia is a technical society of Engineers Australia. It has over 800 members and has made frequent submissions to government. It would like to commend the commission for holding the present inquiry and supports the 27-page submission No 1 to the present inquiry by Dr Philip Laird of the University of Wollongong, with the support of the CRC in rail engineering and technologies.

The following is a summary of the 27-page submission. The importance of energy, and the impact of its utilisation on sustainable development, cannot be overemphasised. Energy is involved in every aspect of human activity, including industry, commerce, domestic requirements and transport; thus investment in research and development that will reduce energy use is supported. It is therefore incumbent on government and society that we use energy efficiently. Transport accounts for 41 per cent of Australia's final energy usage, mostly in road transport. Our energy usage is now 24 per cent above 1990 levels and by 2010 could be as high as 44 per cent.

Questions relating to cost-effective energy efficiency improvement in the transport sector lead not only to questions of efficient conversion of energy into

effort, but also efficient use of energy for a given transport task. Ultimately the conversion of energy and the levels of energy use, as an input for a given transport task, revolve around the pricing and equities between rail infrastructure and road use, for although rail is clearly energy efficient in line-haul freight tasks compared with road, 2.7 tonne kilometre per megajoule rail compared with 0.95 tonne kilometre per megajoule for articulated trucks, pricing mechanisms conspire against rail to perpetuate and encourage overuse of road transport.

Line-haul pricing frameworks that ignore the social costs of trauma accidents and costs of pollution end up promoting technical efficiency improvements in production processes, such as higher road mass limits, use of longer road vehicles and support for infrastructure capacity upgrades, rather than addressing the most appropriate mode of transport. Australia continues to have the highest road freight activity per capita nation in the world. There is scope for appreciable savings in diesel, by rail winning more land freight. This will require more efficient and competitive rail operations as well as transport policy reform by government.

In relation to urban transport, market failures are also evident. Although public transport is nearly two times more energy efficient than private transport, rail at 0.65, buses at 0.71 and cars at 0.36 passenger kilometres per megajoule, public transport is disadvantaged compared with private transport by a range of taxation, fringe benefit tax, expenditure and other policies that encourage private use. Although engine technologies continue to deliver marginal improvements in vehicle energy efficiency, these are offset by increased use of larger private vehicles through market failure. At the same time economies of density in which public transport networks are connected up through effective interchanging, and use of real-time information systems, remain undiscovered.

Intensification of public transport services and land use planning, allied with demand management policies, offer the prospect initially of much higher levels of energy efficiency use than looking at conversion technologies. Clearly, these market failures create high economic, social and environmental costs. The RTSA invites the commission to support a simple challenge: for Australia to actually reduce, year by year, its total energy use in transport. With relevant policy leaders this would give real incentives to cut waste and improve energy efficiency.

This could include a 10-point plan: (1) reinstate tolls and remove toll rebates as part of a road-user charge; remove the Queensland fuel subsidy scheme; impose congestion charges for the CBD of Sydney and Melbourne; restore fuel excise indexation; ensure that the third determination of the heavy vehicle road-user charges by the NTC recovers the full road system cost from heavy vehicles; increase annual registration fees for heavier four-wheel drive vehicles; support previous recommendations into inquiries into road pricing and urban transport; increase rail

fares with proceeds going to a better rail system; improve land transport data; ensure that airports and seaports are not in receipt of hidden subsidies. Thank you, Mr Chairman.

DR BYRON: Thank you very much. Would you like to introduce your colleague who has just arrived?

DR LAIRD: Yes, thank you very much. I would like to now introduce Mr Bill Laidlaw, who is the chairman of the Sydney chapter, one of our larger chapters of the Railway Technical Society of Australasia.

PROF WOODS: Mr Laidlaw, could you please introduce yourself for the purpose of the transcript.

MR LAIDLAW: Yes, I'm Bill Laidlaw, the chapter chair of RTSA here in Sydney.

PROF WOODS: Thank you very much.

DR LAIRD: I would also like to take the opportunity to table copies of our three most recent brochures, the most recent being the small one, Rail for Sustainable Cities, and the other two larger ones being one on intercity freight and one particularly addressing Sydney rail.

DR BYRON: Thank you very much, gentlemen. You've raised quite a number of issues there. I guess I could start by just clarifying that this inquiry is not really an inquiry into greenhouse. The terms of reference are fairly specific about energy efficiency in a whole range of contexts, but including transport. The general proposition that I think we're being asked to look at is that there are many energy efficiency options that exist already, that are well known, that are proven technologies, et cetera, and for some reasons, which we have to investigate, these measures are not being taken up, and so to the question of barriers and impediments to adoption of technologies and measures that are already proven viable.

Just while you were talking about the difference in the technical efficiency between rail transport and road transport - well, we might discuss the freight task later, but in terms of urban suburban commuter transport in spite of the figures that you've got there about how much more technically efficient it is to move people around by public transport, people seem to be - I was going to say voting with their feet, but voting with their cars, which suggests that there are other reasons which determine how and why people choose to go to work by one mode of transport rather than another. They are not motivated primarily by concerns of technical efficiency. It might be, you know, comfort or convenience, or the fact that they need to get to a place of work which isn't on a regular route at the time.

PROF WOODS: Or the train doesn't stop at their station.

DR BYRON: That's a very Sydney-centric comment.

MR LAIDLAW: One of the things that the RTSA is doing currently, with the Engineers Australia chapter through the chapter chair, is running a series of forums to look at why people are using or not using public transport. One of those sessions is on tonight and there's a further one next March, so it's an ongoing issue that we, being an engineering organisation, are trying to say, "Let's have a look at what the issues are and let's come up with some of the answers." Not having a vested interest, ie a manufacturer of rail cars or we sell oil or something, then we can stand back and do it from an engineering point of view.

One of the things that has come up so far has been the difficulty in having an integrated system where people can travel seamlessly between one mode of transport and another, which is probably a ticketing and a timetabling issue, and the transport not keeping up with the growth of Sydney, that you've got vast areas being opened up before the public transport systems have been worked out, instead of putting a system in, be it rail, bus or whatever, then selling off the land. One of the prospects of this is that you can get higher prices for the land if you have an existing transport system and the government could benefit from this, and then there is more money to put back into it.

DR LAIRD: If I could add that Perth is refreshing in that, as per the brochure, the government of Western Australia took a system which in the early 1980s was destined for closure, the urban rail system in Perth. Indeed, Perth to Fremantle had been closed. A change of government, following a massive petition supported by Fremantle City Council and others, saw the service being restored. The incoming government then electrified and, in the early 90s, extended the Perth rail system. As a result it went from a low patronage base of about 10 million passengers a year to 30 million passengers a year.

As we speak at the moment, the government of Western Australia is investing one and a half billion to construct a new line from Perth down to Mandurah in the south-west. It's going ahead of the developers. It's helping to form land use as opposed to the situation in Sydney where we see Castle Hill in our north-west has grown and grown and grown. In 1998 the New South Wales government, under an Action for Transport 2010 plan made a commitment to build a railway line there. It is yet to start.

Now, to come to your question about technical efficiency not being adequate to motivate people to make technically efficient choices: within road vehicle use this is

very, very evident in the strong preference shown by many people to go out and buy a four-wheel drive, not necessarily a light one weighing a tonne, but one weighing two or perhaps even three tonnes, referred to in America as sports utility vehicles.

PROF WOODS: My LandCruiser would be a good example.

DR LAIRD: Indeed it would. We have no shortage of cars that will use only five litres per 100 kilometres. We have the onset of hybrid cars. Honda makes one and Toyota makes Prius. Yet our pricing of fuel, we would submit, is so cheap that it's not really a consideration when people come to buy. State government annual registration fees do not really send a strong signal that if you own a four-wheel drive then it's going to consume more road space and so on. The federal government gives what some would argue is - for a big sports utility vehicle - a \$5000 subsidy by having a low tariff on them. So here, just within cars, you've got some not only market failures, but one might say government failure.

Between different urban transport modes you've got people making a choice between using a car, however efficient, or using a rail or a bus, which is also very energy efficient. For example, a loaded train around Sydney will have five times the energy efficiency than would an average car with a single occupant. The factor of two to one comes from the fact that often the trains have low loading factors and occasionally some cars have - just occasionally - more than one person in them. Again, there's a whole range of taxation - one could almost call them incentives to go and use your car. The perceived cost for most people of driving their motor car is the cost of petrol, averaging, say, 10 cents, 11 cents per kilometre. Yet you can get a tax refund of 60 cents or thereabouts per kilometre. There are just so many incentives built in the system to go out and drive a car, either private use or have a company buy it or whatever.

When it comes to using public transport we're in the situation where the taxation benefits for use of public transport are not nearly as favourable as using a car in practice. In theory it might be the same: if you're going from your home of residence to your place of work you're not supposed to claim. On this point the situation arguably became worse in fiscal 2001 when the treasurer openly boasted the new tax system would lead to cheaper cars and cheaper diesel, and then in early 2001 fuel excise indexation was frozen. So we see that we're not sending the right signals out to people to make energy efficient choices when they choose to get around our cities.

PROF WOODS: I don't think we'd be arguing that you'd want to reinstate tariffs on imported vehicles because that's creating a whole lot of distortions throughout the economy. There is a separate question about whether the different modes of transport are being taxed appropriately depending on their energy loads and other

costs of road construction and congestion and pollution and things. I wouldn't mix up the tariff debate with the energy debate.

Can I just get a clarification on some figures. You talk about the relative energy efficiency of private transport and you go through rail 0.65, buses 0.71, cars 0.36 passenger kilometre per megajoule. That rail figure: I recall seeing somewhere else - and I'm sorry, I can't seem to point to the exact figure - that there is quite a divergence between light rail and heavy rail in terms of passenger efficiency. Is that not right?

DR LAIRD: Yes. Mr Woods, when we look at aggregate energy efficiencies - if I can draw your attention to page 12 of the main submission, table 1 - you'll see light rail being the trams in Melbourne - - -

PROF WOODS: There it is. Okay.

DR LAIRD: - - - plus Adelaide's train, plus Sydney's light rail and the monorail all pulled in together show about 0.6 passenger kilometres per megajoule on a full fuel cycle basis. Urban rail is roughly about 0.7, falling a little bit. These are aggregate figures. The University of Wollongong wrote to every rail passenger operator in Australia and under confidentiality assurances we collected the individual system data on the basis we'd only publish the aggregate, but some systems are more efficient than others.

PROF WOODS: Yes. Thanks. I knew I'd read it somewhere.

MR HONAN: If I can make a comment following up from Bill Laidlaw's comment about information technologies assisting the supply side of public transport. We believe that the integrated ticketing is a commendable thing from the New South Wales government, but we would like to see more real-time information systems to hook up basically the public transport network, making sure that interchanges are much more efficient. I think that if you see that side of the supply side you'll see that there will be an uptake of public transport. We think that there are a lot of inefficiencies in the whole system, or ineffectiveness in the whole system.

I think that the real-time information systems that enable passengers to see when their train is arriving or to schedule when to collect a bus or a train will see a new demand curve and promote public transport. That side, I think there is a market failure in that the government doesn't want to take on this approach of the information technologies inside public transport; it's just got a big agenda that it's got to digest at the moment.

DR BYRON: I've heard Peter Newman on that topic and, you know, intelligent

transit systems and making use of GPS and transponders, and let people know that the bus you're waiting for will be arriving in two and a half minutes so you don't go out and stand in the rain for 20 minutes waiting for it to come.

DR LAIRD: Indeed, it's already in place in Brisbane and in July of this year the Queensland government, with Brisbane City Council and Queensland Rail, introduced the first stage of integrated ticketing. Melbourne has had it, as you'd be aware, for years and hasten the day when it comes into New South Wales.

MR HONAN: The advantages of basically connecting up the modes of public transport are that interchanges become a place of business activity rather than just sort of hit and miss, and a place to leave. We think that the government can do more in that area.

DR BYRON: In the main submission there were some comments about the relatively low average fuel efficiency of the Australian motor vehicle fleet. I was wondering what you think the main cause is and whether the Australian fleet has been sort of diverging from what's happening overseas. My intuition is that European cars are becoming increasingly energy efficient at a much faster rate than the typical Australian fleet. Is that simply because the fuel prices that they're paying are three to four times what we pay here and therefore energy efficiency matters to them much more than it matters to Australians?

DR LAIRD: To look at a graph of the average fuel use in litres per 100 kilometres of the passenger vehicle fleet in Australia, a man from Melbourne University called Paul Mees observed that it had been virtually flat up to about the year of 2000 when he published a book which was reprinted in the book by Peter Newman and myself and others. Since then a survey of motor vehicle use shows that it's still around 11 litres per 100 K, so it's been remarkably flat. My understanding is that America was doing a little bit better.

Secondly, Australia has a fairly diverse fleet of passenger vehicles, over 10 million of them; some are quite old. Although we might put on the road, say, 900,000 new cars each year and might retire about 300,000 or 400,000, there's scope for the newer vehicles, being more fuel efficient, to lift the efficiency. But when, of that 900,000 plus, if my facts are correct, about 240,000 in a 12-month period were four-wheel drives with higher fuel use, then it's that that I think is driving the flatness.

PROF WOODS: So you mean the 19 litres per 100 that I consume is sort of weighting the average a bit?

DR LAIRD: Yes, because the numbers are growing by up to a quarter of a million

a year. Sports utility vehicles are at the top end of the four-wheel drive. There are plenty that only weigh a tonne, but there are plenty that weigh a lot more. I think that's one of the reasons that when people come to buy - as Peter Newman said, people can always choose performance and comfort and whatever over technical efficiency; our pricing structures do not encourage the energy efficient choice. It's not as if the fuel price is high in this country; it's low by OECD standards. America is cheaper. Saudi Arabia is cheaper. The registration - it's not annual charges. I'm not aware of what I might call annual registration charges with differentials to send a strong message and we've already touched on the tariff.

DR BYRON: One interpretation of it is that when people are buying a new car they think that, you know, the sound of the exhaust note or the type of steering wheel cover or something is far more important than how many litres of fuel it uses. The way the market economy normally works is the consumers are free to buy whatever they like, but we just need to make sure that the government isn't sending them misleading or inappropriate signals. I know the Europeans and Japanese drive very small, nimble vehicles and it's very sensible for them to do that, given the prices they pay for fuel. I guess I'm just querying the extent to which we can conclude that it's a market failure simply because some people choose to buy bigger cars than the rest of us think they need.

PROF WOODS: Can I wander into the road, rail, heavy vehicle area?

DR BYRON: Yes.

PROF WOODS: It might be a good idea. What sort of proportion of the road freight transport task is sort of contestable by rail? We're not talking perfect substitutes here. There is an awful lot of distributional activity and breaker bulk activity and others that road will always be much more suited to than rail, but are we talking 15 per cent or 50 per cent, in terms of contestability of that heavy vehicle road haulage task?

DR LAIRD: I think three comments. (1) That question was asked by Paul Neville's House of Reps committee inquiring into rail, and a paper is available. Although dated, I can make it available.

PROF WOODS: That would be good. Thank you.

DR LAIRD: Secondly, it's a lot bigger than what people think in terms of tonne kilometres. The conventional wisdom might have been once, look, if it's going to move less than, say, 800 kilometres, it's better on road; it's not worth an intermodal trip of road pick-up and delivery with rail line haul. But with increasing efficiency of rail, with better rail tracks, better technology in locomotive and wagons, plus some

innovative private sector entrants plus a good public sector operator in Queensland, I think that distance is coming down. We might say it's closer to perhaps even 400 kilometres.

For example, if you're producing wine near Mildura and would like to export that through Melbourne Port, you're much better to take it to an intermodal yard and let the train from Mildura go straight into the port rather than try and truck your containerload of wine into the port.

The other comment is that there are some not insignificant bulk haulage tasks that were recently regarded as the captive of road. Let me give you two examples. One is the movement five years ago of wood from, say, near the Lithgow area and near, say, the Tumut area, both through Port Kembla. Traditionally that would have been a road haul, but an innovative rail operator, Freight Victoria then Freight Australia, could see the opportunity, and so it went by road to a rail loading point, one of them being at Lithgow, the other being at Hume in the ACT, and by rail to Port Kembla. Unfortunately the export market for this wood dried up and it stopped.

There have been similar examples cited in Albany in WA, and I think we'll see that more and more. I think the thrust of our submission is that if we had better rail tracks - you know, what we have is not fit for purpose. I'll come back to that later, if you wish. If we had better rail tracks on the one hand and if we had competitive neutrality between road and rail when it comes to access pricing, then you would see a lot more freight, a lot more of the tonne kilometres on rail or intermodal.

PROF WOODS: Yes. I guess I'm still looking for some guidance though as to whether we're talking 15 or 50.

DR LAIRD: No, you'd have to qualify whether it was "tons" or "tonne" kilometres. But in terms of "ton" kilometres, I'd say it was more like 15 than 50, but nevertheless a non-trivial task - - -

PROF WOODS: Yes, it's significant.

DR LAIRD: - - - with many benefits, including reduction of fatal road crashes involving articulated trucks, reduction of diesel use and on and on.

PROF WOODS: If road, along your line of argument, was having to incur increased costs to reflect impact on roads, greater competitive neutrality, et cetera, what would that do to the viability of your rail freight operators? Presumably they're already profitable; I guess Toll is not in the business because it's making a loss. Would that allow them to increase their charges and therefore further increase their profitability?

DR LAIRD: I think the challenge for government is to get somehow, some way, money to upgrade main line rail tracks for a fit-for-purpose standard so that they can carry more freight and passengers. We're very heartened as an industry to see the AusLink white paper with the 1.8 billion over five years to upgrade tracks that are used by freight trains. We hasten to add that probably the Neville committee in its report Tracking Australia of 1998 - that we're looking more like 3, 4, 5 billion just for the interstate capital lines. The 5 billion would allow for an inland Brisbane-Parkes-Melbourne route.

PROF WOODS: Does the Parkes to Melbourne component need significant upgrading in its own right, or is it just getting the line up from Parkes up?

DR LAIRD: No. The Parkes-Melbourne - basically all it needs is a new bridge over the Murrumbidgee River to replace the present 1880 structure which is inflicted with a 20-kilometre-an-hour speed restriction - another Menangle in the making. It needs concrete resleepering from Albury to Junee; it needs ongoing track strengthening, and some clearance lifting would be desirable.

From Parkes to Moree there are secondary lines and good conditions, and either the construction of two triangles, one at Binnaway and the other west of The Gap near Werris Creek, or better still, construction of about 100 kilometres of new line, would give you a new line from Parkes to Moree; then reconstruct about - what, just under 100 K - North Star near Goondiwindi; then about 100 or 200 kilometres - - -

PROF WOODS: So you're tracking west of Goondiwindi - sorry, east?

DR LAIRD: Yes, just this side of Goondiwindi and then through Ingleburn and Millmerran would take you to near Toowoomba where Queensland Rail and Queensland Transport have identified and protected the corridor through the new Toowoomba rail crossing, and then you've only got the problem of getting it from Ipswich to Acacia Ridge and the Port of Brisbane.

PROF WOODS: Or to Gladstone.

DR LAIRD: Yes. From Toowoomba you could also go up to Gladstone to a good deep-water port. That one, it's very interesting: whereas Pacific National, only as recently as August last year, in 2003, said, "We would much sooner see the existing coastal route upgraded," which is sorely in need of upgrading - it's been rated F consistently, for a variety of reasons including substandard alignment, old bridge structures and signalling systems that are 75 years old or older. Basically that railway between Australia's three largest cities of Melbourne, Sydney and Brisbane is

in the same condition as our Hume Highway and Pacific Highways were in 1970.

PROF WOODS: Just completing your thought though, you were heading off saying that Toll would put higher priority on the coastal route than on the Melbourne-Brisbane route. Is that where you were heading in that conversation?

MR LAIDLAW: Can I answer that?

PROF WOODS: Yes.

MR LAIDLAW: Last week we had a conference in Melbourne - I've just returned from it, hence no voice. The speakers there indicated that instead of building the inland route straightaway, it would be wiser to upgrade the existing route, to build the traffic levels up to then be able to support and justify the inland route, therefore leaving the coastal route freer for shorter haul later, but in an upgraded position. At the same conference they're talking about east-west rail hauling around about 80 per cent of the components compared to this horrible 20 per cent up and down the coast because of our Great Dividing Range.

PROF WOODS: I could get carried away on a lot of rail things because I like rail, but we're probably meandering from the topic, so I'll stop at that point.

DR BYRON: One of the specific items in our terms of reference is to look at congestion and pricing. It's funny how "Sydney" seems to appear in sentences with the word "congestion". Whether we were talking shipping or air or rail, Sydney is frequently described as the intermodal roadblock or portlock, whatever. I'm just wondering if you've got any comment on the potential for congestion pricing to encourage greater efficiency through either the choice of mode of transport or timing of transport, and what you think the benefits and costs of a congestion pricing type arrangement would be. I guess the people who have asked us to look at that might have been thinking of the charge that was introduced a couple of years ago for cars to go into the City of London or in Singapore where they have again congestion pricing for the central district.

MR HONAN: Look, I think the Parry inquiry that was done by the New South Wales Department of Transport canvassed a lot of those issues and a lot of submissions were presented there - I think in one particular case by Gary Glazebrook - where they looked at a particular congestion charge as well as setting up parking stations around the perimeter of Sydney. I think the charge was, if I'm not mistaken, a \$5 charge. But it was more than that: it was actually rearranging, basically, the transport task within the CBD. It was not so much a congestion tax, but actually looking at parking stations, having high-frequency bus services and other services at these parking stations. You can cite examples overseas: in Singapore; Hong Kong;

as you say, in London - London is a very effective arrangement for congestion tax; even the Swiss system, which Philip knows very well, a heavy trucking system.

DR LAIRD: Yes, with the transponders on trucks.

MR HONAN: I think the challenge is not to get overcomplicated with the technology. The German system, where they tried to introduce it as the showcase for technology, is proving quite difficult to implement. But I think the simple task of congestion tax is warranted in the CBD, and I think it's been canvassed, as I say, by the Parry inquiry, and there are a number of submissions in there that relate to it. These gentlemen will add further to it.

DR LAIRD: The Parry report released on the New South Wales Ministry of Transport web site was a ministerial inquiry into sustainable transport within New South Wales, and it was quite interesting that Tom Parry had a whole chapter on road pricing and I think congestion pricing is the way of the future, I think for Sydney in particular and possibly Melbourne; sooner better than later. Business as usual for Sydney is going to prove very, very costly for Sydney, and particularly if we go into a regime of high international oil prices.

DR BYRON: I guess it's just a special case of road user charges where the charge varies with time of day and location.

DR LAIRD: Yes.

DR BYRON: But the much broader question of road user charges would also have raised the sorts of issues that you covered in the submission, about whether the charge for B-doubles actually covers what it would need to cover. We did talk to the National Transport Commission about intermodal pricing and the charges between articulated and non-articulated trucks.

DR LAIRD: The National Transport Commission has the difficult job of making a third determination of annual charges for heavy vehicles, and in the AusLink green and possibly white paper, it was speculated there would be a national transport advisory council to give further guidance on charges. I think we would support the formation of such a council. We would also note with interest that the national competition policy draft report of your commission has suggested a role for the COAG to try and drive the reform process, not only in freight, but interest in urban transport.

PROF WOODS: Do you agree with that?

DR LAIRD: Definitely. We feel there's an urgency for reform to correct some of

the things that have happened in the last few years, but also to make the whole system more efficient and less energy dependent, particularly on imported oil.

DR BYRON: I'm afraid we're going to have to wrap it up at that point in time. Are there any closing remarks that you would like to put on record?

MR HONAN: No, not from me.

DR BYRON: I would like to thank you all very much for taking the trouble to come here today. Thank you very much for the submission.

PROF WOODS: Yes, your submission was very extensive, very helpful.

MR HONAN: Thank you very much.

DR BYRON: Thank you for that.

DR BYRON: Thank you very much for coming, Mr Wilkenfeld. If you could just introduce yourself for the transcript, and maybe summarise the submission, and we can talk about it for a while.

DR WILKENFELD: Sure.

DR BYRON: Thank you.

DR WILKENFELD: Thanks. I'm Dr George Wilkenfeld. I'm a director of George Wilkenfeld and Associates, which is a consultancy practice on energy policy and environmental policy, located in Sydney. I've made a submission to the Productivity Commission Inquiry on Energy Efficiency. I will just summarise the main points from that now.

The reason I made the submission is because I had been professionally involved in two policy instruments directed towards improving energy efficiency in Australia, particularly the provision of information on energy efficiency and on minimum performance standards. Most of my work has been the application of those policy instruments to household appliances. I've also had some professional experience on the application of those instruments on building performance standards and to some extent also on motor vehicle efficiency.

To concentrate on the way in which information and standards have worked in the appliances market, generally the shorthand is energy labelling, but what we really mean is the fairly complex system of collecting, verifying information on comparative energy efficiency of different products, but more than that, to then package it in a way that influences the market. That's not only sticking a physical label on white boxes. Once you have the technical information at your disposal - and I guess I've always been involved with the operators of efficiency programs, which in this country is government - once government has acquired the technical information, there's almost no limit to the ways in which it can be packaged, and the way in which it can be placed before potential buyers or potential users of that information.

The program is actually quite old. It commenced in the mid-1980s, well before the Internet. So the only way of mass communication of this kind of information - well, not the only way, but the most cost-effective way that we were able to devise of communicating information on comparative energy efficiency - was to put a mandatory label on products. Now, the fact that it was mandatory was a critical point in what I believe is the success of the program, because it meant that the relatively limited financial resources that government had to publicise information was leveraged in a sense, because the product itself became the advertiser. So the mandatory appearance of this piece of information on basically every white box

confronting every buyer that went into a showroom, itself raised the process of energy efficiency in the purchase process.

Since then, a number of other low-cost means of disseminating the same kind of information have become technically available, particularly the Internet, and if I were redesigning the energy label, one of the possibilities in fact we looked at is simply have the big star rating on a web site, because the access to the Internet is now so widespread that what we want to signal is that if you don't find the information necessary to make your comparative decision in this showroom, then there's other ways of accessing different kinds of information.

DR BYRON: Sorry, just on that can I - just so I don't lose the thought. Every consumer who goes and opens a freezer door has that sitting at eye level.

DR WILKENFELD: They don't have to open the freezer door. By law, it's on the front.

DR BYRON: Yes, but what I mean is, all those who are - I understand that point - going to buy a fridge have it sitting at eye level there in front of them.

DR WILKENFELD: That's right.

DR BYRON: All those consumers. Being on the Internet (a) requires that people be connected, and (b) that they bother to go into that Internet site to actually obtain that information. I suspect that the penetration rate for customers on that basis would be significantly less. I mean, why would I bother to go into that site to find out? The only way I know about energy efficiency for the fridges that I'm looking through is that I'm confronted with those stickers on the fridges in the showroom. There's no way I would bother to go into an Internet site to worry about that because, as you said before, you have to make certain assumptions about the extent to which energy efficiency is a relevant factor in the purchase decision.

DR WILKENFELD: That's true for some products. Yes, if you can make the decision in the showroom, then why bother with the Internet.

DR BYRON: If it's supplementary, that's good, but I can't imagine it being a replacement.

DR WILKENFELD: No, it's not marketed as - it could almost be a substitute. Although we started with refrigerators and then extended to - what was it? In short order it went to dishwashers, clothes washers, clothes dryers. What it meant is that the average household purchases a product every two years, which has an energy label on it. Now, it's a constant sensitising and reinforcing process. It's now

expected that it's there.

However, we - meaning the program - have now moved out of the household market into other types of product which are not necessarily viewed in showrooms; for example, large packaged airconditioners, which are not. I mean, up to 65 kilowatts. I mean, these are things the size of this table. There are no showrooms for them. Nevertheless, we have arranged it so that there is no physical label on those products, because there's nowhere for people to view them. So they're mainly bought by professional buyers as distinct from householders, so the information - nevertheless, professional buyers know that the government operates a credible system for collecting and disseminating information, because of their household experience. Everybody buys household goods, so now a lot of professional buyers - by "professional buyers" I mean engineer building specifiers - know that this program has been extended to other products which they are interested in purchasing, and they routinely access the information list on the Internet. There is no physical label.

However, on the Internet, the visual presentation of the information looks like the energy label, because everybody understands that. It has got a star rating; it has got kilowatt hours per whatever usage cycle. So for some products, typically non-household products, the Internet is the sole means of delivering information. That's why when at the beginning I said that labelling is a shorthand or a rubric for a whole-information collection process, and part of the collection process is using the information most cost effectively to target different markets.

Nevertheless, the building blocks for the process are the same. You need a series of test standards, and you need a system of obligation that means that every supplier of a product that you're dealing with is obliged to test to that standard, and to notify that information to the central point. Then the central point - at which point the government or the group of people who run this program, and includes a whole range of skills including market research skills - seeks to deliver that information in the most effective way to different product markets.

This would not have arisen spontaneously. I mean, there was absolutely no indication before the government chose to set up this system, that the producers of goods were going to do it themselves, because there is market risk to them to do it, because no individual producer of a good, even of one that they believe to be energy efficient and more so than their competitors, can bear the cost of establishing a credible system of information that basically obliges their competitors to subscribe to the same. If their competitors do not subscribe to the same system of information, then they have achieved nothing, because their competitors can undermine it or at the very least, refrain from participating. So this kind of initiative can only be effectively undertaken by an organisation with regulatory abilities.

Historically, the energy utilities - for example on electricity labelling - was initiated by the state government of New South Wales acting in concert with the government of Victoria. Nevertheless, the only other reasonably successful model in this country was the gas energy labelling program which was initiated by the Gas and Fuel Corporation of Victoria, when it was still a monolithic body, and still had essentially delegated powers, or powers delegated that could enable it to prescribe standards for products. It no longer has that. In fact, the way in which both gas and electricity markets have changed - and the Productivity Commission would know this better than anybody else - means essentially there's no locus any more within those organisations to undertake this kind of initiative. So even utilities that did have regulatory ability to do so, or at least semicoercive abilities over their industry, no longer do so. So it's only government that can now set up and maintain this credible system. No individual supplier of an energy efficiency product could bear the market risk or the cost of doing so.

DR BYRON: What about the third party certifiers? I'm thinking of a number of cases where NGOs have actually set themselves up as independent certifiers and labellers of products, usually in terms of environmental sustainability.

DR WILKENFELD: No, I mean, there's a service function within any energy efficiency system. There needs to be some body of verification, and a lot of the subsidiary tasks of collecting information, testing or whatever are and should be subcontracted out to specialists like third party certifiers. That's fine, but a third party certifier could only - do you mean by third party certifier as a party that arranges for testing and verifies the credibility of information?

DR BYRON: Yes, like the WWF set up the Marine Stewardship Council and the Forest Stewardship Council, which basically certify the certifiers and authorise people to label their products as meeting the requirements of having been sustainably produced or whatever.

DR WILKENFELD: Yes.

DR BYRON: I'm just questioning whether only governments can set up a system which provides that sort of labelling, particularly environmental labelling, or whether it can be done on a non-coercive basis by a major international NGO, and again without the coercive power, but when you get basically every hardware store in Western Europe saying, "We only want to sell sustainably produced timber that has got the stamp of the Forest Stewardship Council," then although they have no coercive powers, it ends up becoming the industry standard and it provides information to any consumer that it has met some independent accreditation process. I'm just sort of trying to think laterally of are there alternatives, apart from the

government running this system?

DR WILKENFELD: The government doesn't necessarily have to run the system. Sure, the World Wide Fund has for many years had reasonable success with its little panda mark on all sorts of things from household detergents, but in terms of visibility and ubiquity, it's simply an order of magnitude lower than think something like energy labelling. Participation is voluntary, and that's fine, but it's nibbling at the edges. The thing about the appliance energy labelling program is that it has probably made more difference to the consumption of electricity in this country than any other non-pricing initiative. It's big. Certainly, people at the World Wildlife Fund can and do set up voluntary programs, but their reach is limited.

In Europe, for example, which is where population is historically more sensitised to energy efficiency issues, it is conceivable, I suppose, that an NGO could help establish some kind of energy-related mark, but even so, the EEC has now a mandatory energy labelling program like Australia has. In fact, it adopted after Australia's and studied a number of programs, including Australia's, to develop its own and now, in Australia - one might think it is now - the level of sensitivity within appliance purchases to energy issues is now incomparably higher than it was 20 years ago, but largely because of the initiative the government took.

So the market has maybe changed now because of the government initiative to a stage where an NGO or non-government - but it is inconceivable that any non-government party could establish the level of credibility and impartiality that adds to the effectiveness of a labelling program. Even the panda mark - I have actually seen research on this - a large number of potential users of that information to purchase actually distrust non-government players and suspect there is some kind of financial relationship, which there is in fact between the giver of the mark and the commercial user. One of the strengths of the government at least setting the rules for this, or bits of it could be, as I say, subcontracted - the operation of it - is that the cost of credibility to governments fortunately still is relatively low.

PROF WOODS: You mentioned about the enormous impact that labelling has had. How does that compare with the impact of things like minimum appliance standards and truncating the bottom part of the distribution? So anything where the energy efficiency standard is less than X is simply not allowed in the marketplace any more. What's the relative bang for the buck in terms of providing information about the four or five-star rating, the top end of those it tries to allow it and the effect of taking out the bottom end of the distribution?

DR WILKENFELD: They are in fact complementary programs. That's not an either/or. For refrigerators, both policies are now in operation.

PROF WOODS: Yes.

DR WILKENFELD: In some product markets there is no alternative because labelling doesn't work. The best example of that was, when I was involved with this as well, the minimum performance standards for storage water heaters. The efficiency of converting electricity to water is the same, irrespective of what product you get. It's pretty well 100 per cent, because you have this resistance element immersed in the water and all of it goes into the water. So there's no difference between products there. The difference in efficiency is how much heat they lose while they're standing there.

When we looked at the market in the early 90s, there were in fact minimum efficiency standards for heat loss for different electric water heaters which had been imposed by the electricity utilities at a time when it still had the regulatory power to do so. Their interests in doing this were not so much energy efficiency, but in order to help the economics of the electricity supplier, because as they were developing the off-peak water heater market, they wanted to dump a measurable and predictable amount of energy into each house, and they didn't want that to be leaking away so that the householder would then be dissatisfied. So that's why the electricity utilities had in fact as early as the late 70s started working with suppliers.

So there was in fact a test standard, but what we looked at was the minimum performance standard heat loss standards that had been set by electricity suppliers; were actually extremely well below the cost-effective level. A water heater is a very simple device, so it's very easy to do the engineering and work out what the cost of making the thing thicker by using more foam, more steel would be, and it was so far below the cost-effective level compared to the value of electricity that the government actually intervened and set minimum performance standards.

There was no point in trying for energy labelling for two reasons: first, energy labels would show that all of them were identical because all were built to the very poor standard set by the electricity regulators, so labelling would have shown them all to be one star or whatever; and secondly, the way in which they are purchased, the marketing mechanism, is different for refrigerators. The householder doesn't normally walk into a showroom and look at a whole range of them. The householder usually leaves the choice to an intermediary. So, given the market dynamics, there's little point in energy labelling, so the government went straight to minimum performance standards.

Even now, the minimum performance standard should actually be ratcheted up because they're still well short of the cost-effective level, and labelling is now on the agenda because of, oddly enough, trans-Tasman arrangements. The New Zealand energy efficiency levels have moved slightly out of step with Australia's and there

could be two or possibly three different levels of energy efficiency - ie, EECLOS - of electric water heater appearing on the Australian market in the next year or so. Under those circumstances, given that there will be some differentiation of the market, and given the history of increasing sensitisation of buyers through energy labelling of fridges and such, we could be revisiting the case for energy labelling of water heaters. Then we would have both minimum standards and labelling, so that would work in concert.

The building blocks are the same, so once you've set up either an energy labelling program or minimum performance standards, you have the information which is - the most costly part of the whole process is setting up the standards and ensuring that every single product is tested. That is common to both products, so once you've established a standards program or a labelling program the marginal cost of moving to the other is very low.

DR BYRON: It's just that you said you thought labelling had had the greatest impact.

DR WILKENFELD: We were talking about the refrigerator market, or the whitegoods market.

DR BYRON: I'd sort of been assuming that getting rid of all the under-performers might have had a great impact. That's why I was wondering about the relative effectiveness of the two - not to suggest that they're opposite approaches.

PROF WOODS: Which one is driving the - - -

DR WILKENFELD: Which one is driving. There's no doubt that if there were the policy confidence to set minimum standards at the cost-effective level that analysis shows, then that would be the best bang for the buck; no doubt about that.

DR BYRON: And who does the analysis?

DR WILKENFELD: There's quite a history. There are different methodological approaches to setting minimum standards. What we've used in this country - there's essentially the statistical approach. You look at what's on the market now - it could be refrigerators - and you get the best information you can about the energy efficiency of each different model and the real price of each different model or, in some cases, the manufacturing cost. That's a different thing again. You establish a mathematical relationship between price and energy efficiency, which is a pretty difficult thing to do in some cases, because in some cases there's not a direct relationship. In some sub-markets there's actually an inverse relationship: the cheaper product is the more efficient, because it must have, therefore, some other

aspects of performance that it is possibly lacking - durability or whatever; so you have to try and compensate for quality issues and whatever.

But it is possible to analyse the distribution of price and energy efficiency in a market so that you can establish what the current relationship between price and energy efficiency is in that market. Then you can establish the point at which - I mean the U-shaped curve - the point, the lowest cost of energy service from that market, and that would be the optimum combination of energy efficiency and price. Now, that's the approach in a nutshell that we used to set minimum energy refrigerator standards back in the first set of refrigerator standards.

What it means: this process gives you a minimum standard that is relatively conservative in that you end up leaving about two-thirds of the product on the market at the time that you do the analysis. So it has a moderate effect on the market. It cuts out perhaps the least efficient one-quarter or one-third, but you still have a large number of products and therefore you still need labelling, and there's considerable scope for labelling to drive customers towards the top end. That's one approach to standard-setting.

In the United States, where they put far more resources into this process and have done for many years, they actually have an engineering based approach. That doesn't require analysis of what is on the market at the time you're doing the kind of distribution, statistical distribution, I was talking about. Essentially you take apart the product you're looking at - classically it's a refrigerator - and you're essentially reverse-engineering it and you look at the cost of each individual component. You look at the standard American refrigerator and you see, well, on the range of compressors available on the world market it is using typically this one.

You look at the range of insulations and thickness and type of insulation and, you know, it uses two inches whereas real cost-effective might be about three inches. You look at the manufacturing process, in fact the capital involved, in making a more energy efficient refrigerator. From that process, you can actually determine that the optimum point would be possibly at an energy efficiency level higher than is currently supplied by the market. That in fact has been done. In the United States back in I think the 91 they set standards.

They have a far more formalised regulatory approach to the stages and the consultation process, in fact the analysis by which federal standards are set for appliances and they require a three-year lead time from the time at which the US Department of Energy signs off on it and it becomes law, obviously to give time for retooling. At the time the 91 standards I think were set, which were to come into effect in 94, there was not one single refrigerator out of the two and a half thousand models on the American market that would have met the standard. That's a fairly

bold approach.

PROF WOODS: But they were confident that the market could move to that?

DR WILKENFELD: Yes, and it did. Obviously, the industry associations were not entirely happy with that analysis, but it was so persuasive because it was done on this essentially reverse engineering. It is quite expensive, obviously. The United States spends two orders of magnitude more on this kind of program than we do, but it buys the kind of analysis that supports that kind of confidence. That's called high level-setting. We have actually used that to some extent with a far less complicated product, which is water heaters. It's not difficult, because a water heater is such a simple product and the ways in which you can improve the energy efficiency are very narrow, so we were able to do that for water heaters. Even so, there was some political horse trading at the end of it because in fact the increment in energy efficiency that was finally adopted was about half what we found to be the cost-effective level, because the industry basically negotiated half of it away.

DR BYRON: I'm just thinking that when I lived overseas I had a 21 cubic foot fridge - it was American - side by side, which was probably very efficient for a 21 cubic foot fridge, but maybe I should have only had a 13-foot fridge instead. On labelling, we have been told that plasma TV screens gobble up a fair amount of energy, but if one is labelled as being the most efficient in this class of appliance, it doesn't necessarily mean that it has low consumption. I guess I was tangentially moving towards the discussion about what is different with labelling motor vehicles as opposed to labelling appliances. I think you refer to that in your submission.

DR WILKENFELD: Yes.

DR BYRON: And so this big four-wheel drive might be slightly more fuel efficient than that big four-wheel drive, but the question is, "Should I be buying a little Toyota instead?"

DR WILKENFELD: Sure, that's an excellent point. On the plasma screens, one of the most controversial areas in all labelling programs - and manufacturers tend to resist this - is, "What constitutes a product class?" In refrigerators there are actually eight subclasses: frost-frees, top mount, bottom mount, and so on. They have different test standards and, even so, basically what you are buying is cold space and, even within a cold space, we need to differentiate different product markets, but generally people have a fairly good idea of what they are going to buy.

I mean, they don't go to a refrigerator showroom for a bar refrigerator and come out with a 21 cubic footer. They may move slightly one class up or down in size, but generally the decision about energy efficiency tends to be one of the last

ones made. It's still very powerful because it still may be the decider between three or four alternatives that will more or less meet the search criteria but, nevertheless, we never have tried to position it as the first thing in the search process, but almost the last thing, and it's still effective.

On plasma TV screens - I believe the Australian Greenhouse Office is actually looking at putting a refrigerator-type energy label on screens, which would class plasma in the same class as LCD and VDU and cathode ray technology, as it should be, because it gives no appreciably different class of service. It is a colour screen. Under those circumstances I think plasma would rate one star, whereas a good LCD or a cathode ray would rate four or five stars, and that's as it should be. There may be an adjustment per viewable square centimetre or whatever. There are certain standardisations but, even so, I think people who buy a plasma screen should be aware that it is a high energy user.

A four-wheel drive gives a far more different service than a Toyota Echo, and some of my submission did go into whether the kinds of things that work in appliances could be translated to the motor vehicle market - not directly. That's one of the problems: that there has been an almost literal translation of showroom energy labelling and it has basically been an abject failure.

DR BYRON: Can you explain why it doesn't carry over well from appliances to vehicles?

DR WILKENFELD: There are two reasons. One is the technical issues arrangement, how the information and standards operate, but before that - I mean, historically, it's the fact that the motor vehicle industry is far more effective in its dealings with government than the appliance industry. I don't know which strand you want to go. Do you want to go the political or the technical?

DR BYRON: I think probably the technical is safer.

DR WILKENFELD: Okay. The motor vehicle industry has succeeded in sidelining energy efficiency as a technical issue, whereas really it's a market intervention issue. Okay, in this case it's technical. As I said at the beginning, one of the touchstones of effectiveness of an energy efficiency information program is injecting the information in a way that is likely to affect user choice. Now, a refrigerator in a showroom: because people go into a showroom where the multiple brands tend to be lined up one against each other, you can basically do a visual comparison, whereas motor vehicle showrooms don't tend to have more than one brand, so essentially you have already made your brand choice or you have narrowed your brand search before going into your two or three showrooms, where you are going to kick the tyres and sit in the thing, so the search process begins much earlier

with motor vehicles. That's one technical difference and why the approach has to be different.

DR BYRON: But if I buy Wheels magazine and look at a side-by-side comparison of five V6 family sedans, one of the lines will certainly tell me what the fuel consumption is for each of those models by way of city cycles, so if I am interested in that information - if I am looking for a new car, even a used car - I can get that information fairly readily for a couple of dollars by buying a magazine, and I would have thought for a lot of appliances, you know, "Get the latest issue of Choice magazine from the ACA," although when the ACA was sitting here yesterday I said I was surprised at the number of times that energy efficiency wasn't featured in their comparisons of appliances. My recollection was that it was always there in terms of running costs but, when you check, it is less so, but certainly in vehicles you can get information if you want.

DR WILKENFELD: Sure.

DR BYRON: There are even web sites, I guess, and the motoring associations - NRMA, RACV, et cetera - have little brochures that compare everything from a LandCruiser to an Echo, so the question is whether the consumer is actually looking or interested in energy efficiency information or are they more interested in the colour of the upholstery.

DR WILKENFELD: Of course. The information is accessible to the committed searcher on motor vehicles. The government makes it available, as well, on an energy rating web site. The thing is to make the information salient and important. The reason it has worked in appliances is because nobody thought about the energy efficiency of appliances before mandatory energy labelling came along. The label itself increased the profile and the importance of energy efficiency for appliance buyers.

Governments since 1978 in this country, when the national average fuel consumption program first started after the first oil shock - so there's a very long involvement. So there have been some signals that it's a matter of national policy to try and increase the fuel efficiency of the vehicle fleet. If government were interested in actualising that policy objective, one cost-effective way to do it would be to essentially put the information to people's faces as appliance labelling is done, crudely.

What is the first interface that most potential vehicle buyers have with information on a motor vehicle? It is probably television advertising or print advertising. The motor vehicle industry is the largest advertiser in this country. It spends upwards of \$1000 for every unit sold - every car sold. It's a frightening

figure. The NRMA has done comparisons. For things like Jaguar, per unit sold, 10,000 is persuading you to buy each Jaguar. Even a Holden - \$600 is spent persuading you to buy a Holden.

Okay, so this is the kind of information soup that you have to cut through to actualise this national policy objective. One elegant way to do it - and it would be fought, kicking and screaming - is to have a mandatory requirement that whenever there is a press or television advertising of a motor vehicle, either an energy label appears in the corner of the screen or on the press advertisement. This may at first blush be seen by some people to be interfering in the market, but the motor vehicle industry is spending \$1000 per unit to convince buyers that the most important thing to them is the burble of the exhaust note or something trivial that they are differentiating their unit on from some other.

If the government had the political skill to take on the motor vehicle industry in a way that it has demonstrably failed to do for 25 years, then the national policy objective could be very elegantly actualised. Then let's see how quickly energy efficiency or fuel consumption would increase in the ranking of criteria when people purchase a motor vehicle. If they saw, whenever a LandCruiser is bashing its way through the outback, 19 litres per kilometre in the corner and one star - - -

PROF WOODS: Per 100 kilometres.

DR WILKENFELD: Per 100 kilometres. You're talking about Sherman tank territory here! 19 litres - and they saw an Echo or a Jazz and it said 8, 7, and they saw a hybrid and they thought, "Wow! 5." That's one way of doing it. Another way of doing it - and I won't take up too much of your time - is on the mandatory standard side. The United States for a while had a mandatory fuel efficiency national NAFC program.

We've had a non-mandatory one, which has failed spectacularly to meet every single voluntarily agreed program. Nevertheless there would be market-friendly ways of having a mandatory fuel efficiency program in this country by, for example, having, essentially, an annual pool of fuel efficiency credits that motor vehicle suppliers would have to bid for, and if they wanted to sell all four-wheel drives they would essentially have to buy from this pool sufficient credits. Let's say the pool was set at eight litres per 100 kilometres, declining over future years. It's not difficult to get essentially market-friendly mechanisms that would internalise differential costs into the market, as well as very cheap for government, but very effective ways of leveraging the advertising spend of the motor vehicle industry in similar ways that have been proved successful and extremely cost-effective in appliances. It can be done.

PROF WOODS: Apart from picking on my LandCruiser you are also now picking on my plasma screen.

DR WILKENFELD: I am sorry, but just on LandCruisers, it strikes me as efficient that the only remaining, as it were, imperfection in the tariff regime is in favour of the least energy efficient product we have. That's an irony that I hope you will point out in your report.

PROF WOODS: Can I draw your attention to a phrase in your submission. It's just that I don't quite understand the point you are trying to make. You say:

Where a program increases product price this represents a transfer of energy service market share from energy suppliers to the product suppliers.

"A transfer of energy service market share". I'm not quite sure what concept you are trying to get at there.

DR WILKENFELD: Well, when one buys a water heater - I mean, there's a good example here - one buys not a water heater but the energy service of water heating, and the two components are the discounted lifetime operating cost and the capital cost. Without the intervention of minimum performance standards, something like 90 per cent of that service market was captured by the electricity retailer on a discounted lifetime operating cost; about 10 per cent by the supplier of the product. Now, with minimum performance standards we actually anticipated and were happy about an increase in the capital cost of the product, provided that the lifetime service costs declined by more than increasing capital costs, which is indeed what happened, but therefore the product supplier - which might have got 20 per cent more for their sale of the water heater - captured a far greater proportion of the total service cost. That's the only point.

PROF WOODS: Very good. Shorthand, but I now understand it.

DR BYRON: It seems to me there have been continuous improvements in energy efficiency of appliances, and I believe that Holden is advertising that in the latest model Holden just released, the new engine is more efficient than the previous model's engine and these sorts of things, so in a sense, even if it was involuntary, there have been some technological improvements in energy efficiency over the years. We may be partly offsetting those by having bigger, heavier appliances, et cetera, but what I was getting at was - I think it's called "the rebound effect", where you buy something which is actually more efficient, but if you then use it 50 per cent more, your total energy consumption is still going to go up, and so if I moved down from a Commodore to an Echo but then do twice as many kilometres a

year because I'm now driving a more efficient vehicle, or if I buy a more efficient clothes dryer or washing machine but use it twice as often, the end result in aggregate consumption terms is not really much better. Are there any ways, from your experience, of minimising this rebound effect, where people say, "Well, now that I've got a more efficient device, I'll just use it more"?

DR WILKENFELD: It's a good point. In a lot of the products - consumer appliances or motor vehicles - there is a natural limitation on how much you can use it. Not all products. A refrigerator, for example: you can't leave the thing turned off for all 365 days a year, as it is now, anyway, so there's a limitation. One of the reasons that we intervene, one of the arguments for intervention with information or minimum performance standards in product markets, is the lack of consumer awareness about energy price issues anyway. So they're not then going to, once they've bought the efficient product, suddenly increase their awareness of energy price issues and say, "This is only costing me 3 cents an hour to run instead of 5 cents, so I'm going to use it twice as much." It doesn't really appear to happen.

There is one critical market where that can happen and that's airconditioning, because it's not limited. Consumption of airconditioning is not limited by essentially personal presence. Driving is as well. Nobody wants to drive more than they do now, especially in a town like Sydney, so I don't think that - I mean, I've seen no information that shows that people who transfer their purchase from a large to a smaller car therefore drive more. I mean, nobody wants to drive. It is not a good in itself, but getting from A to B is a good in itself. So I don't think there's much rebound effect.

Obviously, there would be more money in - even if you're not aware of energy prices and you find that you're spending less money on energy per year for some reason because you bought a more efficient product, then obviously your purchase of goods and services is going to increase commensurately, but then the energy content of those new goods and services is not more than about 10 or 20 per cent, so the rebound effect may be about 10 per cent.

PROF WOODS: But if you're going to the shops for an hour and a half and the energy is not costing you very much, you may choose to leave your airconditioner on so that the house is still cool when you get back.

DR WILKENFELD: That's right. That's a danger. In fact, I'm doing some work now on the ways to - that's not so much energy. That's a combination of energy problem and egg supply problem. No doubt you're aware that there's been a dramatic increase in the sales of airconditioners in this country in the last couple of years. One of the reasons is increasing assumption of whole-house airconditioning and increasing tendency to install airconditioning at the time of purchase. There are a

number of drivers for that: one is the reducing real price of airconditioners because of increasing world trade and, of course, time is dropping the prices of all manufactured products. Airconditioning is one of the few areas where I think you can get rebound effect, because you can consume the good without you being present; but for most energy services, there is a natural limitation.

DR BYRON: Yes, I hadn't thought of that. Was there anything else that you wanted to say in the way of wrapping up?

DR WILKENFELD: No. I've appreciated the line of questioning because it has drawn out most of the things that I was going to say, so thank you.

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

PROF WOODS: Yes, we appreciate that.

DR BYRON: And sharing your decades of experience on this topic with us.

DR WILKENFELD: Thank you.

DR BYRON: We're adjourning and resuming in Brisbane tomorrow morning. Thank you very much.

AT 12.25 PM THE INQUIRY WAS ADJOURNED UNTIL
WEDNESDAY, 17 NOVEMBER 2004

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