

**THE PARLIAMENTARY JOINT STANDING COMMITTEE ON ENVIRONMENT,  
RESOURCES AND DEVELOPMENT MET IN COMMITTEE ROOM 2,  
PARLIAMENT HOUSE, HOBART ON WEDNESDAY, 10 OCTOBER 2007.**

---

**INQUIRY INTO ALTERNATIVE FUELS**

**Mr MICHAEL STREET**, DIRECTOR, CIVIC SOLUTIONS AND **Mr GREG FANNAN**, GROUP MANAGER, FLEET SERVICES AND FABRICATION, HOBART CITY COUNCIL, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

**CHAIR** (Mr Hall) - I invite either of you to open the batting and speak to your submission and then we will ask some questions.

**Mr STREET** - I thought probably the best thing to do was to put our submission into some sort of context. The Hobart City Council owns and operates a fairly significant fleet of heavy vehicles and plant, as you would expect, within its own municipality. On that basis there are always opportunities for us to look at alternative fuels, and we have been doing that from time to time over the years as the opportunity arises. Along those lines, as you are probably aware, we had a couple of Greens alderman on the council and about June last year we had a bit of debate in the public arena about alternative fuels, the cost of fuel and that sort of thing. So they asked for a report on what we saw as the state of play. We presented a report to them in August, which they accepted, and then this committee was established and submissions were requested. What our submission contains is essentially the information that we supplied to the aldermen in our early report.

Part one of the report, the current situation, was a very simple appraisal of the various types of alternative fuels that were about, what our exposure had been to them, if any, and what we saw as some of the advantages and disadvantages of those fuels. A major part of the submission revolves around what we saw as development issues in relation to the broad introduction in Hobart or Tasmania of an alternative fuel, whatever it might be. In section 5 those dot points are some of the issues that we thought should be taken into consideration. They are all pretty straightforward and there is no rocket science in it.

The last part of our submission contains an in-principle commitment which we got from the council to say that we are ready, willing and able to participate in some sort of joint venture or project with other relevant agencies, government or private, to look at the possibility of using alternative fuel in Hobart, obviously subject to the particular project and council approval. That is where we stand.

We have not been able to do a lot because of the lack of infrastructure to fuel vehicles. The council is always looking at ways of doing things more efficiently. If there were more efficient fuels available then we would certainly look at them. Any change that might improve the environmental impact of the council's operations would be looked at as well.

So that it is pretty much it. We have looked at what is around and found that it is not necessarily the council's role, or local government's for that matter, to expend large amounts of money in setting up infrastructure for alternative fuels, but we are more than happy to become a partner in some arrangement to do so.

**CHAIR** - You are aware of course that there are some councils and local government authorities on the mainland that have converted their fleets, light and heavy, to CNG.

**Mr FANNAN** - Yes.

**CHAIR** - Have you done any case studies on any of those?

**Mr FANNAN** - I have been involved with the Liverpool City Council CNG conversion with their vehicles and buses and, as I say, we are willing to participate in that type of arrangement if the infrastructure is readily available.

**CHAIR** - The problem is getting the infrastructure in, and that is the issue here in Tasmania.

**Mr FANNAN** - Yes.

**CHAIR** - We did have some evidence yesterday where a proposal was put to us by a private operator to have some sort of a partnership agreement between, say, government business enterprises, the Hobart City Council, and themselves. If they could get a working party together then maybe that would be the impetus to then get the infrastructure in to do something or to look at it.

**Mr STREET** - There is no doubt that for vehicles we use, like refuse collection and recycling collection vehicles, the likelihood and the availability of vehicles that are built to take compressed natural gas or whatever is increasing. We cannot get them readily but as councils on the mainland are using them they will probably become more readily available.

**CHAIR** - There are now dedicated vehicles being made by different manufacturers like Ford and Toyota which appear to be better than the after-market conversions.

**Mr STREET** - We would favour buying a new vehicle rather than a retrofit.

**Mr BEST** - Your findings basically were such that if there was the refuelling - when you say infrastructure I am assuming that is what is meant - then that would be a very good option for the Hobart City Council.

**Mr STREET** - The initial work that we have done on compressed natural gas is that the payback is fairly lengthy but it is there - compared to diesel.

**CHAIR** - How many vehicles do you run in your whole fleet?

**Mr FANNAN** - There are 114 light vehicles, 63 trucks and 64 items of major plant - like rollers, bulldozers, asphalt layers.

**CHAIR** - So 114 light vehicles -

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 2 ALTERNATIVE FUELS, HOBART 10/10/07 (STREET)**

**Mr FANNAN** - That is all sedans and utilities, approximately 63 trucks was the latest count and 64 items of major plant.

**CHAIR** - Have you any dual LPG vehicles at this stage?

**Mr FANNAN** - Only forklift trucks at the moment. We buy through the State government common-use contract. The only thing on that contract which has dual fuel is the Holden at the moment. That is a six-cylinder vehicle and the council has a four-cylinder policy.

**Mr HARRISS** Did your discussions with Liverpool City Council uncover any similarities in geographic area, for instance? If I think of the Hobart City Council's geographic area, they are short trips for you, so CNG offers a reasonable opportunity if the infrastructure were in place, but not so good for long haul runs.

**Mr FANNAN** - No, and we talked with Kevin Black, the fleet supervisor for the Liverpool City Council at the time. He had been through the exercise and found it was viable for those short runs because there were local filling stations that they could go to every day. Given the amount of gas they use you need a filling station close to or within the actual daily run of the vehicles.

**Mr HARRISS** - So is their geographic area similar to the Hobart City Council?

**Mr FANNAN** - I could not say. I do not know the actual City of Liverpool itself. Kevin was over here as part of a CNG promotion and he came and talked to us at the council.

**Mr HARRISS** - Is that one of the main attractions for Hobart City, the fact that it's a fairly tight geographic area and there's no great drama with long-distance travel for council vehicles?

**Mr FANNAN** - Yes. We've said also that we are the City of Hobart and all the vehicles are within close proximity of the city and the residents. If we can be seen to be more green with our exhaust emissions, then that's the way that we go. We also do a financial analysis because we have that responsibility to the ratepayers of Hobart as well.

**CHAIR** - Did you have an in-depth look at biodiesel as an option?

**Mr FANNAN** - Yes, we worked with the Tassie Tiger Line bus trial. We conversed with those people; they said it is easily done. The biodiesel is not commercially available, which again is the hardest part, so someone has to provide that biodiesel to you. Fuel waxing was a problem at the time with the cold temperatures; they had to have a larger filter capacity, special fuel filters, and the price of it is driven by the cost of the commodity. The Tiger Line bus trial was abandoned because there was no advantage in it; they just turned it back over to diesel and away they went. That is the advantage of biodiesel; you can convert to it and there's no cost to convert.

**CHAIR** - That's right, they can fill straight up.

**Mr FANNAN** - We are in discussion with University of Tasmania at the moment with Associate Professor Vishy Karri; he is currently doing biodiesel development. I haven't heard anything more back from Vishy at this point in time.

**Mr HARRISS** - It's a project he's been working on for quite a while.

**Mr FANNAN** - He's gone from hydrogen to biodiesels.

**Ms THORP** - Is he still involved in seaweed?

**Mr FANNAN** - I don't know what he's up to with that.

**Mr HARRISS** - How long ago was the Tiger Line trial?

**Mr FANNAN** - It would have been in 2000, probably prior to that. Technologies of all these alternative fuels are constantly emerging, being developed, being improved upon. It is just keeping up with them and knowing what's going on.

**Mr HARRISS** - There are countries which subscribe to hydrogen for their public transport, but the storage capacity requirement on vehicles is extensive.

**Mr FANNAN** - It is indeed.

**Mr HARRISS** - Then it becomes a cost-benefit balance, doesn't it?

**Mr FANNAN** - Correct, yes.

**Mr HARRISS** - Have you done any numbers on what CNG might deliver to you if you converted all of your fleet and if there is a facility available to you?

**Mr FANNAN** - No, we haven't done the numbers. We are actually trying to get somebody to tell us how much is it to fill up a 50-litre fuel tank. We know we converted our asphalt plant to CNG, and that relies on the energy consumed. We pay by gigajoule, but for someone to come along and put the hose in the tank and tell us how much it is at the moment to fill up a 50-litre tank here in Tasmania, I can't get the price of that at this time.

**Mr STREET** - It's probably fair to say we are waiting to see what might fall out of the Cripps Nubake trial in terms of that. That might give us a bit of an idea of how that will -

**Mr HARRISS** - Is that just one vehicle?

**Mr FANNAN** - Only one, I understand. They've got an overnight fill

**Mr STREET** - One delivery truck.

**Mr GREEN** - So you've got a national plant converted to compressed natural gas?

**Mr FANNAN** - Yes.

**Mr GREEN** - Where do you get the compressed natural gas to facilitate that?

**Mr FANNAN** - Through the infrastructure coming up Giblin Street.

**Mr GREEN** - And you've actually got a compressor there?

**Mr FANNAN** - No, natural gas through the mains pressure - 70 kPa.

**Mr GREEN** - Right, yes.

**Mr HARRISS** - Mike, did you say that is Powerco's facility in Giblin Street?

**Mr STREET** - We bought it through their - what would you call it?

**Mr FANNAN** - Their supply contract.

**Mr STREET** - Yes, retailer.

**Mr BEST** - We visited a fellow yesterday who has a biofuel manufacturing plant and he commented about the fuel standards and said that the German fuel standards were better with biofuels than the Australian standard. They are hoping to blend some of the product that they are hoping to make and they hope that they can meet the Australian standard but they thought it would not run as well. Do you have a view about that or is that totally out of your area?

**Mr FANNAN** - No, I don't know what the current standards are albeit it that we would be reliant on the producer to produce a fuel with the quality to suit the current engines that are about.

**Mr BEST** - His view was that you had to meet the Australian standard to get the tariff -

**Mr FANNAN** - Yes.

**Mr BEST** - but that in meeting that standard, the fuel really is not as good as it could be if they were allowed to meet this other German standard, I think he said; something along those lines unless I have got it wrong. I will have to be careful here, I might have it wrong, but I thought that was what he said. I was interested as to whether you might have known something about that.

**Mr FANNAN** - No, sorry.

**Mr GREEN** - I think it was a concentration on those issues that you raised with the potential Tiger Line trial, that unless you put pure biodiesel into a brand-new engine it can create all sorts of problems with respect to knocking carbon and other materials off inside the engine and, as a result of that, having big problems with the filters. He was worried that the product itself might get a bad name in a similar way that ethanol did. The situation is that blended biodiesel with very low sulphur diesel, I think he said a B -

**Mr BEST** - B5?

**Mr GREEN** - B50.

**Mr BEST** - Or B2?

**Mr GREEN** - He started off by saying B30 and then he was talking about B50 but I think it was bio 30 per cent or bio 50 per cent which still gives you a very good product and eliminates all of the issues associated with the thing that we talked about in the first place - knocking off the carbon and all the rest of it.

In terms of the cost and the opportunity that comes as a result of biodiesel - and it is a two-fold thing and so I will ask a question with respect to that - it is pretty obvious that in terms of cost of production of biodiesel it is around about the same; it is pretty difficult to give an accurate figure. By the same token the production of biodiesel has a lot of benefits with respect to the utilisation of products that would be wasted - poppy seeds and other things - that are providing a useful amount of fuel. I guess it provides jobs and work and gives us self-sustainability. Would you consider that as being an important part of any decision-making that you think about with respect to whether or not you use biofuels? This issue is obviously associated with the environment as a result of a better product and all the rest of it, no sulphur et cetera, but an important consideration I would have thought is the fact that it provides us with an opportunity in Tasmania to help us to self-sustain ourselves. Have you considered that as an issue at all?

You did mention that it was very difficult to get hold of the product. If the product were available -

**Mr STREET** - I guess in terms of looking at alternative fuels, provided you could tick off on that box and say yes, there is a ready supply of that biodiesel available in a blended form, that would not be an issue I would think.

We certainly have not gone down the path of looking at a generation of biodiesel through waste at this stage. I understand that it has happened on the mainland in some plants but I am not sure how far that has gone. That may be a possibility for the future -

**CHAIR** - It is a moveable feast, I think.

**Mr STREET** - when waste continues to rise.

**CHAIR** - Probably the point that Bryan is making is that it can be a home-grown product which insulates us against some major fuel strike or peak oil situation that would still keep us operating.

**Mr FANNAN** - That is a positive for the use of biodiesel.

**Mr STREET** - Given that the council's fleet is reasonably large, there is not necessarily a necessity to go to one alternative fuel. If there was a small but continuous supply of biodiesel you might say, 'We'll use that for the heavy plant', whereas garbage collection vehicles which drive very slowly most of the day are more suited to CNG. So it not

necessarily one in, ignore the rest; it may well be a combination of that based on an assessment against the criteria.

**Mr GREEN** - Through you, Mr Chairman - it is an important part of this committee's work. I have been on a previous committee where we looked at compressed natural gas and it is always a difficulty to get people over the threshold with respect to making the investment in a compressor. We know we have the linear infrastructure in now that provides the necessary resource and the gas, itself, but it is a matter of somebody taking the lead with respect to really having a serious go for compressed natural gas. That is why this investigation is very useful. From the Parliament's point of view, it brings a lot of like-minded people together, around this table - even though you are not all here together - and it allows us to understand and perhaps provide some serious nexus between various operations so that we can at least get somebody to take the plunge. They have done it on the mainland.

**Mr STREET** - Yes.

**Mr GREEN** - I would like to see serious negotiations with the gas companies and others about how we can facilitate that in the early stages. People say, 'Government ought to fund a compressor', and do this and do that - that is the old story. What I think we need is for the corporate world and local government and others to get out there and work out arrangements that will allow this thing to take off.

I am pleased to hear that at least you are proactively thinking about that. Would you be open to talking to other parties on this?

**Mr STREET** - That is a commitment we have given in the submission. When we reported to the council we asked them to make that commitment and they have done that. Obviously any particular project would be subject to council approval once the circumstances or the arrangements -

**Mr GREEN** - Collective things for approval?

**Mr STREET** - Yes. But from an officer point of view, we certainly would not be reticent in putting forward or committing the council to a partnership of some description if, in appraising it, we could see those benefits.

**CHAIR** - I mentioned yesterday the evidence we had was that there were people interested in doing exactly that, having some sort of a joint venture arrangement, at least to get around the table to talk about it. That may well be the impetus to get something going in terms of infrastructure for compressed natural gas.

In the mainland cities, apart from Melbourne which has a lot of trams, a lot of their Metro fleets have been converted to CNG and therefore they have that basic infrastructure in that you said is followed by private users and council fleets and that sort of thing. So this is a start.

**Mr STREET** - Yes, and - do not quote me - some of our refuse collection fleet is getting close to a changeover so if somebody were to generate in the next 12 to 18 months, that would suit us right down to the ground.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 7 ALTERNATIVE FUELS, HOBART 10/10/07 (STREET)**

**CHAIR** - Yes. If I recall, that was a quite a big selling point when we last did it. Bryan, you might recall that especially for garbage trucks operating in the early hours of the morning, they were much quieter than, say, a diesel truck.

**Mr BEST** - We have had quite a lot of submissions and we had some very different witnesses yesterday - it was quite interesting - with an array of ideas. Do you have a view of how you think this alternative fuel might pan out? It seems to me it is very hard to predict where it is headed or what might happen. Do you know of people similar to yourself who might have a firm view on how the future might unfold?

**Mr STREET** - My own personal view, as an engineer and manager with the council, is that now that the gas infrastructure is here I can see compressed natural gas being the fuel of the future for all our heavy vehicles. Where it goes with light vehicles will be determined in terms of tank size and how that all fits into the usage of the vehicle.

**Mr BEST** - It's the obvious next step, isn't it?

**Mr STREET** - It is. We don't necessarily want to have a filling station at our depot because we have gone away from fuels in there for safety reasons. Once the infrastructure is in place and the vehicles are available, we will get on board.

**Mr BEST** - There has been some discussion with committee members and yourself this morning about those very issues of who kicks the ball first. What do you think it really needs? What sort of leadership does it need to get it going? I think as Bryan said, the old-fashioned thing is that the Government should buy this or do that, but do you think it needs some sort of leadership? Where should that come from? Should it be shared leadership or just wait and see and let it evolve?

**Mr STREET** - I suppose, from a personal point of view, it probably needs industry. I would have thought, with the gas here now, that somebody from the gas industry would say, 'Here's a council with 50 trucks' - whether they get Commonwealth Government assistance through the Commonwealth programs, but we would be happy to work with State government and the commercial sector. We would a proposal to the council to commit some funds.

**Mr BEST** - It needs driving, though, doesn't it? Somebody has to drive it.

**Mr STREET** - You're right, it does need driving.

**Mr FANNAN** - It needs a champion to take hold of it and direct it. I would have thought Metro might have even had a vision that they would be looking at - not that we were going to ride on the back of them, though, but as a combined effort maybe.

**Mr BEST** - Do you think it's a bit sectionalised in the sense that you have people on the edge of looking at doing things but, as you say, there is no champion standing up?

**Mr STREET** - I suppose the easy option for, say, a council is to say, 'We're happy to get involved in this but when our trucks can drive up to the BP down the road and there is a compressed natural gas outlet, we will be in it'. What you guys are saying is that for that

to happen someone has to start, and no-one is going to put filling stations around the city if there are no trucks. It is a bit of a chicken-and-egg situation. If we can get together with some other partners and get some vehicles, so that it is a bit more than one truck, then away we go.

**Mr FANNAN** - All our tender documentation now calls for alternative fuel options for all vehicles, whether it be CNG, LPG, or whatever the manufacturer or supplier can provide to us. It says, 'Please list those options that can be provided'.

**Mr STREET** - We have just gone through a tender for some new side-loading trucks for recycling collection. The period from placement of order to receipt is getting out towards seven or eight months, so it won't be long before it is twelve months, I guess.

**Mr GREEN** - Somebody was saying yesterday that Isuzu have a straight compressed natural gas vehicle, a ready-to-go version

**Mr FANNAN** - They do.

**Mr FANNAN** - New South Wales has got it - half a dozen trucks, I think, with compressed natural gas.

**Mr HARRISS** - I presume the policy position is more directed to environmental considerations than cost considerations for any alternative fuel.

**Mr STREET** - Yes, that is fair to say that that is a major consideration. Certainly the council is part of the city's climate protection program; we have set our own greenhouse reduction targets and we are going a long way towards meeting those. That is the main driver but obviously the economics need to be there as well. The little bit we have done suggested that was the case with CNG. The premium in buying the vehicle is something the council might be prepared to pay but in terms of running costs I think the numbers are there. If it is an extra \$10 000 for the truck, well so be it.

**Mr GREEN** - The evidence that has been provided so far is a 50 per cent reduction in fuel costs. Am I right in saying that, Mr Chairman?

**CHAIR** - I think so.

**Mr GREEN** - But I still could not tell you what it would cost to get 50 litres in. You could only assume that if fuel is \$1.40 then it is going to cost you 70 cents a litre. I am not sure, but that was the indication given to us.

**Mr STREET** - The price of unleaded petrol in the USA is about 75 cents a litre; it is \$1.30 or \$1.40 here and in the UK it is getting up towards \$2. There has to be a better alternative.

**CHAIR** - And certainly natural gas is indigenous to Australia. We have heaps of it in that respect. Thank you very much for your submissions and we appreciate your time and effort in doing that.

#### **THE WITNESSES WITHDREW**

**Mr CRISPIN CANNON**, BUSINESS DEVELOPMENT MANAGER, HIGH PRESSURE AIR AND GAS, AND **Mr GARY WOODHEAD**, MANAGING DIRECTOR, COMPAIR AUSTRALASIA LIMITED, WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

**Mr CANNON** - We put in two submissions: one was on CNG infrastructure throughout Tasmania and the other one was on home-refuelling systems. We have about eight slides, and we would like to go through them quickly so then you can ask questions and so forth.

I would just like to give a quick introduction to CompAir. We have been involved in CNG for 15 years or so. We have successfully put in 600 CNG stations throughout the world and here in Australia we have been involved in supplying CNG stations to the Brisbane City Council and ACTION buses. We did investigate biofuels just so we were up to speed with what was going to be offered. One of the main things just recently was the OECD report that came out in 2007. It noted that for biofuels the environmental impact was far, far worse than for most fossil fuels. The study on the right-hand side is a Swiss study which looks at the well-to-wheel, if you like, the full impact.

You can see at the top there - it is a bit difficult to see - but that is biofuels/biodiesels. The next one down are alcohols, methanes and down the bottom are fossil fuels. On the left-hand side there it was looking at greenhouse gas emissions and again down in the green down there, it is mostly your fossil fuels and as it goes up, some of the biofuels depending on where the feedstock comes from; their actual emissions.

**CHAIR** - It is a bit difficult to read that. Would you mind tabling that?

**Mr CANNON** - Yes, we can table that.

**CHAIR** - Thank you.

**Mr BEST** - I know it is a bit hard to read, but are the long spikes that you have there the emissions?

**Mr CANNON** - It is the impact to the environment. The different colours you see are the different processes that add up to that full column, so you are looking at the feedstock, you are looking at the production of it, the conversion of it into a fuel, the transport of the fuel and the end use. We have a full report there and I am happy to submit that afterwards. It would be best to read through it yourselves.

**Mr BEST** - Just those two spikes, what are they exactly then?

**Mr CANNON** - They are a combination but the best way would be for me to submit the report and then you can read through it.

**Mr BEST** - Sure, thank you.

**Mr CANNON** - Regarding the benefits of compressed natural gas, again we looked at the IPCC report on climate change which gives the pie chart on the right-hand side and it

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 10 ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

gives a 14 per cent break-up of the greenhouse gas emissions by transport globally. When we look at that, we are looking at cars, buses, trucks and so forth and that is what we see really relevant to the CNG industry as a way of reducing these overall emissions. Up the top there we are saying that CNG can offer up to 25 per cent reduction, 20 per cent on petrol and 7 per cent on LPG.

**CHAIR** - When we are talking about freight trucks there, should we be talking about LNG instead of CNG?

**Mr CANNON** - Absolutely. I think it is a mix, it really is the best fit. If you are looking for Metro fleets, I think it is CNG but I think if you are looking at long haul then you will probably find that it is LNG.

We believe that it strategically offers a great advantage to the Tasmanian CNG side of things just because of the actual geographic size of the State and the population but mainly the gas pipeline that runs right through the centre helps between your major cities. In our proposal we are looking at CNG stations in Hobart, Launceston right through to Burnie and creating a whole CNG corridor from Hobart right through to Burnie.

**CHAIR** - How many infrastructure establishments have you got in Australia at the moment? What have you developed?

**Mr CANNON** - We have developed three main bus depots in Brisbane, we have developed one main bus depot in Canberra and Torrens Transit in Adelaide. Originally we were involved with a park in Sydney as a public station and we have maybe 12 or 15 forklift refuelling sites around Australia.

**Mr WOODHEAD** - I think the message here really is that New Zealand was an early model in terms of natural gas as an alternative vehicle fuel. We see Tasmania running in parallel to that New Zealand strategy; it worked quite effectively. I think from a geographic aspect it is very reachable and I think the infrastructure costs of putting this in are quite insignificant to cover the majority of the State. As Chris indicated, it is quite ideal for the way that the main highway system runs in Tasmania to match that pipeline infrastructure. It is quite a usable pipeline in terms of rolling infrastructure through.

**Mr GREEN** - I am not sure whether you heard what the council had to say in their contribution but they did not want to have a filling station in their plant. They have a number of trucks and all of the rest of it. Is it feasible with your equipment that a truck can go in and fill up quickly?

**Mr WOODHEAD** - Yes.

**Mr GREEN** - We hear about overnights and all the rest. What would the cost of that infrastructure be as a result of having to have much larger storages of compressed gas?

**Mr WOODHEAD** - To answer your question on filling times, with the bus stations that we run in Brisbane, for example, we are contracted for four-minute fills, empty to full. The technology is available to do that quite easily; that is a fairly common fill time.

**Mr GREEN** - Somebody yesterday told us 20 minutes.

**Mr WOODHEAD** - I think to be successful and to get the transfer - because you are talking about operators moving from diesel to natural gas - they would want to experience the same fuel times that they would have experienced with diesel and the technology that is available now allows you to do that. We think that is a critical step. You can get very fast fill times and in a lot of instances you don't need depot-based refuelling, which I think is what the council was referring to. If you can get the volume right, you can put this as a public refuelling system. As Chris indicated, the public stations in New South Wales were in fact on service station forecourts and the bowser was there, as it is for a diesel bowser. That is quite achievable.

**Mr GREEN** - It is not direct from the compressor to the fuel tank, is it?

**Mr WOODHEAD** - No, it is simply a pressure transfer out of cylinder storage. If you are familiar with a large oxygen cylinder, that is the size of cylinder that you would normally store CNG in, but you would have a number of those. You would probably have 40 on a site and it is simply a pressure transfer from that storage on board the vehicle. Quite obviously it is stored at a higher pressure and simply by releasing that pressure down to the vehicle, it transfers on as a gas to the vehicle. Again, if we look at the cases we have been involved in, service stations normally have the dangerous goods clearances to hold that level of storage on site, so it is fairly typical.

**Mr CANNON** - Quite often it is less storage in CNG than there would be in an LPG vessel because we compress it into the storage, so the storage volumes are significantly less than you would get in LPG.

**Mr BEST** - Are you saying it is a cylinder like an oxygen cylinder?

**Mr WOODHEAD** - A large-sized oxygen cylinder.

**Mr BEST** - And you just take the thing off the truck?

**Mr WOODHEAD** - No. I'm saying that is static storage. What you would have on the forecourt would simply be a bowser, like the diesel bowser, and the truck would fill off that bowser. In the background is the storage, which is really sitting over the back of the site. You don't see any of that, all you see is the forecourt dispenser as you would for petrol, diesel or LNG.

**Mr CANNON** - The compressor compresses the gas as required. It compresses into the storage battery and then the storage battery to gas goes from there into the vehicle. The storage battery is held at a higher pressure than the vehicle, so that is why it is very fast. With some of the buses you could get up to 50 kgs a minute.

**Mr BEST** - That makes sense. What we heard about yesterday was the staging and hooking up overnight. You have already got up to the level, so it is just a matter of hooking it on, isn't it?

**Mr CANNON** - In Australia it seems that fast fill suits most of the operations, rather than overnight fill. I think overnight filling is good for home refuelling where people can be

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 12 ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

plugged in once they get home and it fills up overnight. I think with the way bus depots and stations operate here in Australia that fast fill is the way to go.

**CHAIR** - When you say that you have established these facilities on the mainland in particular, who has provided the capital expenditure for those? Who has been the driver? Have you put in funding as well or have you done it in conjunction with -

**Mr WOODHEAD** - Both. Customs has bought its own infrastructure, or alternatively we have signed contracts to put the infrastructure in which we own and fully maintain. We have two examples of that operating. It is not necessarily an impost on the customer to put the capital equipment in. We are quite happy to do that, and I am sure there are others who would do that, provided you have a base load of fuel being taken. So it would be on a take or pay basis, then the capital infrastructure costs could be avoided. That is quite common.

**CHAIR** - So you would be interested in talking to people like Metro here in Hobart -

**Mr WOODHEAD** - Sure.

**CHAIR** - and local government authorities.

**Mr WOODHEAD** - I think even the gas retailers would certainly be another party that could be worth bringing to the table on exactly that front.

I think the real opportunity for business as we see it from discussions we have had is that if you can take away that capital impost of infrastructure it does promote a very real opportunity to move to an alternative fuel. I think our early discussions with the gas retailers suggest that is quite a viable opportunity.

**Mr GREEN** - Costs?

**Mr WOODHEAD** - We are going to cover costs through here; if that is okay we will work through that.

**Mr CANNON** - This is a cost-benefit slide, which gives a comparison, if you like, to diesel. You can see that on the right-hand side. We have assumptions in there of \$1.40 per litre for diesel. We have assumptions there of 39 cents a cubic metre of gas that is purchased as retail and we have a 12 per cent kilowatt hour in there because as the compressor is driven by an electric motor usually that is considered to be the cost.

For CNG for this particular vehicle we are looking at 21 cubic metres per 100kms and the vehicle is operating a 50 000-kilometre distance a year and this is based on 80 vehicles and that is spread over a six-year period.

**Mr WOODHEAD** - It is probably worth pausing there. The way this model works is 20 vehicles in the first year building to 80 by year five so it is a progressive ramp up. That is the background of the model, so it is not saying 80 from year one.

**Mr CANNON** - An estimate there would be about \$500 000 to install that installation; \$450 000 for the capital equipment; and \$50 000 is for civil works and installation. You

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 13  
ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

can see there are some operating costs we have put in there per year at \$51 000 for maintenance, \$300 000 for natural gas and electricity costs you can see as well. Down the bottom we have tried to bring that back to a cubic metre cost that we see dispensed on the basis of 80 vehicles doing those sorts of kilometres. We have come in with a figure of 98 cents per cubic meter dispensed from the public station.

On the left-hand side there we are saying it is proven technology, it is reliable. In the middle photograph there is a gas dispenser, so it is almost identical to what you would see in a normal petrol station. It is user-friendly so there is nothing difficult about it. It is just a matter of connecting and the dispenser does the rest and stops when it is finished. It would be a matter of going back into the service station and paying for your fuel as you would normally.

**CHAIR** - You are saying there in point two that pump prices are comparable to petrol and diesel and not linked to world oil prices, as I think we discussed with someone yesterday. Governments do like to put excises on -

**Mr CANNON** - Yes.

**CHAIR** - Have you factored that in?

**Mr CANNON** - No, that is not including any excise or rebates either.

**Mr WOODHEAD** - If you looked at the historical movements on diesel pricing and you moved that forward to the excise period on natural gas, you would find that the price of diesel would move within that time line to 2010 and would more than enough take up the excise impost that will come in on natural gas. So to us it is an offset.

I think the other thing in there is the return on investment is pretty aggressive at 32 cents. If you think about what has been made in terms of full quart on petrol and diesel as a margin, I suggest it is somewhat less than that so it is quite a conservative model in our view in terms of what the pump price would be. We think that is worst case certainly potentially if you go down off 98 cents.

**Mr McKIM** - I take it you have assumed in that model that your refilling stations are right next to a gas pipeline?

**Mr WOODHEAD** - Yes, and we have looked at sites within 80 meters of the pipeline where potentially we could put these on.

**Mr McKIM** - So you have factored that cost of connection in?

**Mr WOODHEAD** - I think there will be a return on investment of 32 cents, which we still have to play with.

**Ms THORP** - How safe are they?

**Mr WOODHEAD** - In terms of a fuel?

**Ms THORP** - Yes. The whole set up with all the transfers of one to the other. We've got used to petrol, haven't we?

**Mr CANNON** - I think it's very safe, and I think that's been proven by the amount of CNG stations throughout the world and the way it's been adopted through Europe and the United States. I think natural gas has a couple of benefits when it comes to safety: one is that it is lighter than air so it naturally dissipates very quickly compared to LPG which will pool around.

**Ms THORP** - It's very good for boats.

**Mr CANNON** - Yes, except I think that only disadvantage, if I am going to talk about it that way, is other than LNG, is the density of the fuel. We have to compress it so you have large vessels that you have to store it in, whereas with LPG you can liquefy it quite easily so you can get a lot of gas in a relatively small cylinder.

**Ms THORP** - When service stations have been decommissioned in the past, one of the problems often is that the soil has all sorts of contamination. What's the story here?

**Mr CANNON** - There is no contamination. The compressors themselves are banded, so the only oil that really is on site is for the compressors themselves. We produce those with a banded cabinet, so if there's a leak it's really going to go inside the compressor cabinet and can be mopped up. But as far as the fuel itself is concerned, it is a gas, predominantly methane. As I said, it's lighter than air, so if you have a leak it just dissipates very quickly into the atmosphere. As a general rule, the fugitive gases from a CNG station are quite small; all our compressors are sealed. In most cases we can organise to any vent gas that during connection or reconnection can be vented back into the compressor, so it's recycled.

**Ms THORP** - Given the pipeline goes through urban areas, is that going to be a problem for people living in the vicinity with escaped gas smell?

**Mr CANNON** - No, it's not. I think it needs to be looked at in the public station side of things much the same as existing fuels. There are standards and codes of practice written around building stations, and I think they have taken all of this into account already.

**CHAIR** - In terms of an LNG filling station, can that be compatible with a CNG one? Would they both be on the same site, although totally different? We talk about LNG for heavy transport obviously, that's not your game?

**Mr CANNON** - It's not really my game, no, but there are facilities around, I believe, that can vaporise LNG into CNG. I believe that's available, it's just not something that we have been involved in.

**Mr WOODHEAD** - What I have never seen is an LNG station on a forecourt, if that was your question. I have never seen a situation where you've got a CNG bowser and an LNG bowser. Normally LNG would be at a depot-based site because of the fact that you need to have a lot of storage on that site or, alternatively, you have your LNG plant on the site, so you tend to put your infrastructure on a depot-based facility.

**Mr CANNON** - I think usually you have about 1 per cent boil off, so you've got a continual release of gas. I think they tend to take that out of urban areas.

**CHAIR** - Just for your information, yesterday we were talking about the potential for log trucks and milk tanker fleets being converted to LNG.

**Mr WOODHEAD** - That's absolutely ideal. CNG will only work when you have a back-to-base fleet, which, as Chris indicated, is a short-distance fleet option; it is not a long-distance fleet. If you go long-distance fleet, LNG certainly is the most viable alternative without doubt. Our view is they actually work, there is a correlation because you have a lot of companies that run short-distance fleet vehicles and then long-distance fleet vehicles, so you actually can have both those gases running across the total fleet. Certainly they complement each other.

**Mr BEST** - Just on that environmental aspect, you say most of it is vented. In most circumstances where you might be working on something - I am not sure of the exact situation - you can vent it back into the system, I think you mentioned.

**Mr WOODHEAD** - Correct.

**Mr BEST** - Methane in the atmosphere is a greenhouse gas, isn't it? So we do not want methane getting out into -

**Mr WOODHEAD** - It vents back to the system. That is a standard feature of all these stations. It will only vent out to the atmosphere if you had an emerging situation where your cylinder bursting risks got to enough pressure that you had to release the gas, so there are fall back mechanisms.

**Mr BEST** - So you do not have much emission then like in transferring tanks and things like that?

**Mr WOODHEAD** - No.

**Mr BEST** - Do you have figure on that with you?

**Mr CANNON** - I don't know if I can provide those.

**Mr BEST** - Would it be so minimal that it is not worth recording? It's benefits so outweigh fossil fuels anyway, whatever leakage you have.

**Mr CANNON** - I think it is good practice to minimise as much as possible on any CNG station. I think that during servicing of the compressors and for connection and reconnection of vehicles these things are taken on board by the service provider and kept to as much of a minimum as possible.

**Mr WOODHEAD** - There is a global model and I think we are dealing here with a fairly mature model where we have situations where they are in quite sensitive environments so the technology has to address all that and it does. Your released atmosphere would be extreme emergency - it has those safety mechanisms, but it is a last resort and rarely happens.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 16 ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

**Mr CANNON** - The next line is really just looking at the bus fleets and information here is supplied by ACTION buses on a study that they had done, reflecting numbers that they has also received from Brisbane City Council fleets and the SDA. They were looking at a saving of \$13 200 per bus that was travelling 80 000 kilometres per year. We just highlighted there that if that were a 50-bus fleet then you would be looking at savings of around \$660 000 per year. So considerable savings can be had there. I would not have said that a 50-bus fleet was exceptionally large, but I thought it was just worthwhile putting it up there.

**Mr McKIM** - Is that just running costs?

**Mr CANNON** - No, that also has in there the return to the capital investment as well.

**Mr McKIM** - And that is based on purchasing new buses?

**Mr CANNON** - I believe so, yes. This is a report, which I can also table if you like, from ACTION buses. So those numbers are drawn directly from there.

**Mr BEST** - I think we heard yesterday that the Cripps Nubake delivery truck that is on trial has a 49 per cent cost reduction. That is phenomenal, isn't it?

**Mr WOODHEAD** - That is right. That figure is correct for the trial that we ran here for Cripps. There was a fuel saving. I suppose what we are tabling is that there is a lot of public record on what natural gas can save as an overall cost which will incorporate the maintenance costs and the bus costs. There is a lot of public information that is available to establish what the savings should look like. But they are quite substantial. What we are seeing as a business is that those customers that have moved to natural gas are continuing to expand their fleets. So it very much a matter of not only environmental benefits but also the commercial benefits that they are getting from that decision. The companies that we put up earlier are all in a stage of putting in more CNG stations.

**Mr BEST** - Would you get that sort of cost reduction of 49 per cent on a conversion or would you only get that on a dedicated vehicle - something that has been strictly designed?

**Mr CANNON** - I think for those sorts of savings you would be looking at a dedicated vehicle. As with all fuel sources, it is important to build an engine to suit the fuel source. With natural gas, figures of 130-octane are given, so you would build an engine to suit that octane rating. That is where you would get the best torque, power and fuel consumption out of that vehicle.

**Mr BEST** - What would you get then with a conversion? You would still get an improvement, wouldn't you?

**Mr CANNON** - You would. I do not have those figures for you.

**Mr WOODHEAD** - I think the issue with conversions, as I understand it, is that they do not actually meet the emission requirements.

**Mr BEST** - Okay.

**Mr WOODHEAD** - I think a lot of the conversion kits fail in actually qualifying for the emissions. Certainly our experience is that we would not be recommending conversions. We would be recommending dedicated OEM vehicles that have manufacturing warranty back-up or the support that fleet managers would look for when they actually make a decision to go away from conventional fuel vehicles.

**Mr BEST** - Are they much more expensive?

**Mr WOODHEAD** - Yes, they are but up to this point the Federal Government, through the greenhouse office, had a grants program for people to access. We understand that grant has now been exhausted but they are in the process of looking at what the next tranche would look like.

**Mr BEST** - You get the money back, no doubt, over the operational period, so how much substantially different would it be - 20 per cent or something like that?

**Mr WOODHEAD** - If we talked about a four-tonne delivery van - let's take a Cripps Nubake van - our understanding is that you will pay a \$16 000 premium for that vehicle over a diesel vehicle. Up to this point the Federal Government was giving \$8 000 back to the customer.

**Mr BEST** - So what would that vehicle have cost?

**Mr WOODHEAD** - About \$55 000 and about \$40 000 for a diesel.

**Mr BEST** - But you get it back, don't you, really?

**Mr WOODHEAD** - You do, and the grant program accelerated those pay-backs.

**Mr BEST** - Yes.

**Mr CANNON** - Part of the submission was home refuelling unit support - any public stations or infrastructure there. The home refuelling unit, manufactured by a fuel maker in Canada, we see as a great support to that network. I have just done a model which includes incentives, and those incentives would be partly for the purchase of the compressor itself, the installation and the car conversion - or the purchase of an OEM vehicle. We have brought them back into a cubic metre price as well. Again, they are estimates.

**Mr BEST** - How long would it take to refuel if you had that set-up at your home or whatever?

**Mr CANNON** - An average car would take about eight hours but it draws about the same sort of power as an airconditioner, so all these things depend on how much you are paying for your gas and how much you are paying for your electricity.

**CHAIR** - And what sort of range?

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 18 ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

**Mr CANNON** - I have not seen the ranges for the new Honda, and I think that is what they have partnered this up with, but I think they are getting 200-240 kilometres, something like that, out of the fuel.

**Mr BEST** - So if you have gas in your street, you could hook that onto the thing?

**Mr CANNON** - That unit there is going to be treated as an appliance so it can be installed by a gas plumber into your garage.

**Mr BEST** - Yes.

**Mr CANNON** - So, yes, if you have gas out in your street and you get it brought into your house, then you would install it as you would a gas heater or a gas stove. These units are becoming very popular in Italy, France and in the US. In France, Italy and the US they manage to give incentives for people to purchase them.

**CHAIR** - Talking about the Honda, what is the additional capital cost?

**Mr CANNON** - I am not sure, no.

**Mr BEST** - It would be similar, probably, wouldn't it to -

**Mr GREEN** - Is a cubic metre comparable to about a litre?

**Mr WOODHEAD** - A cubic metre is a litre for a rough comparison. It depends on the gas composition; you might have a 5 per cent variance but for the sake of this discussion it is a litre.

**Mr BEST** - So what is it?

**Mr WOODHEAD** - It's \$1.21, but that assumes you are actually taking the cost of the small compressor as part of that exercise. Our view would be that the gas retailer would probably put that in and it would be adjusted into the gas price, so I think that cost would not come into the model.

**Mr BEST** - What would be the life of something like that?

**Mr CANNON** - They have given it a maintenance repair schedule at 6 000 hours. Then they supplied the compressor head itself, so you are not replacing the whole unit - you are actually replacing the compressor inside. That will give you another 6 000 operating hours. The total operation of the unit itself is 24 000.

**Mr WOODHEAD** - You are only using it for eight hours.

**Mr CANNON** - If you are operating a vehicle for 25 000 kilometres a year you would do one compressor turn-out in that six-year period. You might be looking at a 10-year operation out of that one unit.

**Mr BEST** - You would soon get your money back.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 19  
ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

**CHAIR** - Obviously one down side is that you are going to lose boot space, as you would with an LPG cylinder in the boot.

**Mr CANNON** - I think so.

**CHAIR** - Are they a similar size to an LPG container?

**Mr CANNON** - They are a similar size but you are storing in a liquid state with LPG, so you can actually get quite a bit more range out of the same size cylinder for CNG. The only difference that you have got to take into account, and most people do not, is the calorific value of the actual fuel itself. For LPG you usually work at about 26 megajoules per litre and for natural gas they usual work at about 38.7. So you get a lot more energy out of the equivalent amount of gas. If we had one litre of LPG and one cubic metre of gas, you are going to get one and a half times the energy from the latter.

**CHAIR** - What about vehicle performance. Let us talk about the Honda in terms of kilowatts compared to petrol.

**Mr CANNON** - That is really not my area but I think with technology, and as vehicles increase in numbers, then performance will follow suit.

**Mr WOODHEAD** - I think the other point to be made is that they are being quite innovative with the storage. I have seen storage that is the exact same shape as your spare wheel. You put it in the spare wheel bay. There are a lot of options you can come up with to retain boot space, depending on your vehicle size and make. They are being quite innovative in the shape of the storage.

**Mr BEST** - They have designed it so they are not going to have something that is going to take up lots of space in a new car.

**Mr CANNON** - That is the secret to it. When you look at OEMs for a CNG vehicle this is when they start looking at boot space and so on and integrating it into the vehicle. I have not personally seen the Honda but I have seen a Hyundai done some years ago. It seemed good to me.

**Mr BEST** - You would need to know your filling stations or something like that because if you went to Hobart from Devonport, for example, it might be a bit hard getting back.

**Mr CANNON** - I think on the dedicated-vehicle side it would be important that you have a corridor if you wanted to travel from Hobart to Launceston to Burnie. I think that is what the corridor is all about. There are OEM manufacturers that produce vehicles that are bi-fuel as well. Fiat does one, a tri-fuel vehicle, and other manufacturers in Europe do so as well. That might be an option as well but I think for a dedicated vehicle the corridor is essential.

**Mr WOODHEAD** - In terms of passenger vehicles in Tasmania we would see dual-fuel options as being the most logical step forward, where you could run on CNG or on petrol.

**Mr BEST** - If you were 50 kilometres short you could flick it over.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 20 ALTERNATIVE FUELS, HOBART 10/10/07 (CANNON/WOODHEAD)**

**Mr WOODHEAD** - Yes, because petrol conversion is quite easy on natural gas. It is quite simple.

**Mr CANNON** - There is not a hell of a lot of difference between the CNG conversions and the LPG conversions other than components and so forth.

**Mr BEST** - I can see you are about to talk about your station. A private customer might be able to access or would you be looking at fleet-only?

**Mr WOODHEAD** - Bearing in mind the Government has made the commitment to bring the pipeline to the State, in our view we need from a commercial perspective to try to leverage off that infrastructure. The most logical step forward is to deal with depot-based fleets because the vehicles are readily available. It is a proven system and it is more likely to get the critical mass that you need to commercially justify the infrastructure. Step one, logically, is of all those who have shown interest around the State, let us see whether we can move them to dedicated natural gas vehicles on a back-to-base format. That appears to be the most logical way to move forward on this. What we are saying is that if we can get enough customers - and we are only talking, in my view, of 10 - that would take a progressive change out of four vehicles over their fleet. We know Cripps Nubake, as an example, would take a five change out - so it is quite realistic to think that you can get a four change out of vehicles within a reasonable window. You could have a 40-vehicle fleet within the Hobart area operating within a 12 to 18-month window. That would be our view and our expectation. If that was the case, certainly we believe that between ourselves and the gas retailer and Powerco, we could establish a stand-alone retail refuelling point that took away the infrastructure costs from those customers who really just had to deal with the incremental cost of buying the dedicated CNG vehicles. That appears to be a realistic program to move forward on. From that, they would be running passenger vehicles. You could then start to look at putting a hung refueller into play. When your model started to mature, you could look at opening up a new industry opportunity for Tasmania by going to passenger vehicle home refuelling by doing natural gas conversions as you have currently in the LPG conversion industry. That is a step that could be taken. I think then you definitely have to run the corridor infrastructure out, so I think that is a bit more complex. It appears to be realistic to just bite this off in chunks and start with a base in Hobart, probably then duplicate one in Launceston and move the infrastructure corridor that way. I think you would then start to fill the gaps in once you have established that business case. In our view that certainly would be a logical way to step this forward.

**Ms THORP** - Where are your conversations with DED?

**Mr WOODHEAD** - I think we've been talking to DED for probably two years now on the opportunities of commercial fleet. Our view is that DED can play a role; I think we need to find out exactly what that role is. I think we clearly need to get a position where DED appreciates the benefits to Tasmania of moving natural gas to a fuel position because of the downstream opportunities for employment and outside the cost competitiveness that adds to the State generally. I think we are in early discussions with DED about formulating this model that we presented. Our time line would be to try to get a window on this model completed by Christmas. I think we are then going to put some submissions to DED along the lines that we have just indicated here, where there needs to be some level of government assistance provided to gap that impost on the cost

difference on the trucks. That is all we need to address, whether that is a joint Federal and State government program - I think that is a possibility - or whether there is some recommendation from this committee as to a sole State program. I think we need to find a way in which we can soften the initial cost to get commercial businesses to take up the model and then it should be able to stand on its own. I think the first station should be enough proof to what the business case realities should be going forward. Our view is that it needs a kickstart.

**CHAIR** - Is there anything you would like to say to finish off the presentation?

**Mr WOODHEAD** - We appreciate and thank you for the opportunity. It is fantastic to put a written submission in but the value to us is being able to get here today and verbalise it.

**Mr BEST** - I noticed it says 'high-pressure air' but really you are about high-pressure gas, CNG?

**Mr WOODHEAD** - Our business is high pressure generally, so all the Australian Navy would have our compressors below deck. Collins Class submarines would have our air compressors. It is the same technology but you are compressing gas not air. It is just a variation in technology. Whilst this is a core competency, it is not the only thing we do.

**Mr BEST** - So high-pressure air is not a possibility for vehicles, is it?

**Mr WOODHEAD** - No.

**Mr BEST** - But it is okay for submarines apparently?

**Mr WOODHEAD** - Yes. They use it for a lot of applications - starting engines on the Australian Navy vessels.

**CHAIR** - Thank you very much for coming along, gentlemen.

**THE WITNESSES WITHDREW.**

**Mr JOHN ISSAC**, MANAGER, GREENHOUSE AND SHIP SOURCED POLLUTION, ENVIRONMENTAL POLICY AND BUSINESS, DEPARTMENT OF TOURISM, ARTS AND THE ENVIRONMENT, WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

**CHAIR** (Mr Hall) - Thanks for coming along to make a submission to us. We have your written submission. I invite you to speak to the submission and then we will ask you some questions.

**Mr ISSAC** - The submission to the committee from the Director of Environmental Management emphasised the very valuable opportunities that biofuels and alternative fuels in general offer in terms of reducing greenhouse gas emission levels and alluded to the publications published by the Australian Greenhouse Office which is a Federal agency in the Department of Environment and Water Resources. Particular reference is made to one AGO publication dealing with emission factors and to the reduced emission factors for CO<sub>2</sub> equivalent for various fuels including those fuels which would normally be considered as alternative fuels. That, in our view, was an issue that we felt was important to bring to the committee's attention. So there was a range of fuels, as I have mentioned, various formulations of biodiesel and two formulations of ethanol-based blends as well as the other fuels that are normally considered in this context. That was something that we thought, as I said, was important to bring to the committee's attention.

Since that time we have identified some other published material which is relevant to the issue and I have brought copies of that additional published material if that is of interest to the committee.

**CHAIR** - Would you table that thank you.

**Mr ISSAC** - Yes. I think that is all I can add at this point in time.

**CHAIR** - Okay. It is quite an extensive submission as I look at it and presuming most members have had some time to go through that, are there any questions to John?

**Mr BEST** - Could I ask about biofuels and your views about the efficiency of biofuels? An argument has been put forward this morning that they are not really environmentally friendly. I am not trying to lead you into debate, but I thought I had better say that it was put this morning that there were some issues. I have not seen the document, but it was going to be tabled. Essentially it went to the configuration of the development of biofuels looking at a number of factors, such as the use of agricultural land and that land being taken up for the production of fuel as opposed to the production of vegetables and so on. Also its efficiency as a biofuel was questioned. Do you have any specific views or any comments that you would like to make?

**Mr ISSAC** - On the first question of the production of biofuel versus production of fuels, one of the documents I tabled here this morning is the OECD report which goes to that issue. I am not quite sure what is meant by the term 'efficiency' but in terms of CO<sub>2</sub> equivalent emissions per unit of energy, table 3 on page 10 of the AGO publication on emission factors does show that there is a significant reduction in CO<sub>2</sub> emissions per unit of energy for those fuels which may be generally described as alternative fuels.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 23 ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr BEST** - Gas, I suppose, would have the lowest emission in regards to biofuel?

**Mr ISSAC** - If you are referring to LPG, for example, there are other alternative fuels as shown there that do have a reduced emission of CO<sub>2</sub> equivalent when compared with LPG.

**Mr BEST** - Waste oil factors in quite well, doesn't it?

**Mr ISSAC** - Yes.

**Mr BEST** - Is that like your oils for cooking?

**Mr ISSAC** - Yes.

**Mr BEST** - Is that a straight burn of that or is it a mix?

**Mr ISSAC** - It is referred to as BD20 at the bottom, so it is 20 per cent waste oil.

**Mr BEST** - We have a BD here of 100, so that would be 100 per cent waste oil?

**Mr ISSAC** - Yes.

**Mr BEST** - I see you can use canola but it has to be a 20 per cent mix?

**Mr ISSAC** - I am not sure it has to be exactly 20 per cent. This is a demonstration of the appropriate mixture but I am not sure whether it can only be used as a 20 per cent mix.

**Mr BEST** - We visited a plant yesterday where a fellow is developing some biofuel. He was looking at the ratio of mix because it was almost too efficient. His concern was that it removed the carbon from the fuel system or out of the engine so to speak and it deposited it into the filter. So he saw blending as being the best option and he was crushing poppy seed and canola seed.

**Mr ISSAC** - I am aware from reading published material that biodiesel has a useful property of cleaning the internal surface of engines but that after perhaps one or two tanks full of fuel the engine is very clean and therefore problems with filter contamination don't seem to arise then. From reading published material, it seems to be just the initial phase when biofuels are used, because of their cleaning properties. After that, as I understand it, there does not seem to be a problem in that regard.

**Mr BEST** - We have heard that with compressed natural gas they recommend some sort of fleet arrangement where service companies or councils et cetera would purchase the new off-the-shelf OEM trucks or whatever because conversion is not really a good option. Would that be the same with biofuels? Is there a biofuel engine?

**Mr ISSAC** - I do not believe that significant modifications to original equipment are required to use biofuels.

**Mr BEST** - That is what we have to date.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 24 ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Ms THORP** - In your submission there is a table with fuel combustion emission factors for stationary energy. Could you talk us through that table please and what it is saying?

**Mr ISSAC** - This is referring to stationary energy sources using different fuels. It is talking about situations where these fuels are used for power generation or steam generation or whatever. It is dealing with emissions factors for a range of fuels from solid to gas to liquid, emissions factors for the point-source situation, and then emission factors for the associated fuel extraction emissions. The total of those is the full-cycle emission factor.

**Ms THORP** - That is the last column of the table, so a high number is a negative or a positive?

**Mr ISSAC** - A high number is referring to a high emission of CO<sub>2</sub> equivalents per unit of energy.

**Ms THORP** - So black coal with 97.6 is almost the highest one there.

**Mr ISSAC** - Yes. There are some others for coke and brown coal briquettes and so on.

**Ms THORP** - So a high figure means that for the energy produced this is the resultant greenhouse gas emission.

**Mr ISSAC** - Yes.

**Ms THORP** - I am surprised, then, to see wood and wood waste as low as 1.4.

**Mr ISSAC** - I think this is a reflection of the fact that this is a renewable energy source, whereas coal is not renewable.

**Ms THORP** - Okay, so it is taking in a lot of other factors.

**Mr ISSAC** - Yes, what is used by the trees in the formation of the wood before it is burned, so there is a renewal process followed by the combustion process.

**Ms THORP** - That would be a very interesting thing to debate in the current environment in Tasmania, wouldn't it? I just found that quite surprising when I was looking at the tables.

**Mr BEST** - We had an interesting submission yesterday from Mr Mike Scott about the development of wood-based biofuels. He spoke in exciting terms about some developments that have occurred with the fermentation of woodchips. They would put in some enzymes and bits and pieces and they could make ethanol quite efficiently. I am wondering what your knowledge might be of those types of plants. I think he mentioned that there were a few in Europe.

**Mr ISSAC** - One of the documents I have tabled here this morning is published by the Institution of Chemical Engineers in the United Kingdom. That summarises the so-called second-generation options for using cellulose and so on in biomass to produce ethanol. This is a new development which I think the person you referred to was

contemplating. So the first generation has been based on using sugars in biomass to produce ethanol but the next step is to use enzymes to use the other parts of the biomass that are currently not available for generation of biofuel.

**Mr BEST** - You see that as the next generation?

**Mr ISSAC** - Yes; it is commonly described as the second generation of biofuel options.

**Mr BEST** - And quite technical and quite advanced, I suppose, but quite recyclable?

**Mr ISSAC** - From my understanding this is a feasible option to look at as the next step to develop further biofuel production options.

**Mr BEST** - Also there was some thought that perhaps these wood-based biofuel-type plants are perhaps similar to pulp mills. Obviously they are not the same, but have similarities. Are you aware of any that are co-located with pulp mills, such as a wood-based biofuel plant? Would it make sense to locate that with a pulp mill, for example? Or would there be no similarities whatsoever and no benefits?

**Mr ISSAC** - I am not familiar with any plants in the world that have a fibre pool for paper production and enzyme fermentation of wood waste to produce ethanol; there may well be such plants, but I am not familiar with them.

**Mr BEST** - Would you know where the committee could get information on something like that? How would you go about obtaining it? How would the committee, for example, go about finding information on something like that?

**Mr ISSAC** - There may be options in terms of professional organisations overseas, for example, that may be able to assist.

**Mr BEST** - I would appreciate that. I know there is some interest on the committee just to think along those lines, so it might be good for the committee to take you up on that.

**Ms THORP** - In relation to the idea of alternative sources for biomass, a proposition has put to me that Tasmania would be a great place to grow lots and lots of kelp and harvest that. Have you come across that idea?

**Mr ISSAC** - I haven't personally, no. However, on the face of it, it seems that this could well be worth consideration in the overall context of looking at options to meet community needs, as well as reduce greenhouse gas emissions. There are several different sorts of biomass that could be considered, and it would seem that in principle that could well be useful to consider.

**Ms THORP** - Also over the years it has been suggested that hemp could be used, rather than wood, once again for both paper and for biomass. Have you come across that?

**Mr ISSAC** - No, I haven't personally come across that.

**Ms THORP** - I am very interested in the seaweed option myself.

*Laughter.*

**Ms THORP** - Why are you people are laughing?

**CHAIR** - I thought it would be more of the hemp option that you were interested in!

**Ms THORP** - No, no. The seaweed option is the big one.

**Mr ISSAC** - Certainly algae have been reported as being a possible valuable source of biomass in that regard.

**CHAIR** - John, you talk of greenhouse and ship-sourced pollution. What do you mean by ship-sourced? Is that CO<sub>2</sub> emissions from actual ships, or are you talking about pollution from ships?

**Mr ISSAC** - Pollution from ships and implementation of the International Convention for the Prevention of Pollution from Ships.

**CHAIR** - I do recall that on a previous committee we had some evidence which talked about the Los Angeles airshed where there were many dozens of container ships tied up there. The actual CO<sub>2</sub> emissions just from those ships in harbour were greater than those from all the vehicles in the Los Angeles airshed. Is that possible, do you think?

**Mr ISAAC** - I don't think I could say with any confidence whether that's possible or not, but I am sure everybody is aware that there are a number of different sources of greenhouse gases, including the aviation sector, the shipping sector and many land-based sources as well.

**CHAIR** - Yes, okay.

**Mr BEST** - On your graph on page 10 of your AGO practice and methods work book, December 2006, just coming down that scale there that we were looking at earlier, where would ethanol fit within those fuel categories?

**Mr ISSAC** - There are two references there - the E10 derived from molasses and the E10 derived from wheat starch.

**Mr BEST** - Right, so they have got an E CO<sub>2</sub> of 2.3/2.4 fuel oil. Fossil fuels are not on that list, what would be their CO<sub>2</sub>?

**Mr ISSAC** - Sorry, in terms of petrol and diesel, they are at the top there.

**Mr BEST** - So there is not a big emission difference then between ethanol and - am I reading this correctly, or not?

**Mr ISSAC** - There is about 8 kilograms of CO<sub>2</sub> equivalent per gigajoule difference between the two.

**Mr BEST** - And that is significant? I am not a scientist, but that would be considered quite significant then?

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 27  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr ISSAC** - Well, let us say, significant.

**Mr BEST** - Right. We also heard that in Brazil, for example, that they have full ethanol. Apparently they use ethanol for most if not all transport. Do you have a view of how that system works?

**Mr ISSAC** - I am only aware of what has been publicly reported but, from what I read, it does seem to be quite satisfactory from that country's perspective as an effective fuel for the normal needs of the community. From what I have read that seems to be the case.

**Mr BEST** - I am really keen to hear your views because obviously it is your life's study. Do you have a view about how you see the future unfolding, say, over the next five or 10 years with alternative fuels?

**Mr ISSAC** - I just referred to what the director said in his letter to the committee that alternative fuels seem to be a valuable issue to consider in the context of meeting the community's needs for transport fuels, as well as reducing greenhouse gas emissions. He has indicated that these alternative fuels are worthy of considerable consideration in the context of the committee's deliberations.

**Mr BEST** - I suppose it is just like any sort of business - it is what is already there rather than reinventing. For example, here in Tasmania the fact that we have a gas pipeline means that natural gas seems the most likely next step here for alternative fuel - or the most obvious one. Do you would think that that might be the way it will go?

**Mr ISSAC** - I think that is a valuable mix, as you say, in terms of the objectives of ensuring that the community has the necessary fuels to meet their needs, as well as encouraging awareness and achieving a gradual reduction in greenhouse gas emissions.

**Mr BEST** - I am interested in your comments about the next generation. It is quite exciting really when you look at some of the ideas that are evolving - ideas that would have been considered science fiction 10 or 15 years ago are quite feasible now, I suppose. How do you see the development of this next generation unfolding? I suppose we will go through a stage where we will move to the obvious - alternative fuels that are available and then we become a bit more entrepreneurial, a bit more diverse in what might be possible with these other alternatives. They may come in in 10 or 20 years. Do you have a vision as to how it might unfold? I suppose they would have to be cost competitive for starters, don't they?

**Mr ISSAC** - That is right - and also availability. I would imagine it would be a matter of encouraging ongoing development of these alternative fuels and creating a greater community awareness of the issues, what is available and how they might use them and for what purpose, and all that sort of thing. So I imagine it is those two factors of ongoing research and development and community awareness.

**Mr BEST** - So who do you think should lead it? Do you think it should be industry that takes the lead? How do you develop a plan on alternative fuels? How do you approach it?

**Mr ISSAC** - I am not sure that I can answer that.

**Mr BEST** - Because it is hard to predict the future, isn't it? I suppose it is a matter of what you have and trying to bring that together in the sense of what you can do now. Then, as other alternatives into play, you consider how you might be able to harness those.

**Mr ISSAC** - Yes, and also recognising that a lot of work is going on around the world even at this moment on alternative fuels, making them more cost effective and ensuring that there are adequate supplies and so on. Then, ultimately, the community will decide that, yes, these particular fuels can be used for our needs and they are cost effective. I am sure that the ongoing and developing awareness of climate change and greenhouse gas emissions will assist in informing the community as to what decisions they should ultimately make.

**Mr BEST** - Finally, do you have any key recommendations for the committee that you think we should contemplate?

**Mr ISSAC** - It is a little difficult for me to make those sorts of comments. I think the director's letter really summarised the key issues. That is what my comment would be.

**Mr BEST** - Thanks.

**CHAIR** - There are vested interests in all of these emerging fuels and the petroleum industry would probably say they have now developed ultra low-sulphur diesels which meet Euro - I don't know what standard they are up to now - 3, 4 or 5. Those engines are producing almost fewer emissions than CNG might produce. Do you have any comment on that? Have you done any research on that at all? It becomes rather complex, doesn't it?

**Mr ISSAC** - I note that in this table there is reference to diesel as such, and this document was developed for the purposes of facilitating and reporting to the Commonwealth on greenhouse gas emissions. Therefore, I do not have specific information on the emission factors for various low-sulphur diesel fuels. So I am not sure that I can make any comment on that, but I am sure that, as you say, there are many stakeholders interested in this issue.

**CHAIR** - Thank you, John. Is there anything else you would like to add?

**Mr ISSAC** - No, thank you.

**CHAIR** - Thank you very much for the submission, it is quite comprehensive. There are a lot of facts and figures in there so that is something to consider.

**Mr BEST** - We won't ask you how to work these formulas out.

**CHAIR** - Yes, I think we need a mathematician there somewhere.

**THE WITNESS WITHDREW.**

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 29  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr JOHN CHARLES EVANS**, IMPRESSION BAY SEAFOODS, TASMANIA, WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

**CHAIR** - Thank you for coming.

**Mr EVANS** - All your faces are familiar anyway.

**CHAIR** - We have your submission number 12 and you are from Impression Bay Seafoods. So we will hand over to you so you can tell us what you think, and then we will give the committee members an opportunity to ask a few questions.

**Mr EVANS** - I have been studying this for several years and one of the motivators for me is underlined on page 169. It is only short. This bloke was talking about the way towns are set up and mentioned things like what happened to Rome. He talked about getting to limits of national and international resources and he said:

'Nowhere is this more evident than the modern city's needs for food. A typical urban area of 1 million people requires a daily input of 4 million pounds of food. To get these 2 000 tons of nourishment the city is completely reliant upon our fossil fuel-based agricultural system. Without the high yields of petroleum chemical farming and a national transportation system that moves wheat, oranges and beef thousands of miles to scattered urban areas, major cities would quickly become scenes of mass starvation.'

I thought that was pretty awesome at the time and still is.

**CHAIR** - Yes, that is right and not much has changed in that respect.

**Mr EVANS** - No, and it has probably gotten worse in the last 12 months. To give you some idea: that is a picture of the Sydney Harbour Bridge; compare it with the space that fuel we use in Australia every year would occupy if you stacked it up - 360 metres by 360 metres by 360 metres. That is currently 45 billion litres. Out of interest, see the picture of that building - if you said 20 metres, that stack in red would be approximately 18 times as high in a square. Does that make sense?

**CHAIR** - Yes.

**Mr EVANS** - ASPO Australia said that in peak oil matters, oil dominates the market. Between 80 and 95 per cent of all transport is fuelled by oil products. 50 per cent to 75 per cent of all oil is used for transportation. All petrochemicals are produced for oil. Some 99 per cent of all lubrication is done with oil products. Also, 95 per cent of all goods in the shops get there using oil, while 99 per cent of our food involves oil or gas for fertilisers, agri-chemicals, tilling, cultivation and transport. Oil is the most important source of primary energy on the planet, accounting for 36.4 per cent of all energy.

That was from ASPO Australia at the recent Peak Oil Values and Policy Climate Change Solutions Forum in Sydney on 13 August. Ian T. Dunlop was the deputy convenor. While I was waiting here I sketched a little graphic on the back of this document.

**Ms THORP** - Now, you are testing us John.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 30 ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr EVANS** - You would have all seen those 1000-litre tubs in the back of utes that people use to cart water around. Well, coincidentally it is 200 kilometres to Launceston, so if you stacked those tubs three high on the left hand side of the Midlands Highway, GPO to GPO with no breaks, that would account for 600 000 of them, if you set them at a tonne. On the other side of the road you would have a one-and-three-quarters-high unbroken line. So that is the quantity of petrol that we scoff in Tasmania. I have studied this and to me that means that the logistics of replacing any of our imported fuel are mind-numbing. Due to climate change and peak oil considerations - now that they have morphed into global resource depletion - I became interested in what might be the most energy-effective form of biomass to convert into biofuels.

I started on that in earnest over three years ago. I have here a *National Geographic* from 1981 and this is an indication of what my interest is - and I have been a public servant and a fisherman. The magazine article says:

'Giant kelp has been cultivated in open water off California. It grows two to three feet a day and makes excellent feed for goats, sheep and other livestock.'

That was at the time of the first oil shock. We have the same giant kelp in Tasmania. It is endemic - it goes from Cape Jaffa in South Australia across to Wilsons Promontory and all around Tasmania. A few years ago there was a move to put it on the endangered species list because the sea surface temperatures on the east coast - at Maria Island - have warmed by 1.8 degrees in the last 30 years and it has been in decline. However, this year would be the best for 10 years.

**CHAIR** - The best year for 10 years you said?

**Mr EVANS** - Yes.

**Mr BEST** - Sorry, do you know much about the kelp? Does it take long to grow and that sort of thing?

**Mr EVANS** - If the conditions don't suit, it does not grow. My thesis is that in most of the water around Tasmania for much of the year conditions still do suit. The currents in the Southern Ocean drift basically from west to east and when they strike the continental shelf off Victoria there is upwelling that is nutrient-rich.

**Mr BEST** - So just roughly do you know how long it takes to grow to maturity?

**Mr EVANS** - A mooring was put in not far from where I live in September last year and by the 4 December when I was talking to the scientist, he said there was a four- to five-metre tall macrocystis on it, when three months earlier it had been microscopic.

**Mr BEST** - Thank you.

**Mr EVANS** - They start off at about 6 microns. I have some stuff I put together dealing with the Department of Economic Development, and it was not very satisfactory from my perspective. I will read the first bit:

'Pandora project - kelp for biomass for biofuels - alternative transport fuels

The Pandora project is a practical, innovative Tasmanian mitigatory response to address climate change, which is widely attributed to already alarmingly-high atmospheric levels of greenhouse gas emissions, rapidly increasing levels of carbon dioxide and other gases emitted to the atmosphere from the burning of fossil fuels are also linked to changing oceanic conditions, including acidification and rising sea surface temperatures. Well-founded climate science is not speculation.'

This was on 24 May last year and I prepared this to give to the Department of Economic Development.

'The project is in the area of human intelligence struggling to come to grips with necessity and the technology of fire, violence and greed which influenced the ancient Greeks about 700BC, and also by the inspiration of Mary Shelley's *Frankenstein*, written at the start of the Industrial Revolution. The ancient Greek poet Hesiod's Prometheus (Forethinker) stole fire from the gods to benefit mankind and brought civilisation. The mythical Pandora's Box let loose evil, toil and disease; only hope remained inside. It is easy to define civilisation by blighting both men and nature. The very real analogy is that nineteenth-century industrial technology also escaped from Pandora's Box. Rapid innovation and technological advance yielded energies for transport beyond the Victorian era, for which carbon-based technology is required.

The contemporary 'Frankenstein' is greenhouse gas emissions, the adverse environmental effects of which provide a critical imperative for global energy-use change. Is human intelligence still paralysed and helpless in the grip of Promethean necessity?'

I don't know.

In the *New York Times* there was a recent article which picked up by the *Weekend Australian* of 22-23 March 2006. The visit of the Chinese president to America's White House came with an overriding agenda: oil. Increasing Chinese oil consumption led the newspaper's editorial to say, and I quote:

'That leaves the world with two options. The first is to manage energy resources better; the other is to look for another planet.'

Page 18 of the *Scientific American* in March 2006 has an article headed 'Planetary Stress' which expresses similar concerns to the *New York Times* article and which states:

'For its State of the World 2006 report, the World Watch Institute focused on China and India. The US still consumes the most resources per capita but if China and India were to catch up then the resources of a second planet Earth would be needed to sustain the three economies. The United States, with some 5 per cent of the world's population, consumes around 25 per cent of the daily global oil production of 83.4 million barrels.'

This need for change to reduce global carbon dioxide emissions is highlighted by the July 2005 report of the UK's Royal Society, policy document 1205, *Ocean Acidification due to Increasing Carbon Dioxide*. On page 10 it says:

'Even the current level of ocean acidification is essentially irreversible during our lifetimes. It will take tens of thousands of years for ocean chemistry to return to a condition similar to that occurring at pre-industrial times about 200 years ago.'

Here is a copy of *Scientific American*, which also has a full-blown article on ocean acidification.

Quite seriously, I can see that the energy effectiveness of kelp is way out in front of anything else, and the productivity is far out in terms of biomass production.

**CHAIR** - Is there any known technology? Is anybody doing it in the world at the moment?

**Mr EVANS** - I have a colleague who is a Japanese marine scientist, a graduate of the Tokyo University of Marine Science and Technology. In 2005, about a year after I got interested in kelp, Mitsubishi Research Institute and a professor from the same university, Masahiro Notoya, announced they were looking at building 100 10-kilometre by 10-kilometre floating rafts to grow kelp for the same purposes.

On 22 March, Professor Notoya announced that they were looking at building a 3 860-square mile kelp farm in the Sea of Japan. My colleague went to Japan on Saturday. The last phone call I got before she left at 3 o'clock in the morning on the following day was that she was going to a public lecture by the professor in Tokyo. She had just paid her \$50 - which cheered me up! She has been in touch with my e-mail and has said that he is extremely busy. The Japanese reckon that if they do get this going in three to five years they will produce 5 billion barrels of bio-ethanol. To put that in perspective, that will only supply 30 per cent of their transport fuel requirements.

This is against a background of people like the International Energy Authority, which is always optimistic, which said in June that demand for oil globally would catch up with supplies in 2010. They said that after 2012 OPEC would not have any spare oil production capacity. I know that OPEC is not going to spend \$US700 billion to keep America supplied with their oil.

**Mr BEST** - Sorry, can I just ask what do you mean when you say you know that?

**Mr EVANS** - I have researched it.

**Mr BEST** - Yes, I know, but I am interested.

**Mr EVANS** - OPEC - the Arabs - are investing money in all sorts of things amounting to billions of dollars, and it is not in more oil production infrastructure.

**Mr BEST** - From your findings, what areas are they investing in?

**Mr EVANS** - I have had an offer to put me in touch with Abu Dhabi oil interests that are also interested in oil replacement projects.

**Ms THORP** - Like this.

**Mr BEST** - Sure, thank you.

**Ms THORP** - So how complicated is the actual building, the rafts to build this stuff?

**Mr EVANS** - I do not want to build rafts.

**Ms THORP** - What do you want to do?

**Mr EVANS** - I am a bit loath to tell the public.

**Mr BEST** - He has his own secrets in other words.

**Mr EVANS** - I have not got any secrets.

**Mr BEST** - Your own invention type of thing.

**Mr EVANS** - No, it is private up to a large extent.

**Mr BEST** - That is fine. We accept that.

**Ms THORP** - Is this like commercial-in-confidence, John? We can go in camera to look at these plans, can't we, and if we do we are not allowed to use them.

**CHAIR** - We can.

**Ms THORP** - That is always an option, John.

**Mr EVANS** - I am 59 next birthday and grew up in Tasmania so you have to be a bit circumspect!

*Laughter.*

**Mr EVANS** - When I put this submission to the second tier of management in the Department of Economic Development I said that there was an urgent need for a strategic biofuels policy development, coordination and articulation across ministry and agency. That is where it stopped. I have been contacted, unsolicited, by people who, if you want to look them up on the Internet, have a combined worth in excess of \$US3 trillion. But I am at the stage now where, in the absence of policies, it has gone nowhere and it will go nowhere.

**Ms THORP** - John lives in my electorate, so we have spoken in the past. Who was the fellow down at the University of Tasmania that you had some dealings with?

**Mr EVANS** - Associate Professor Vishy Karri. He had a page in the *Mercury* a while back. They said he was an energy expert. I also have contacts in the Plant Sciences School,

senior research fellows. I have about 60 fellow travellers in this project. Six of them are marine scientists, three of whom have PhDs.

**Mr BEST** - I imagine with the help you would mill it, wouldn't you?

**Mr EVANS** - No.

**Mr BEST** - You don't. You ferment it then, do you?

**Mr EVANS** - Well you can do. I have an offer of assistance from Emeritus Professor David P. Chynoweth who worked at the University of Florida for years. In 1987 he and other people that worked on that giant kelp project and in the scientific literature what they put out in 1987 is still a yardstick. I contacted him and he said he was excited about what I was up to, offered to assist me and wanted to be involved. He said that in 2002 he did the consultancy work for the Tokyo Gas Company where they were turning sea lettuce, which is another sort of seaweed that looks a bit like lettuce, into methane to generate electricity, using anaerobic fermentation. In 2005 Tokyo Gas Company had 9.6 million customers and netted \$US11 billion. I have not been able to get the Department of Economic Development interested in bringing Chynoweth to Tasmania.

I have a feeling - and I am not being unkind - that Tasmania is at least 30 years behind. I can go further than that. Over here I have information from the Royal Society of Chemists, 43 000 members, with about another 70 000-odd scientists. Last year they put a big report into the UK committee doing the same thing as you people are. They say:

'The Biosciences Federation was founded in 2002 in order to create a single authority within life science decision-making to consult for opinion and information to assist the formulation of public policy. It brings together the strengths of 39 member organisations, including the Institute of Biology, which represents 42 additional affiliated societies. The organisation already joined the Biosciences Federation, representing a cumulative membership of some 65 000 bioscientists, to cover the whole spectrum from physiology and neuroscience, to biochemistry and microbiology to agriculture.'

This Royal Society of Chemists has 43 000 members. They did an executive summary of the UK's capacity to produce biofuels, biodiesel and ethanols limited to 5 per cent to 10 per cent of the total rate of transport fuel requirement.

We have the same problem in Australia except we look as if we are going to have chronic droughts forever. In real terms in Tasmania, if you turn canola into biodiesel in a good year the crop might be 1 500 tonnes. In the Tasmanian country, Macquarie Oils' Rob Henry said he would contract for 1 000 tonnes of canola, but he looked like getting 200 to 300 tonnes because of the drought. The rule of thumb is that for every gallon of biodiesel you get from canola, you actually put three quarters of a gallon of fossil fuel inputs into it. Two-fifths of 1 500 is 600, less three-quarters - would you bother - out of 350 000 tonnes. I am trying to convey to you the problem we have and I reckon we are already in a fuel crisis.

**Ms THORP** - How suitable are the waters around Tasmania?

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 35  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr EVANS** - Again, I have proprietary ideas.

**CHAIR** - The temperature is fairly temperate dependent, no doubt.

**Mr EVANS** - It completely depends on policies being drafted.

**CHAIR** - Recently there was a program on ABC TV on natural kelp and there had been a reduction, I think, on the west coast. Did you see that at all? Did you pick that story up? It is probably nothing to do with your process.

**Mr EVANS** - I reckon it was the east coast.

**Mr BEST** - What sort of policies?

**Mr EVANS** - Anything to replace a vacuum.

**Mr BEST** - Sorry, I am not trying to be smart, but it would be helpful if you could explain what you mean.

**Mr EVANS** - There is a complete policy vacuum.

**Mr BEST** - Okay, but what sort of policies do you think? I am interested in your answer.

**Mr EVANS** - I have some other information here. I wrote a nice letter to the Hydro. They have always been renewable energy people and I just basically said at the end of it that if there were no policies there would be no project. The marine farming planning system we have goes back to when the old Fisheries Act basically collapsed in a heap. The Fisheries Act, which came out to cater for oyster farmers and salmon farmers, is so cumbersome and unwieldy that unless you have dealt with it for 20 years you cannot even start to comprehend the problems you face if you try to do anything. You are limited to doing things in marine farming planning areas. Obviously if you are going to do anything to scale this is another area altogether. It is not about farming fish or oysters for human consumption; this is about an industrial process.

I saw the Minister for Primary Industries and Water in November last year and I told him that under the Living Marine Resources Development Act 1995 there is provision for marine protected areas. I suggested to him in general terms that perhaps he could make all the waters of Tasmania a reserve under whatever classification - probably international conservation convention No. 6 - so that you can produce things like biofuels. I have not been able to engage intellectually with any of the people I have dealt with save one and he has resigned in the meantime - and he was not in any of those areas either.

I said in my submission that there was a lack of political will and I do not think that has changed, although I am very heartened that I am here talking to you people. Whatever changes need to be made will have to be drastic. Time is so short. Last night I saw that, for the first time in anybody's reckoning, the North West Passage is open.

**Ms THORP** - Yes, I saw that too.

**Mr EVANS** - All the scientists are stunned that it happened so quickly. I have actually talked to Tim Flannery, I have talked to Richard Heinberg and he has a book out called *Peak Everything*. Lin Thorpe mentioned Vishy Karri. I had a talk to him a while back and I said, 'Vishi, do you know what they are doing in Georgia in America - a new biofuel from trees developed at University of Georgia, still unknown fuel to be blended with biodiesel and petroleum diesel. It has the potential to boost Georgia's economy'. He said, 'Yes, I know what they are doing and I know the bloke who is doing it'. Now that is emerging technology.

I have been talking to Forestry Tasmania since 2004 about turning some of the forest waste they burn into fuel and I was getting on pretty well until the bloke resigned.

**CHAIR** - They keep resigning on you.

**Mr EVANS** - No, I wore him out.

There is a mob in Scotland called SAMS - the Scottish Association of Marine Science - and they are researching flat out laminaria, which is a similar one to *Macrocystis* but it produces 30 per cent less methane. Mr Best asked me how you process it. If you blast kelp with superheated steam it forms Simgas and I think if you spend enough money on it you can turn it to anything.

In that vein I have quite a healthy looking file here. This bloke told me fair and square that he has building a \$1 billion algae-biodiesel plant in China. He is building one in Queensland and I know who he has for consultants. He said he is going to start production in 2009 and in 2011 he reckons he will be producing 1 million tonnes of biodiesel from algae.

You have to be a bit circumspect but he told me he has been in touch with Tasmania and it didn't do any good.

**CHAIR** - In touch with DED?

**Mr EVANS** - Yes.

**Mr BEST** - Your key recommendations are that there needs to be some pretty strong policy development in relation to marine areas and potential sites where you could grow kelp?

**Mr EVANS** - A lot of my problems would go away if the department was prepared to enter into some sort of partnership arrangement. The Government can do things. I have a letter on my files from the general manager of primary industry which states baldly that they have no resources, which I consider to be a cop-out. When I corresponded with him about oil being necessary for agriculture and fishing and a whole range of activities, he wrote back and said that he considered that most things I had written to him about were outside of his role.

**Mr BEST** - You are looking at biofuels from kelp particularly; hat is not necessary ethanol, is it?

**Mr EVANS** - You can turn it into bioethanol. If you use superheated steam -

**Mr BEST** - You can get any sort of fuel?

**Mr EVANS** - Not any sort; you can't turn it into biodiesel. You can turn it into methane with anaerobic digestion. You need a lot of different bits and pieces in the process. It has to be two-stage.

**Mr BEST** - Is it very expensive to set-up that sort of plant? Say the methane plant, for example?

**Mr EVANS** - I just mentioned that there was a bloke doing algae to biodiesel and he is building three billion-dollar plants.

**Mr BEST** - So to set something up in Tasmania would be quite expensive initially?

**Ms THORP** - Perhaps public-private partnership.

**Mr EVANS** - I would be quite confident from the research that I have done and the inquiries I have made and the unsolicited inquiries that have been made to me. I was told in 2005 that the Japan Cogeneration Centre had expressed interest of being involved with me. If you look them up on the Internet you will find that they are about 50 of the biggest Japanese industrialists and they have links to all the government agencies. Mitsubishi Research Institute were doing the work on turning kelp into fuel. They were going to come here in February 2006 with a biofuels delegation. I made some tentative arrangements for that and that coincided with the AP6 conference organised by the Federal Government and nothing further was heard from them. The Mitsubishi Research Institute is still involved with this proposal for a 3 860 square mile kelp farm.

What I was trying to convey to the committee is that the scale of what we have to do is mind-numbing, and except for a bit of biofuel up north, which I hardly endorse - I know the bloke - we produce no oil whatsoever.

America's reserves are at about 3 per cent of the world's reserves and Australia's oil production definitively peaked in 2000. There is to be another bit of a peak before 2010. After that, there are no major oil developments. Last year Australia raised \$14 billion from fuel excise, and with balance of payments 60 per cent of what we owed was due to oil - \$12.8 billion. ABARE said that at this year's end it might be 79 per cent of what we owe overseas, so our alternatives are to keep buying more and increasingly expensive oil or to come up with some alternatives. I quite candidly think that we need alternatives so that we can feed ourselves. I am pretty pragmatic but I have done a lot of thinking about it and I don't think I am alone there.

**CHAIR** - When does your partner come back from Japan?

**Mr EVANS** - He is only a colleague - another six weeks, but I am in touch. The difficulty I have had is that with no policies it is impossible to answer anybody if they ask, 'What do you want to do?'. It is the same with government grants and stuff. They ask, 'What do you want to do?', and you can say, 'This is what I want to do'. 'How are you going to do

it?', and you can say, 'This is how I want to do it'. Then, 'Where are you going to do it?', so I can't.

**Mr BEST** - The proposal would be to make natural gas out of the kelp?

**Mr EVANS** - Yes. Even that was part of the justification; they used methane but they used coal seam gas. I think they should use biomethane when they make biodiesel. That is a personal feeling.

I honestly think anybody interested in doing anything in Tasmania should be encouraged but this is so big a problem. It is going to have to have cross-agency involvement and things are going to have to be done differently. You cannot go and knock on doors.

I said in there somewhere that if you go and talk the Department of Economic Development, their fall-back position is 'Give us a business plan'. I do not think that any of the people I have dealt with there would be capable of initiating something as I can. It is not what they do. This gentleman over here is a noted exception to the whole lot of them. He has been doing his best for me for a long time, in adversity, I think.

**Mr BEST** - How would you like to see this policy that we are talking about being developed because obviously you would like to see it happen very quickly? How would you like to see it? Some sort of special taskforce put together?

**Mr EVANS** - Instead of being an unpaid consultant, I would probably contribute if somebody found some cash. These people in Hobart are electrical and all sorts of engineers. I said to the gentleman, 'I'm a bit intrigued that I've never found out about you before', and he said, 'That's the way we like it'. He showed me a power station that they had organised to build in China and which puts out more electricity than the entire Tasmanian grid. It took a little while to get my head around it but there are people in Tasmania who are capable at doing anything but they choose to do it elsewhere.

**Ms THORP** - So you are basically saying that all the expertise is here.

**Mr BEST** - You've just got to harness it and bring it together to develop some proper policy.

**Ms THORP** - Yes, and the need is here.

**Mr EVANS** - But because of the difficulties that you encounter, they do not bother. That is being quite candid - and I don't mind if this goes on *Hansard*. This is my experience.

I was put in touch with this bloke in the Department of Infrastructure, Energy and Resources. Quite candidly, the Department of Economic Development had a biofuels forum some time ago which I went to.

**CHAIR** - Yes, last year sometime.

**Mr EVANS** - No, this year.

**CHAIR** - This year, was it? We were sitting and we couldn't meet at the time. That's right.

**Mr EVANS** - They got some people from South Australia over who are working with the biodiesel. I totally endorse what they are up to, but on the scale of \$2 million, you are also talking about a bloke who is investing in three billion-dollar plants. He told me fair and square that he went to a big biofuels conference in Canberra which Lord Ron Roxburgh came to. Remember that, only a few weeks ago?

**CHAIR** - I did read about that, yes.

**Mr EVANS** - I said, 'How did you get on?' He said, 'It was a waste of time'. I said, 'Why?' He said, 'They're all simple'. I said, 'Do you mean they're naive?' He said, 'Yes'. He told me he's building a billion-dollar plant in Queensland, and here is South Australia with Federal Government funding playing about way, way back in the distance.

**Ms THORP** - Are we allowed to know the name of the fellow who's doing the investment in Queensland?

**Mr EVANS** - Well, it's not his money, I'll bet you.

**Ms THORP** - Probably not.

**Mr EVANS** - It's Southern Cross Agricultural Developments.

**Ms THORP** - And who is your contact?

**Mr EVANS** - I don't know whether he'll talk to you.

**Ms THORP** - Oh, well, we can only try.

**Mr EVANS** - I could ring him for you, if you like. His name is John -

**CHAIR** - It might be handy if you would.

**Mr EVANS** - He keeps a very low profile. When I talked to the development manager from Hydro, he said, 'Look it up on the Internet'. I said, 'You won't find him on the Internet'. He said, 'Are you telling me I'm wasting my time?'. I said, 'No, I'm not telling you you're wasting your time, I'm telling you he's got nothing on the Internet because I've talked to him about it'. He just hasn't. He also has a half a billion dollar methane plant in China which I know about. He also has one \$300 million farm in China with 1 500 people growing food for 60 000 heifers, 40 000 cows, 30 000 milkers and 1 000 tonnes of milk a day. That's worth US\$300 million.

He told me that he turns over a billion dollars a year in Australia. He is doing ethanol from sugar cane, he is doing ethanol from sorghum. I think it's a credit to him that nobody knows about him.

**Ms THORP** - If you would contact this gentleman -

**Mr EVANS** - I'm at a loss as to what to tell him.

**Ms THORP** - Just tell him that we'd like to talk to him.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 40  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr EVANS** - I'll certainly do that for you.

**Ms THORP** - Yes, and if he says no, well he says no.

**Mr EVANS** - It needs somebody like him to make it happen.

**CHAIR** - Where's he doing sorghum and sugar cane? In Queensland or in China?

**Mr EVANS** - Australia. He's doing things in China, too. To these people here, that's upside down. Peter Rae used to be the Chairman of the Hydro. I wrote to him and said it was all right going to the United Nations but what about giving me a bit of a helping hand for the biofuels project in Tasmania where we produce no oil? He wrote back a very nice letter and he said:

'I would be grateful if you would keep me informed. It may be of interest to you to know that the United Arab Emirates capital, Abu Dhabi, has developed an organisation known as Mazdah which is looking to invest significantly in oil alternatives for energy. They have a group coming to Australia to discuss the project and I will be having discussions with them. Would you like me to put you in touch in relation to your marine biofuels project?'

I wrote back and said, 'Yes, please'. But again, I can't talk to anybody about that because there are no policies.

I did talk on 6 January 2006 to the General Manager of Primary Industries and said, 'How about having a think about this?', and he said, 'How would you manage it?' I said, 'Perhaps in the marine environment you need something like hydro concessions'. So he wrote me back a letter and said, 'It seems that you want exclusive access to large areas of waters'. I wrote back and said, 'No'. It went on for about another four or five months and it finished up when I saw the minister. They are so difficult to deal with, I couldn't convey.

The role of the Department of Economic Development: it has vision, mission, key focus areas, and on page 2 it says, 'We manage projects and develop policies, undertake planning and deliver programs, and service in partnership with industry sectors'. Well, I think they are very selective. I'm happy to answer any questions you have. I could parrot on for days, I reckon.

**CHAIR** - Thank you for that, John. You've obviously you've done a lot of work and research.

**Mr EVANS** - It is in my own interest, too.

**CHAIR** - Yes, I realise that. It is probably a bit difficult for the committee at this stage to try to think of another way forward, unless we can ask questions of the department. I think that might be the best way.

**Mr BEST** - I think you have made some key comments and I have taken them down. We are here to try to come up with some recommendations.

**Mr EVANS** - Mr Best, you asked me what I would like to see. I would like to see a policy road map across the board. Instead of someone knocking on each separate door and none of them talking to one another, lock them up and say, 'This bloke comes along and talks to all of you and come up with some answers'. I was a public servant years ago and I was silly enough to go to the university and study political science and administration until I got sick of it. The current crop of bureaucrats are people who haven't ever done anything else. Their whole ethos is to go to meetings and pass papers around.

This is called 'Clean Technology Australasia, Investing in Clean Tech in Asia'. It is the coming industrial wave. It says 'Solution to climate change and finance, Melbourne 20 June 2007'. Peter Castellanos is the Managing Director. He has some bits and pieces which I think are salient. He said:

'Barriers to accelerating investment in renewable energy - lack of coordinated policy; market distortions; weak or unclear regulatory environment; technology-specific barriers; lack of access to affordable capital; uncertainty surrounding Kyoto; lack of capacity at all levels.'

I think he nailed it pretty well there. I firmly believe that if you build windmills you are sequestering carbon underground. The electrical energy you generate with them saves you digging up coal or oil. I talked to a very smart engineer a while back and he said if you burn biofuels you release the carbon into the atmosphere again. I said, 'Yes, but it doesn't work like that. When you use biofuels you are sequestering carbon underground'.

I said to the bloke from Southern Cross Agriculture Developments that it should be possible down the track to get carbon offsets per tonne for biomass. I have had three long talks to him. The first time I said, 'Notionally I am thinking about \$25 per tonne down the track'. The last time I talked to him I said, 'That notional \$25 I gave you, the other day it was \$36 in the European Union for carbon offsets'. He said, 'That's 25 euros' and I said, 'The same story'. Then he said some very unkind words about the Prime Minister because there are no carbon offsets. This needs a complete approach to biofuels for replacement so we can feed ourselves. I am not the only one who thinks that.

I would like to see something set up like the old Agricultural Bank so that anybody who has a renewable energy project could come along and get some finance. I can't see any other way in Tasmania you can do it.

**Mr BEST** - So some sort of renewable finance-type arrangement to assist?

**Mr EVANS** - Yes.

**Mr BEST** - You would have certain guidelines obviously to make sure that it is a good application? Not trying to kick people out but trying to make sure -

**Mr EVANS** - For instance, if you're going to do kelp you also have to organise a biorefinery. If you can't get some finance to do the first bit, you're never going to get finance to do

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 42 ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

the last bit. In my own case, I think that if I had a partnership with the Government - and it is not only me; I have a private army that nobody knows about - it could advance. I don't feel like putting another three years of my life into banging on doors for no result.

**CHAIR** - Thank you very much, John. We talked about a couple of those contacts that you might be able to get hold of. If you could talk to those people you might direct them through to the Secretary, Sue McLeod, if you would not mind.

**Mr EVANS** - I certainly will.

**Mr BEST** - When you talk about some sort of financial assistance, and I am not holding you to anything, I am interested to know what sort of money would be required to get some sort of plan and so forth together. What sort of amounts do you think?

**Mr EVANS** - My feeling has always been - and I have put it into print and discussed it with the number two in the Department of Economic Development - that as the clean energy people, Hydro Tasmania and Roaring 40s should be involved in whatever you do. I have had long dealings with them and it seems to me they are very cash constrained.

**Mr BEST** - It is hard to put a figure on, I know, because there is a lot of work here that you have done but to do a proper study, and it depends on what sort of things you would be studying, you would need \$50 000 or \$100 000, would you not? Would that get some sort of plan into shape?

**Mr EVANS** - I am a bit of a cherry picker. I will do it in a round about sort of way. If you go to the university's Plant Science School and say you would like some help with your project, they say, 'You give us your money and we'll put a PhD student on'. After four or five years the student has a PhD and he knows as much as all the rest have found out over a lifetime working in a marine environment. Does that make sense? The other thing, too, I have mentioned is that I already have three blokes with PhDs in marine science interested in helping me, and they are helping me. I do things differently but I also set up a reference group totally outside the public service and I have people from industry and academia involved with that, people like the Professor of Forestry and Ecosystems at the campus of the Melbourne University. I have had help from the Australian Oceanographer of the Year. If what I am talking to you about was not a serious thing, these people would not be interested in talking to me either. It is critical, I reckon.

**Mr BEST** - So to do a feasibility study on one of these ideas, for example, and whilst you have your network, still requires a bit of time and effort and so forth. If there were to be some sort of government support to knock something into shape, what sort of money are we talking about that someone would need?

**Mr EVANS** - I would have to give that some serious thought.

**Mr BEST** - Can I leave that with you then to think about?

**Mr EVANS** - I have my own ideas in the back of my scone.

**Mr BEST** - That is all right.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 43  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr EVANS** - That is probably not the best way to put it but that is how it is.

**Mr BEST** - Can I leave that with you then and you can think about it and come back?

**Mr EVANS** - My feeling is that what is needed is not cash for those sort of things. What is needed is some policy in place to say that if I had a partnership arrangement, I could go and talk to people like the rascals that rang me up one day and their joint worth is over US\$3 trillion. I can show you where they have asked me for an executive summary.

**Ms THORP** - It strikes me as being similar to what happened at Southwood. You had potential investors who did not want to come into the State and risk their investment capital without the infrastructure and regulatory framework put in place and this is what is striking me here.

**Mr BEST** - A good point.

**Mr EVANS** - This bloke rang me up out of the blue. 'It was good to talk to you earlier in the week. The information regarding the Japanese research from the May 2005 edition of the *Times on Line* arrived last week sometime'. This is after I had discussed it with him. I said, 'What are you looking for next?' and he said, 'A description of what you are setting out to achieve, details of the people involved in the opportunity and this includes management; advisory board; board of directors, if appropriate; what market you seek to enter'. The problem I have is that there are not any policies.

**Mr BEST** - I think we are getting the picture now of where this needs to go.

**Ms THORP** - And it is the responsibility of government to create the framework for the environment, isn't it?

**Mr EVANS** - These people started this whole investment area off, having defined and introduced clean tech in 2002 as the next major investment opportunity. Their membership currently exceeds 1 300 major investors worldwide.

**Mr BEST** - Thank you for that. That has clarified that a bit better for me.

**CHAIR** - Thank you very much for what you have provided to us.

**Mr EVANS** - I do appreciate the opportunity too. I'll get on the case with a couple of these contacts.

**CHAIR** - Yes, if you would.

**Mr EVANS** - I honestly think Tasmania is missing out big time and I do think we are 30 years behind everybody else.

**CHAIR** - Yes. We all appreciate it is a moving feast.

**THE WITNESS WITHDREW.**

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 44  
ALTERNATIVE FUELS, HOBART 10/10/07 (EVANS)**

**Mr RONALD ANDREW WARD**, GROUP MANAGER, AND **Mr JOHN CHRISTOPHER BRENNAN**, MANAGER, VEOLIA ENVIRONMENTAL SERVICES, WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

**CHAIR** - Thank you very much, gentlemen, we have your submission in front of us. What does Veolia mean?

**Mr WARD** - Veolia, an ancient Greek word; it means 'to win'. It was formerly Collex.

**CHAIR** - I thought I recognised the face.

**Mr WARD** - My position with Veolia is group general manager for Tasmania. John is our environmental in-house scientist and manager for environmental services. He was the primary author of the document that was forwarded to you. I did check it, albeit not very well because there are a couple of typos in there which you have probably observed. In fact we could not even get our name right at the bottom, however we have improved since then. I would like to think that our rubbish services are excellent though our writing has to improve.

I think I will ask John to talk because he will get the science right and then I will make sure that we try to get the business part of it right.

**Mr BRENNAN** - We are a company that is global in nature and as such we have a considerable commitment to environmental improvement and so forth through sustainable development. We have our own greenhouse gas department, which was formed in the last 12 months and is resident in Paris. Its role is basically to overview the greenhouse emissions that we generate, monitor those and set KPIs for future improvement. That filters on down through the country that we are involved in. We have an imperative placed upon us by Paris, by the head people there, to improve on reducing our greenhouse gas emissions in Tasmania and I dare say throughout Australia.

Veolia Environmental Services is a transport logistics company; basically we move waste and resources from point A to point B and so forth. We are very conscious that our service is wholly and solely, or very close to it, dependent upon fossil fuel like diesel. We are conscious that we have to look at ways to minimise the impact upon the environment through air emissions. We are currently doing that through the implementation of new modern Euro 4 and above vehicles, regular maintenance and looking at different ways in which we can reduce our fuel consumption. This involves anything from information technology to give us a more efficient way of collecting bins on routes so that we do less kilometres and pick up more stuff, through to trials with different types of fuel additives and catalysts and those sorts of things.

In fact our national office in Sydney is close to completing a report which will form part of the process as a submission under our obligation under the energy opportunities act. We fall within the scope of that to provide feedback on how we are going to reduce our major energy consumptions through diesel. So we look at different ways to reduce our fuel.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 45 ALTERNATIVE FUELS, HOBART 10/10/07 (WARD/BRENNAN)**

We support the terms of reference of the committee and we also recognise that that will provide some potential logistical and financial challenges. I dare say that there will be some sort of short-term pain if we in Tasmania are genuine about reducing our reliance on fossil fuels and moving towards renewable energy for the transport sector. The costs have to be balanced out against the benefits. We have suggested that it is essential that peak bodies such as TCCI and the Tasmanian Transport Association be consulted and be involved in the process.

Just stepping aside from waste and resource management in the State, we engage in dialogue with the Government and agencies fairly frequently, and we are consulted as well. Our message in that respect is always that government should lead. We believe, in this case, that government agencies and departments should also lead the way through their purchasing. There are some forms of that going on, I am led to believe, in your car pools and also a commitment to hybrid vehicles and those sorts of things. So that probably could be cashed in on a bit more by the Government and it will lead the way to get the message out there.

Listening to the previous person, I think some of the things that he was talking about are probably fairly pertinent. You need policies in place and you need somebody to drive policies to strategies, somebody to be in there policing as well as encouraging the development of those strategies. If they gather dust somewhere and are motherhood statements then they don't really get us anywhere.

We can see that there are certainly benefits in biofuels to the agricultural industry. Agriculture in Tasmania struggles like anywhere else, but it is probably an opportunity for Tasmania; so that could be good. We may find ourselves in the situation to export product to neighbouring States if we got our act together - maybe.

There are a few things that we have highlighted that could be threats to take into consideration, threats against the introduction of alternative fuels. One of those is tax and excise, because the goalposts could move at any time. We could relay our experiences in terms of, for example, waste oil that can be taken back to a form of crude diesel. It can meet specifications for reuse in modern diesel engines. We have looked at this a couple of times as a way to cope with waste oil in Tasmania. The stumbling block for us is not the technology; the stumbling block is always whether the goalposts move with the tax and excise by governments. If they whack a big tax on and then it could blow your balance sheet out and you are not going to make any money.

**CHAIR** - You have obviously asked the question of governments, seeking clarification as to what they might do - like an excise on waste oil?

**Mr BRENNAN** - Yes, but you are aware that governments can change their mind, and it is their prerogative to change their mind in terms of tax and excise.

**Ms THORP** - And governments change too.

**Mr WARD** - You need the certainty for investment. You might get a change of minister or a change of government or a change of policy; they do it and they have done it. They changed the waste oil levy structure. They might take on one hand and give back on the other, but they change and that is the difficulty.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 46  
ALTERNATIVE FUELS, HOBART 10/10/07 (WARD/BRENNAN)**

**Mr BEST** - May I just ask what you consider to be a stable period? I know 'forever' is the obvious answer to that.

**Mr WARD** - Obviously it would be dependent on the level of investment, the period of time, who the investor is and whether that is a public-private partnership or whatever form it might take - a BOOT scheme or any of the different models that you are going to go forward with. It would depend on the amortisation period. That would probably be a key to answer your question. So I would think we are probably talking about 10, 15 or 20 years, depending on what it is that you are building and how quickly you are hoping to get your return. So it is not an easy answer, and we are also talking about an area that is in the main influenced at the Federal level.

**Mr BEST** - Do you think that should be part of some policy framework in a sense to say this is a proposal that needs this sort of certainty for at least this period? Then you know you can go in there with confidence and know that you are not going to get messed about or whatever.

**Mr BRENNAN** - We use that analogy because the investors may have a certain bit of equipment to make biofuel or whatever and they will face that same challenge I am sure. The other thing at the moment is warranties on vehicles, plant and equipment and how they are affected by the use of some of the alternative fuels.

**Ms THORP** - Are you saying that if you purchase something and the warranty suggests that the equipment be used with a certain fuel, but half-way through you change, then you could lose your warranty?

**Mr BRENNAN** - There are some vehicles now, modern cars, where the warranty, as I understand, is blown if you use recycled coolant, for instance, in the radiator. I know that is not a fuel but it is an example. You must use a specific grade of new coolant yet there are people with coolant recycling machines that have an excess of recycled coolant that cannot go back into the car. The same thing could apply for large trucks and so forth using biofuel. Will the people that manufacture these honour their warranties? If CNG is competing against traditional fossil fuel then I think there possibly needs to be some sort of price surveillance at the bowsers to see that standard fossil fuels are not outcompeting biofuels by changing the market.

**Mr WARD** - We want Mr Samuel to make sure he does his job so that the big boys do not beat up the newcomers.

**Ms THORP** - And take a monetary hit in the short term and put other people out of business.

**Mr WARD** - It has issues attached to it in a free market but it is manageable, I guess.

**Mr BRENNAN** - Cost infrastructure for CNG filling stations is an example: who is going to bear the cost against all the facilities that are already there for service stations? So there is a set up cost and then you go to amortisation, return and stability.

**CHAIR** - We explored a bit of that this morning with the other people that have been in.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 47 ALTERNATIVE FUELS, HOBART 10/10/07 (WARD/BRENNAN)**

**Mr BRENNAN** - If there is no financial incentive there for businesses and so forth to use alternative fuels then you are really pitching at the environmental end - that this is good, clean and green - but for some businesses that might not be good enough to capture their business. There should potentially be some monetary benefit that can offset the expenditure associated with transferring to those new vehicles and so forth. There is no silver bullet, in our opinion, to any of this. There will be a suite of things that will give you the desired outcome.

**Mr WARD** - It is a very challenging task you have taken on here. All credit to you for having a go at it. I apologise that John and I are far less colourful than the previous speaker. There are so many issues here to be taken into account and you have probably got a better view of all of that than we have because you have been doing your homework, doing your research.

John mentioned the TCCI, the Tasmanian Transport Association, and there are other associations out there. Clearly from a private sector perspective, whatever you are going to progress you need to get some critical mass and you need to get at least the main players on board and that is probably best accomplished through associations, peak bodies. I am probably telling you how to suck eggs but I happen to be on both those boards, but that is neither here nor there. I might not be next week. They are the types of organisations that probably need to get into the loop.

We talked about infrastructure. The CNG thing had some life in it about five or six years ago. I can remember there was dialogue.

**Mr McKIM** - We had an inquiry and the Government ignored pretty much everything we said.

**Mr WARD** - We will not go there, Nick. We will leave it to you to sort them out.

**Mr McKIM** - I can only try, Ron.

**Mr WARD** - I know a number of players, including ourselves, expressed a positive sentiment about it. Our cheque book was still in our back pocket but we were prepared to pull it out. If we thought someone was going to come towards us then we would come towards them and try to meet somewhere in the middle on the assumption that if it could be demonstrated that CNG was going to deliver emission benefits and efficiency benefits.

As John alluded to, we are as green as any large organisation but at the end of the day we talk about three Ps - people, planet and profit - or the triple bottom line or whatever version you want to call it. These days they are talking about the quadruple bottom line because they have now got climate in there. I always say that at the end of the day we are a business, we have shareholders and if you do not get the profit bit you cannot accommodate the planet and the people bit, people being both your customers and your staff. Whatever initiative is taken it has to be more than just saving the planet. That is the reality. I might have a personally different view which says saving the planet should be the driver, even if it costs us money, but at the end of the day the bankers will not take that view, I think. It is not necessarily a matter of buying the product cheaper, it is a matter of being able to operate more efficiently and more effectively, and ideally more

competitively so that there is a flow-on effect to your clients as well. Share the gain. That is a reality.

John talked about the certainty thing. We have touched on that. On the tax regime, I do not know that there is a lot more to add. I am happy to answer questions and hope to give you an intelligent reply.

**Mr BRENNAN** - I would use the word level playing field as well. That is what we are getting at. If we leap into the new alternate energy for vehicles and that is all vehicles, there needs to be a level playing field in the commercial sector. Going on to that, we were the first waste management company in Australia to run CNG vehicles in South Australia. A contract was let by local government. It was a very forward-thinking contract for the collection of wheelie bins, household domestic garbage. It really was a very forward-thinking thing. The vehicles that we used were traditional diesel trucks that were retro-fitted.

**CHAIR** - How is all that going?

**Mr BRENNAN** - That is now dead in terms of the contract. We were not re-awarded the contract and the contract is no longer CNG. I cannot comment accurately on what the new contract is exactly but we do not have it and it is not CNG. It leaves one wondering whether they were just a little ahead of their time and that if it happened now it might sustain itself. Vehicles have changed as well. I am not technically-minded in terms of the design of the vehicles but I know that you can buy CNG vehicles. You don't have to have them retro-fitted.

**CHAIR** - Yes, we have been told that. In the waste management business are there any other CNG vehicles being used in Australia at this stage, to your knowledge?

**Mr WARD** - I think there are a few out there, but they are not commonplace. Adelaide, where we first did it, was very appropriate because of its relative flatness, because you do lose power with CNG. That was the case then anyway. Whether it is true of the newer model vehicles, I am not sure. We would need to take technical advice on that. Before I came in I had hoped to ring our South Australian office and find out from the contractor who has subsequently won that council contract - it was Unley Council - whether they are using any sort of biofuel or if they are using straight fuel. It will send a message. If they have engaged someone who is using some alternative green fuel, they will view that as positive and we have lost in terms of the tender scenario, but if they have gone back to the traditional fuel, that says to me that the evaluation has been done primarily on price and bugged the atmosphere, which is a pity. That was seven years ago: the council members could well be different people and a whole lot of things could have changed, but it would be interesting to find out.

**CHAIR** - Aside from issues of price obviously in the contractual arrangements - that's a separate issue - were the retro-fitted ones reliable?

**Mr WARD** - Our feedback was that they were okay, but they weren't without their issues. I think that goes to the fact that they were retro-fitted and it was all pretty new. My feeling is that that is not an issue and these days you buy the right piece of gear to start with that is engineered to accept the gas and you would probably travel pretty well.

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 49 ALTERNATIVE FUELS, HOBART 10/10/07 (WARD/BRENNAN)**

Whether they lend themselves to the Tasmanian geography is another issue, but they are the sorts of things that need to be tested.

**Mr BRENNAN** - I think the filling time was also a factor.

**Mr McKIM** - Was that an argument?

**Mr BRENNAN** - I am not sure, to be honest, but it was a factor that was a logistical pain for us.

**Mr WARD** - I think they had one or two places they could fuel, so it was a logistical issue.

**Mr BRENNAN** - And it was slow to refill.

**Mr BEST** - When you were talking about a level playing field, what do you mean?

**Mr BRENNAN** - From a business point of view, if a business chooses to implement the introduction of a cleaner fuel, there may be costs associated with that that are over and above just using fossil fuel. Those costs, in terms of a service, generally need to be passed on, which could be perceived, let us say if it was a local government contract, to be more expensive per unit price of service. We won't go with that. We will go with the traditional fossil fuel cost per unit price because it is cheaper. So maybe, if a company or business does choose to use an alternate energy, somewhere there is a rebate that can offset that external cost and that can help them be more competitive. We face that all the time in our particular business, not related specifically to fuel but to our service that we provide. We choose to be accredited to 9 000, 14 000 and 4 801 and the compliance costs associated with that, and we might have a bid on a contract, a local government contract, for example, against many players who don't have any of those certifications. In the spread of selection criteria on the bid there is not a lot of weighting given to those factors and, as such, we could find ourselves losing the contract yet many of those things are critical in terms of offering a compliance service these days. It creates an unlevel playing field.

**Mr BEST** - We did hear from a submission about a trial run of a delivery truck. That was a new purchase and I think - this was just a rough estimate - they said that for compressed natural gas for this vehicle was something like \$16 000 over what a normal diesel truck would be, but they received a rebate of 50 per cent or \$8 000. But that money is no longer there, although the figure that was presented would indicate that if it was a long-term proposition of that fleet perhaps going that way they could probably do it.

**Ms THORP** - It would be worth it in the long run.

**Mr BEST** - Yes. As you say, it is a bit of a hurdle to be spending more money than you really want to to get an overall gain.

**Mr BRENNAN** - It is a balance and I think you have hit on another point. Taxes and excises can change and so can rebates.

**Mr BEST** - Yes.

**Mr BRENNAN** - There could be a rebate there for three years and then suddenly it has gone.

**Mr WARD** - In the example John gave, the inducement does not necessarily have to go to the service provider, it could go to the buyer. To use the council example, if there was a benefit to the council or some inducement or encouragement to buy green rather than non-green - if I can express it that way - that might offset any cost differential that may or may not exist. We are just making a hypothetical assumption. As a generality, these things have a tendency to cost you more, not less, at least in the short term but if you take the big picture, where I think we were trying to come from, in terms of the sustainability it is different.

In going to the evaluation process, our experience generally is that if you are dealing with major players, whether they are commercial players or whether they are the local council, the evaluation is usually fairly balanced. If there are things in there that are delivering a benefit, they get a reasonable weighting and people try to put some value to them and then mix it with the price. The smaller players, the players that have not got the deep pockets - particularly the smaller councils - simply cannot do that. They simply do not have the money and price is the only criterion that is used.

**Mr BEST** - Regarding Collex - I am not sure if you have just changed the name or you have moved on -

**Mr WARD** - If you want a one-minute summary I can tell. Our parent company is Veolia so at the end of the day our principal shareholders are in Paris and we are on the New York, London and Paris stock exchanges and they are in certain lines of business. They are obviously in waste, which we now tend to call environmental services because it better expresses what we actually do; we are not just a waste company. They are in water. For example, Veolia Water, as it is now known, is in a partnership with John Holland or one of those to provide the desalination plant in Sydney and one in Brisbane. Veolia Water run Adelaide water; they are the Hobart Water of Adelaide. Adelaide Water is like a CEO and three people and Veolia Water do everything else on the ground. So there is the water business and then there is the energy business. In the energy business they used to be known as Dalkea, they only recently came to Australia, and they are in the transport business. In the transport business they are known as Connex so if you go to Melbourne and you get on a train you get on a Connex train, and they have been getting a bit of press lately. If you go to Sydney and you get on the monorail you get on a Connex monorail. Connex is going to become Veolia Transport and water is Veolia Water because they said they are one brand and in some cases, say at State level or municipal level, sometimes you can actually be selling a package. We can do your water, transport, waste, et cetera, so hence the branding, trying to get a commonality of branding.

**Mr BEST** - You may disagree with this question. There has been an evolution, I suppose, in waste management from really no waste management at all to waste management. I know that in my former life in local government there was no trade waste - I come from Devonport municipality - and then all of a sudden there was because the council realised there was a cost for trade waste. So that has evolved now, in a sense, as to how you handle your waste, what you do with it and who picks it up. You cannot just take it to the tip as you might have done in 1968, or whatever.

Moving forward and looking at the issue of where we go with alternative fuels, do you see any similarities to the way in which waste management has evolved? Or do you see them as just two separate topics without any similarities? As I say, you might disagree with that question.

**Mr WARD** - I don't see a direct parallel, but equally there are some commonalities there, aren't there. As you said, in the waste industry, with the wisdom of hindsight, has evolved. Some terrible things were done in the past; people used to dig holes and throw rubbish in them and they had no idea of the potential consequences of what they were doing. You move from there to now with now modern landfill - it's not even called landfill; it is generally called a bioreactor - which is engineered and very capital intensive to get established. However, by definition landfills have a long life so the economics is not necessarily the problem.

We are much more conscious now of what we are doing to our environment, and that has driven a whole lot of change, as you have alluded to, in how waste is managed. We still don't do it super well in Tassie, and we have had that discussion in other forums, but we are a hell of a lot better than we used to be. In that sense this topic is probably 20 years behind perhaps where waste was, so there are some commonalities.

**Mr BEST** - Was there much financial support, for example, to develop the waste, or was it a business that you developed because people had to do it?

**Mr WARD** - John can tell you probably more competently than I because he has been in the business longer than I have. I will just start things off by saying initially it came about because there were commercial opportunities and people saw them. There wasn't always a wheelie bin; someone had the idea of a wheelie bin. There wasn't always what we call front-lift bins where you see the truck comes along with the prongs and picks up the bin and tips it over the back.

So a number of entrepreneurs got into those businesses. I don't know whether they picked the idea up from overseas or whether it got exported from Australia. That often happens in Australia - we are often the first to innovate. Then over the years the capacity to do it just from a commercial perspective has become more difficult, technology is more complex and there are greater costs, so now you tend to need support. You need at least some feed money or some R&D money. Of course in other States, to varying degrees of effectiveness, that largely comes from a levy scenario which we essentially don't have in this State. So you have no source of funds, and you find yourself saying, 'Well, gee, it'd be good if we had an expert treatment plant because we've got all this horrible waste coming out of some of our' -

**Ms THORP** - I'm getting déjà vu here and I'm not sure why!

**Mr WARD** - Yes, yes, okay.

**Mr McKIM** - Same room, same people!

*Laughter.*

**Mr WARD** - To answer your question, now it usually needs some money or some assurance about a policy position or things like that.

**Mr BEST** - How do you know you're backing the right horse with R&D? I suppose you have a panel and they look at what might be the best.

**Mr WARD** - We're lucky. The Veolia Group has 260 000 people, it has 260 scientists in one place in France working on R&D, so we've got that source to draw on. Every environment, every jurisdiction is different, so it's not one size fits all. If you go to Europe, you find that the waste solutions in Europe all vary. They all do it differently. Germany is very incinerator-focused, and somewhere else they might be landfill-focused, and somewhere else they will do something else. Whether it is just how things have evolved, whether it is their terrain and what land mass they have available to do things with, I do not know.

**Mr BEST** - Is your parent company in France looking at how to make alternative fuels?

**Mr WARD** - Yes, they are.

**Mr BEST** - Are we allowed to know?

**Mr WARD** - John might know a bit more about that.

**Mr BRENNAN** - There is probably some research going on into fuels from organic waste so you have biogas which will go into an engine that in turn has a generator and that will stick electricity back into the grid. In fact Woodlawn our landfill out of South Sydney is a bioreactor. It is scientifically designed, constructed and run to maximise the breakdown of organic waste under certain optimum conditions, pipe the gas to these generator sets and plug straight into the grid. So in a way we are marrying the resource waste business to capture the energy and of course that pulls the methane gas out which is destructive to the ozone layer. So there are some synergies there.

Going back to your previous question, I think if we take Tassie as an example I used to work for the then Department of Environment before their name changed about 10 times -

**Mr McKIM** - And they pretty much didn't become a department any more.

**Mr BRENNAN** - That is a while back.

There have been a lot of changes in waste management over that time. I would not say that we are exactly where we possibly need to be, but the things that have driven that, in my opinion, have been policy and strategy. The only reason those things occurred was that certain people jumped up and down. Also, there has been a growing community awareness of the fact that there is plastic floating out there, that there are chemicals and somebody gets a scare with something bubbling up out of the ground. The community is more educated these days about these issues.

You could draw the analogy with the Derwent River: 20 years ago we would swim in it compared to now and that is simply because of the community expectations. So policy

was implemented with regulation and I think if policy, strategy and regulation are implemented sensibly through consultation, the commercial world will see the opportunity that Ron is talking about and they will start to hedge their bets and say, 'Hey, there is an opportunity here.' But until there is some security through policy, strategy, regulation and maybe some incentives, it is a chicken-and-egg thing isn't it?

**Mr BEST** - Yes.

**Mr BRENNAN** - And we have seen that for years in the waste management industry. There is plenty of resource recovery technology out there. Every computer in this State at the moment could be recycled - 96 per cent of it could be recovered for recycling. Right?

**Mr WARD** - Correct.

**Mr BRENNAN** - But most of it is going into landfills. Why? Because there is no policy, strategy and regulation to get computers out of landfills.

**Mr WARD** - And why isn't there? Possibly because there is a cost to recycle - cost in the sense of dollars, not necessarily in the sense of whether we are adding value to the planet or to the community. Whether that is the motivation, I do not know.

**Mr BEST** - It is obviously dearer to try to recycle it than to bury it, in other words?

**Mr WARD** - That is right.

**Mr McKIM** - Why is that? Because there is not full cost recovery on landfill sites?

**Mr WARD** - Yes, that is right.

**Mr BRENNAN** - One factor and we have a lot of landfill space.

**Mr WARD** - And we haven't got the balls to recognise that if you put some of these things in landfill, they have some real nasties in them. They have been doing it for years but we now know we are doing it.

**Ms THORP** - The excuse is no longer there, is it?

**Mr WARD** - I know.

**CHAIR** - Any further questions to Ron or John? You started to get a little bit more colourful towards the end you were starting to wind up there a bit. That was very good.

**Mr WARD** - You haven't got a scotch, have you, to calm me down?

*Laughter.*

**CHAIR** - Thank you very much for your presentation and, as you rightly say, there is no silver bullet. However, times change and times change quickly and we have to look at these things.

**Mr WARD** - We appreciate that and it has to start somewhere. As John alluded to, it has to start with you people and your colleagues. That is where the lead has to come from and then you have to get industry on board and the community on board.

**CHAIR** - Yes, we take on board that was a very pertinent comment.

**THE WITNESSES WITHDREW.**

**Mr DAVID HURBURGH**, PROJECT MANAGER, RESOURCE AND INFRASTRUCTURE INDUSTRY DEVELOPMENT DIVISION, DEPARTMENT OF ECONOMIC DEVELOPMENT, WAS CALLED, MADE THE STATUTORY DECLARATION AND WAS EXAMINED.

**CHAIR** - Thank you, David, have a seat.

**Mr HURBURGH** - I intend to just briefly go through the submission just highlighting a few points, considering that it was written back in February.

**CHAIR** - Yes, we got waylaid by a couple of other bits and pieces in between.

**Mr HURBURGH** - The whole area of alternative fuels is such a dynamic area - there is a conference every week and some new technology is emerging almost every day.

On the structure of our submission, originally it flowed on from the 2003 inquiry where CNG was the dominant focus. My involvement with economic development was primarily managing the roll-out of the Tasmanian natural gas network but that took a very natural progression across to the area of alternative fuels. In fact, it was the CNG inquiry in 2003 which very correctly flagged the potential role of CNG that brought us to this point.

**Mr McKIM** - I should add here following quite an impressive submission by your department.

**Mr HURBURGH** - Right, good. The first half of the submission is focused on CNG and LNG. I also provided an overview of your biofuels, particularly looking at some of the recent technological developments. There seems to be no shortage of inquiries out there. I think that every State has had an inquiry into alternative fuels and biofuels.

**CHAIR** - Yes, we picked up one from Victoria the other day.

**Mr HURBURGH** - And Western Australia.

**CHAIR** - They have done one too.

**Mr HURBURGH** - The involvement by the Department of Economic Development is specifically in the area of natural gas as a transportation fuel. We have already touched on it this morning through our colleagues at CompAir whom mentioned the Cripps Nubake trial. That was a combination of a number of different parties working together, particularly Isuzu and Motors, the truck people, together with the bakery and Powerco, the gas distribution company. That trial was remarkable success. I think that it exceeded most people's expectations with the savings of fuel costs that that truck presented. One of the reasons of course is that Cripps is an established natural gas customer so they enjoyed the economics of their supply contract.

The other key area where our department had an involvement was that we instigated a series of workshops looking at the use of liquefied natural gas for use by the heavy haulage industry. We all aware of the dominance of log haulage on our transport fleet

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 56 ALTERNATIVE FUELS, HOBART 10/10/07 (HURBURGH)**

here in Tasmania. We are now at a point where I believe the consortium of log hauliers are at a very critical decision point as to whether to progress with that use of LNG as a transport fuel. I think the location that has been talked about for the liquefaction plant is up at Bell Bay where it has access to high-pressure gas, but to make the whole logistics work the notion is to have two or three remote depots at either ends of the State.

**CHAIR** - I had a representative of one of the milk companies talk to me the other day - with Fontera they have Linfox.

**Mr HURBURGH** - In fact the most successful case study of LNG transport in Australia is the Murray Goulburn milk coop in Victoria. They have been using the LNG trucks for, I think, two or three years now with great success.

**CHAIR** - What about rail, too? Is that a possibility?

**Mr HURBURGH** - LNG is probably ideal for rail because of the very heavy horsepower and they are not constrained by the load of carrying the fuel. That is why LNG works best for heavy haulage, because they have the horsepower to bring the fuel along with it.

**Mr BEST** - So you get a higher rev or something like that out of LNG than you do out of compressed natural gas?

**Mr HURBURGH** - There is a variety of technologies there. There is Cummins technology and Caterpillar technology. The drivers have to learn how to drive. It is different from a normal diesel truck; there is a difference in response curve and torque.

The other major initiative was late last year when we brought together probably a dozen or more transport operators for an information seminar that was held in November. That seminar, I believe, was quite successful. It presented a number of case histories, most notably - and perhaps most pertinent to what we heard from the Hobart City Council this morning - that the Gosford City Council is probably the best established user of natural gas transport in a municipal fleet. They have a good story to tell.

Mark McKenzie, who is out of Sydney, is probably the pre-eminent consultant in alternative fuels in Australia. He facilitated that workshop and from that we now have perhaps five or more transport operators who are sufficiently enthused by the potential of CNG to warrant getting together in the manner in which Gary Woodhead mentioned this morning. In this, we perhaps point the question of bringing the infrastructure to them versus their getting sufficiently enthusiastic about perhaps committing to the purchase of trucks. That is the dilemma we are faced with, and I think we have heard that a number of times today. It is the cliché of the chicken and the egg - the infrastructure versus the preparedness to outlay for the trucks.

The bullet points that I have in my presentation were some of the key factors on the take-up of alternative fuels. Obviously it is the tax regime and government grants that are fairly prominent. The fuel savings - we have heard about Cripps Nubake's remarkable savings on their Isuzu truck; the cost premium that is implicit in going for the CNG technology over conventional diesel technology; and refuelling times - again, that is an issue. Typically what the infrastructure people are looking for is comparable with fuelling times to a conventional fill, which is three or four minutes. Maintenance costs,

workshops, mechanics and driver training are other issues. As I mentioned, there is this trade-off between the pay load penalty of the fuel tank versus the oil-carrying capacity of passengers or freight. The most difficult challenge is the building of networks, because it is a new fuel and a new technology. How do you roll out the network? Gary Woodhead gave us some examples this morning of how it might be done.

The other two key points that I made in the submission included the fact that the key benefit of natural gas in Australia is that it is independently priced of petroleum so we have the ability for the customers to establish long-term stable price contracts. Of course they need to be convinced that the price will be stable over the term of those contracts. One of the areas which perhaps has not had attention given to it is as an advocate of CNG one of the benefits of course compared to other fuel types is that it has a very standardised quality. Although I am also an advocate of biodiesel, one of the problems with biodiesel is its inherent variability in quality and obviously its ability to be used in different climates as well. We have heard about oils which work well in cold climates versus those in a hot climate.

I believe that Metro Tasmania are coming in to give evidence today after me. We have worked very closely with Metro over the last two years and in fact it was the encouragement following the 2000 inquiry where Metro was specifically targeted. We brought together Metro and Powerco as the gas distributor to attempt to develop a detailed business case for the introduction of CNG buses in Tasmania. Powerco believed that they could demonstrate an attractive economic business case but for operational reasons, for assumptions they had about fuel costs, Metro could not quite get it over the line. I am sure we will hear more about that today.

Again referring to CompAir's presentation, CNG buses are still being very actively rolled out across Australia. Gary Woodhead mentioned that in Adelaide Torrens Transit recently acquired 20 CNG buses. With the exception of Melbourne, which obviously has its tram and train system, all the other major capital cities are very aggressively rolling out CNG buses.

The key to seeing CNG work in Tassie is the need for refuelling infrastructure and, as Gary mentioned this morning, we are working closely with them to see what may be possible.

The submission then moved on to biofuels. I noticed in last Friday's *Financial Review* a two-page article on biofuels. It seems to fluctuate between getting a very good press and then a not-so-good press. To put things in the Tasmanian perspective, I understand that we import something like 300 million litres of diesel a year. When we come to the use of biodiesel, perhaps if we are talking B5 or B10, which is the standard that has been ascribed to biodiesel, we would be talking tens of millions of litres of biodiesel to reach those B5, B10 levels.

**Mr BEST** - You make that point to say that if we had biofuels then that would be the reduction?

**Mr HURBURGH** - Yes. It is worthwhile reflecting on John Evans' graphical display of the amount of fuel that is used in Australia and in Tasmania for that matter. We do have a limitation here in Tasmania in the indigenous ability to grow canola oil. We have limited

arable land that could be suitable but then of course we have the difficult conundrum of whether we trade off arable land for the production of biofuel raw material versus food crops, which hopefully may have a higher value.

Is it correct that you visited Rob Henry's Cressy facility?

**CHAIR** - Yes.

**Mr HURBURGH** - That is good to hear. We have been in regular contact with Rob over the last few years and have been following his activities quite closely.

**Mr BEST** - He was very complimentary of the Department of Economic Development.

**Mr HURBURGH** - That's good. His poppy oil initiative is probably unique. It is unlike most biofuel raw materials - and canola is a good example; canola oil is a globally traded commodity and has a well-established market price which, I understand, is at relatively high levels at the moment and for a large reason due to demands from biofuel manufacturers.

**CHAIR** - Yes, that's right.

**Mr HURBURGH** - His poppy seed, on the other hand, as you have probably been made aware, is material that would otherwise have to be incinerated, so there we have a material which is otherwise effectively being dumped that can potentially make very valuable biodiesel.

On the ethanol front, I guess it has not been mentioned but I believe in the last six or eight weeks now United Petroleum have been marketing an E10 blend of 10 per cent ethanol in their petrol. I have not seen them actively marketing it as such, but by all reports they are getting a fairly good response from the motoring public, particularly as it allows them to sell a 95-octane fuel which is effectively a premium octane rating. It is given that rating because of its ethanol content.

**CHAIR** - What is the feed source of that, do you know?

**Mr HURBURGH** - I suspect it is from Manildra, which is in Nowra. They are one of the largest ethanol producers that use wheat - grain.

**CHAIR** - Right, okay.

**Mr HURBURGH** - Manildra is the dominant ethanol producer in Australia.

**CHAIR** - Yes. In fact it is such an interesting subject, that whole growing of crops.

**Mr HURBURGH** - Yes.

**CHAIR** - It is distorting a lot of agricultural markets, it is distorting fertiliser prices, all sorts of things right at the moment. It is a real conundrum.

**Mr HURBURGH** - To the point that you are almost getting a positive feedback that high oil prices are ratcheting up obviously food crops, feed stocks, to fuel. So you have one chasing the other.

**CHAIR** - Yes, it is.

**Mr HURBURGH** - As part of the research for this submission I have been in touch with TIAR, Geoffrey Dean in Launceston. They are monitoring closely the ability to use cellulosic crops ex stubble from paddocks. Other countries are being used as a potential cellulosic input for bioethanol. Forestry Tasmania, as I think John Evans mentioned, is keeping a close eye on developments in Canada and Scandinavia on the use of forest waste as a means to generate bio-oil.

**Mr BEST** - Sorry, who was that?

**Mr HURBURGH** - Forestry Tasmania.

**Mr BEST** - So they are following that up, are they?

**Mr HURBURGH** - Yes.

**CHAIR** - We had quite a bit of evidence on that yesterday.

**Mr HURBURGH** - As we heard this morning, it is generally known as second-generation biofuels where you are using material that, from most accounts, is effectively truly sustainable in the sense that you have a biomass which is effectively regenerating itself.

We have kept in close contact with John Evans. As you correctly pointed out, John is a colourful character who is very well informed in the area of biofuel. For historic reasons, I dug out some work that was done by CSR together with DPIWE, looking at the feasibility of growing sugar beet for ethanol production in north-eastern Tasmania. Apparently the agronomic factors were positive but the economics would not work for sugar beet.

**CHAIR** - I think you said three times the normal cost for cane.

**Mr HURBURGH** - Yes, that is right. In biodiesel we have Rob Henry as the leading player but we also have some home-grown engineering expertise in the form of James Fox. I believe James Fox is involved with the engineering and design of the plant that Rob Henry is contemplating at Cressy.

**Mr McKIM** - That is correct.

**Mr HURBURGH** - James is also involved with the people in the Huon at the Cradoc abattoirs where they have a rendering plant which is also being contemplated. I think they are fairly well advanced in building a small biodiesel plant to take advantage of the tallow that is produced there.

**Mr HARRISS** - We will be talking to James next week.

**Mr HURBURGH** - Very good. That is pretty much the wrap-up of the submission and I am happy to answer questions.

**CHAIR** - Thank you very much.

**Mr BEST** - It is interesting. You went through a client list, which I appreciate and I am sure others on the committee do. There is obviously some policy - and I am not trying to cause any friction here - within DED regarding alternative fuels. We heard yesterday from Mr Rob Henry who was very complimentary of the support that he had received from DED and he said he was very appreciative of the research information support that he had been getting. However, it did seem very little financially, although he had applied to the Federal Government. He said that for a farmer to fill out these forms takes days and then you do not get anything out of it. I do not want to paint you into a corner, but are there any comments that you could make about your policy or your development?

**Mr HURBURGH** - The department's interest in biofuels and alternative fuels is generally driven by the whole-of-government approach to climate change. It is generally recognised, as we have heard, most alternative fuels do offer greenhouse gas benefits and regarding the connection between the Department of Economic Development and industrial development in Tasmania, any opportunity or any new industry which can offer those benefits is obviously something worth encouraging.

**Mr BEST** - I think one of the interesting things that came out was the notion in regard to development of fuels and the way that the Southwood project has been handled. Perhaps there could be some opportunities to help the policy there because it is not laid out and that was the difficulty that Mr Evans was having in a sense. That is how it appeared anyway - that he had all these contacts that potentially would be interested, but there was no clear pathway for that. Maybe there could be some opportunities there.

**Mr HURBURGH** - John's challenges are particularly pronounced because he is dealing with a marine environment and obviously that is a jurisdiction which is subject to very close scrutiny as opposed to an agricultural pursuit where you have a very well-defined block of land. In the case of Southwood you can actually physically identify the infrastructure requirements.

**Mr BEST** - If I could just add to that, I suppose the proposal that he is talking about gets away from the drawbacks perhaps of, say, taking up valuable food space on land. Maybe you are going to say that I am not right in saying that.

**Mr HURBURGH** - The scale of John Evans' ideas is obviously very significant and you immediately run into areas of obstructions to fishing and -

**Mr BEST** - It is huge.

**Mr HURBURGH** - Yes.

**Mr BEST** - He did not get quite that far as to acreages.

**Mr HURBURGH** - I believe that was one of the areas concerning Japan. Obviously you are talking about very large areas and Japan of course is a maritime nation and Tasmania is a maritime State of course.

**Mr BEST** - Yes.

**Ms THORP** - Anyone who was down at the Tasman Peninsula last weekend would know that.

**CHAIR** - David, what is the way forward? I suppose that is a difficult question for you to answer. There are a few balls in the air and we have discussed before that there is no silver bullet but there are options.

**Mr HURBURGH** - Yes. On the CNG front we are hopeful that we are at a point where we can get some real interest. I know that Gary Woodhead of CompAir is particularly keen to see something happening here in Tasmania.

**CHAIR** - So it really needs a bit of leadership, I think, to pull a few people back together.

**Mr HURBURGH** - Yes. I was encouraged to hear the enthusiasm from Hobart City Council as well, and there are a number of other key players by which we could see a sufficient critical mass of potential CNG truck users that would warrant the construction of the necessary infrastructure. One factor that Gary didn't mention but that he mentioned in passing to me yesterday is that there's been a remarkable reduction in cost of CNG compression plants thanks to the uptake, apparently, in India and Pakistan. They have very large CNG public transport fleets, and the compressor stations are now being mass produced. These would be ideal for the needs that we have here in Tasmania.

**CHAIR** - Everything comes from economies of scale, doesn't it?

**Mr HURBURGH** - Yes. The cost of the infrastructure is coming down and Isuzu are shortly bringing out a new range of next-generation of trucks.

**CHAIR** - So if we put CNG there, what else should we be looking at? That's the next question. You've talked about biodiesel, but I think the opportunity seems to be fairly limited.

**Mr HURBURGH** - There seems to be a view out there that biodiesel, under the current technology, will only remain as a niche product. That was my reference to the 5 per cent or 10 per cent levels that have been contemplated. There is no real technical reason why you can't run conventional diesels on suitable quality 100 per cent biodiesel, but if you were looking at substantial replacement of mineral diesel by biodiesel, it begs this question about where you get all your feedstock from.

Again, the big oil companies are looking seriously at synthetic diesel being made from natural gas. I know in Qatar that Shell is investing heavily in what they call a gas-to-liquids plant where a large abundance of natural gas being converted into a diesel equivalent. It is still fossil fuel, of course, going from natural gas to liquids, but I suspect by the level of dollars and the sorts of companies involved that they think they're onto something.

**CHAIR** - And there is the second-generation style.

**Mr HURBURGH** - Yes, indeed.

**CHAIR** - That really seems to be growing some legs at the moment. That is a possibility perhaps for Tasmania.

**Mr HURBURGH** - I know the Canadians, Finns and Swedes are particularly keen on looking at how they can use their forest products to generate biofuels.

**Mr HARRISS** - Taking about LNG, Gunns may have made a pronouncement during the pulp mill debate about their excess power on site, being one of the major needs for converting natural gas to LNG. Have you visited that possibility during that process?

**Mr HURBURGH** - I believe Gunns have looked at LNG as a sideline to the pulp mill, but again it's a commercial matter to which I am not privy.

**Mr HARRISS** - So you have had no discussions with them along the way, as a department, in terms of that possibility?

**Mr HURBURGH** - They are aware of the LNG potential, as are LNG refuellers. How far advanced they are, I am not too sure.

**Mr BEST** - On Mr Evans' submission, I guess the inference is that it's not really likely to be possible to find a suitable area around here. I don't know if there are any areas that are not fished, for example. Do you know roughly, because I didn't actually ask him, what sort of hectares he's talking about?

**Mr HURBURGH** - Large - huge areas. You're talking about hundreds if not thousands of hectares. The Japanese concept is that these kelp farms are actually floating; they are towed around by tugs. I think John might be talking about tethering them, so you actually have a fixed kelp farm as such. That is the challenge - the scale of the operation. Then of course the currents, temperature and nutrient conditions are constantly changing there. The Japanese idea is that you tow the floating kelp farm to where the conditions are optimum during the course of a season.

**CHAIR** - Thank you very much, David,

**THE WITNESS WITHDREW.**

**Mr JEFF DALLAS**, OPERATIONS MANAGER, AND **Mr ANTHONY SIM**, CEO, METRO TASMANIA WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

**CHAIR** - Tony, we invite you to speak to your submission and we will ask you a few questions.

**Mr SIM** - We put forward a reasonably comprehensive submission back in February. At that stage everything that was in there was obviously the way that we saw it at the time. Since then not a lot has changed but we have done a bit more research as we have gone through the year. We said we would be keeping a watching brief on CNG for use as a fuel in the Metro fleet. We have had another look at some of the costings in that. The end result is that for CNG it is still not commercially viable for Metro to go into it. The basic reasons are that we do not have a large take up of the fuel, therefore we do not generate large savings. There is a high cost of set-up for infrastructure; there is also some additional cost for vehicles.

Metro is the largest urban bus operator in Tasmania. We are keen to keep our eye on what is happening with fuels, from the point of view of our ongoing business to make sure that we have sustainability of fuel and also in terms of keeping our costs down. Although we are structured as a State-owned company our requirement at the end of the year is to break even in terms of costs versus revenues. Our revenue streams are basically developed around the ongoing use of diesel fuel. There are certainly some small allocations that go towards capital infrastructure costs but that is mainly set aside for the purchase of buses to upgrade our bus fleet. We do not have a lot of money to spend - I guess that is what I am saying.

We have 220 diesel-powered buses, including 44 with Euro 3 engine technology, which are the last lot of buses we bought over the last few years. Our workshop infrastructure, refuelling, OH&S and trade skills are based on diesel requirements.

Euro 4-engine buses arrive in about April next year. Then we are fairly quickly moving into Euro 5 technology in terms of diesel engines in 2009. The Euro 5 engines are in the Scania buses which we are purchasing. The Euro 5 Scania engine, for example, has equivalent emission standards to a CNG engine, which we all know is very good in terms of exhaust emissions.

The current supply contract with Scania does provide an option to go to CNG but there is an additional cost. We are aware that the joint standing committee recommends Metro convert to CNG. We have done a lot of work since that report, off our own bat and also we worked with Powerco in 2005-06 to look at a costing model for moving from where we are now to using CNG and therefore looking at the potential cost savings and/or benefits that CNG would provide to Metro.

Since then the whole of the bus industry Australia-wide and world-wide is now looking at alternative fuels. The technology is moving fairly rapidly towards all sorts of alternative fuels. The more common ones I have discussed in here: diesel, biodiesel and CNG. The big one emerging at the moment is hybrid technology, basically an electric drive motor that is driven by stored electric charge, and that electric charge is generated

by a smaller motor and so on. It is quite innovative technology and it has certain benefits which I will get to later on.

The capacity to pay for any changes is a very important driver from Metro's point of view. The way we take up the use of an alternative fuel is also important because with different technologies and different fuels there are different requirements for training workshop staff - OH&S training, gas versus liquids, electrical technology et cetera. We assume that we would have to fund any investment through our current CSA revenues and our current capital funding allocations.

We are aware certainly of the greenhouse gas impacts of some of the different fuels. We are also conscious of the fact that the alternative fuels do provide better emissions in some cases than our current diesel fuel technology. Having said that, emissions from future diesel fuel technology are going to be pretty much comparable with gas or biodiesel. Ethanol is probably the one that is going to be the better alternative fuel.

We did a very comprehensive assessment and developed a model for changing from diesel-fuel buses to CNG-fuel buses. Based on the rate of use of CNG, the costs of the infrastructure - whether fixed infrastructure for a pumping station or a distribution facility - and the cost of the buses, with our modelling we did not get a payback within 20 years.

We have since done a bit more work on it because we were concerned, first of all, that we might not have had space, for example, in our Hobart bus depot to fit a compression station because we are fairly restricted with vehicle movements on that site at the moment. Also, we were concerned that because our bus depots were located in a residential area we might not have got council approval for a gas-pumping station. We have worked through that a bit more since January and we have identified that there will be some additional costs, which we have now put into our modelling. We have not had the chance to talk to Powerco about that. We also have not had a chance to get updates - if the price of the fuel, for example, has moved since our last pricing check with them, which was back in about 2005-06. If anything, all I can say is that the case for us to go across to gas is worse than it previously was in that the break-even cost - we talked about \$1.40, I think, in our submission - is now up around \$1.75. That is before we get a break-even in a 20-year life cycle costing.

There is no point in perhaps talking too much about the detail of that. If down the track you want to have a discussion separately with the subcommittee or if you want to refer to that, I am quite happy to make that available. It is a commercial-in-confidence document but we have shared it with Powerco initially, and it may be of some value to you to have a look at that. I am quite happy to arrange for someone to talk about that at a later date.

**Mr BEST** - What was Powerco's opinion on that when you presented it? Did they agree with your findings?

**Mr SIM** - They basically agreed with the first conclusion. It was not as viable as they first thought because there were a number of issues that they hadn't taken into account initially. Once we got the base assumptions right and agreed together and we worked it through in their modelling - they did a separate model to the Metro model - it still came to the conclusion that it wasn't commercially viable for Metro to do it.

**Mr BEST** - I appreciate the fact that you are saying if we want to go through this a bit more we cannot properly do it here. From this, it appears that includes the refuelling facility at an estimated cost of around \$4 million.

**Mr SIM** - There are other costs as well, but that is significant. Part of that is the actual compression station, because we have to compress the gas that comes out of the street to a higher pressure so that we can a greater storage on the buses.

**Mr BEST** - If that item was removed, do you still have \$1.75?

**Mr SIM** - No, that would change the modelling. We have assumed that we would fund it out of our own funds. If someone gave us \$8 million it would change the scenario completely, but there is a significant investment required up front to build the infrastructure. We only purchase new buses at the rate of 10 buses a year, so we could only bring in probably eight gas buses in one year. It would be a while before the fleet built up to a sufficient standard.

**Mr BEST** - But if there was someone who was prepared to bring in a refuelling station, so you didn't have that cost and you could access the refuelling station, or is that not possible? You would have to have your own refuelling facility?

**Mr SIM** - We would want the refuelling station on our site. We don't want to have to take buses off site to refuel. If it was possible to get a joint arrangement that worked for Metro, that could be a possibility, of combining a refuelling site with, for example, a public site.

**Mr BEST** - I don't want to go into commercial in confidence but if you could remove that, where would you be then in comparison with the price of diesel? You say it is \$1.75 -

**Ms THORP** - That's pretty complicated mathematics.

**Mr SIM** - It is a complicated model. If you would like a further submission I can do that, but it is going to take a bit of work. If someone else puts in some investment and takes away the ownership costs, for example, the ongoing maintenance costs, of course it would become viable. But then presumably the investor would charge through the cost per cubic metre of gas so we would pay for it in the long run.

**Mr McKIM** - Not if it was the Government.

**Mr SIM** - If it was the Government yes, but there are other investors as well - for example, Powerco.

**Mr BEST** - We have had one proponent today who talked about \$1.20.

**Mr SIM** - \$1.20 for what?

**Mr BEST** - In comparison to a litre of fuel.

**Mr SIM** - A cubic metre?

**Mr BEST** - It was something like that but he worked it out -

**Mr SIM** - I cannot really comment on gas prices because -

**Mr BEST** - No, but that is what this person said they would do if they had a -

**Mr SIM** - I do not know what the basis of their proposal is.

**Mr BEST** - Sure.

**Mr SIM** - In essence, whoever tips in a lot of money will help the business case stand up but if Metro has to do it on its own but in a commercial manner, that will never stack up under the current scenarios that we are looking at.

**Mr GREEN** - How long does it take to fuel a bus?

**Mr SIM** - We can get what they call 'a fast-fuel facility' which fuels it in about five minutes or something so it is not much different to what we do now.

**Mr McKIM** - That is what they are doing in Perth.

**Mr GREEN** - The issue with respect to filling up on site is a must.

**Mr SIM** - It is essential for us because if we have to run around on the streets and so on it is extra labour costs, we have less control over the safety-type issues, for example, so we would want to have the refuelling station on the site or right adjacent to it.

**CHAIR** - Tony, you are basically saying that other urban transport authorities, aside from Melbourne, are running CNG buses now and the difference between them and Tasmania is purely economies of scale?

**Mr SIM** - There are a number of things. Most of them invested in CNG and probably some of them go back almost 10 years. The real issue I think is that the relativity of the gas versus diesel price was artificially inflated, if you like, because Metro in Tasmania is considered a regional area in terms of the diesel fuel rebate - and I am sure Bryan would remember all this - whereas in the early days Sydney, Melbourne and all the major capital cities were not entitled to that 20 cents per litre rebate or thereabouts - 18 or 19 cents or whatever it is. So when they did their cost justification they had an artificial difference, if you like, compared to what we had, or you could argue the other way that we had an artificial difference because we could claim the rebate so therefore we had an 18 cents differential.

The other thing also is that they were able to get bigger volumes of gas through their fleet. They have larger numbers of buses. We, from an operational perspective, believe that there is an operational risk in going to too large a number of buses committed to gas because once you are on gas if you cannot get supply and you cannot refuel on a day-by-day basis you cannot run buses.

**Mr McKIM** - What is the risk there, Tony?

**Mr SIM** - It is hard to assess but if there is any reason for losing the supply of gas, whether it is the main that comes up the street or -

**Mr McKIM** - The pipeline cracking open or something like that?

**Mr SIM** - Yes, or someone turning a valve off in Victoria and not caring what happens on this side, I guess, or anywhere in the supply chain. Whereas at the moment with diesel - and this has happened before when we have had various strikes and things - we can go to another supplier. We have trucked it in from Burnie to Hobart, for example, when we have had strikes in Hobart and usually there is a supply somewhere in Tasmania, like bulk storage supply outside of Metro, whereas with gas you basically have to take it as it comes down the pipe. There is no big tank of gas that sits down at Selfs Point or somewhere like that.

**CHAIR** - You talked about that environmental advantage or disadvantage and you mentioned Euro 5, Tony. Are you saying that Euro 5 will have no more; it is equivalent to CNG in terms of emissions?

**Mr SIM** - That is right. Scania have an engine that is called a Euro 5EEV, I think, which has a little bit more technology that gets the emissions down closer to gas because Scania have always supplied gas engines and gas buses.

**CHAIR** - There are still particulate emissions though, aren't there?

**Mr SIM** - As far as I am aware, there are still some emissions but I believe the Euro 5 diesel buses have a particulate catalytic converter or trap or whatever they call it in the exhaust, so it reduces the number particulates below that of a standard Euro 5 and obviously a Euro 4.

**CHAIR** - Sorry, I have interrupted your train of thought, but Hobart also being hilly terrain, is there an issue with -

**Mr SIM** - Yes, there certainly is with gas, for example. With gas the rate of consumption varies with the load you put on the engine. With diesel that occurs to some degree, but it does vary. It varies to a greater degree, I am told, with gas. That is what our research has led us to believe.

But without even taking that into account, when we did our modelling, for example, we assumed a constant rate of consumption which was based on experience interstate. We are aware of the technology and some of the issues, but we are certainly conscious that it has environmental benefits. It is really the cost of introducing it that has been the inhibitor to us.

I don't know whether you want me to talk more about that but the other fuels that were of interest to us, I guess, in the future include ethanol. Ethanol is one that is emerging in Europe, particularly. I know that Scania, for example, are doing a lot of work. They have buses running in operations throughout Scandinavia. They have five buses running on ethanol in Victoria - they have been running there now for a while. The issues with that are that there are still some costs in transferring across to the fuel but it certainly is

not as expensive as transferring to gas. From Tasmania's point of view, there is the supply issue. In Victoria they have ethanol production plants, which basically take sugar molasses from Queensland and convert it to ethanol.

My view on ethanol production is that I think this State could probably look at developing the technology that could produce ethanol, maybe from forest products, wood waste, whatever. I know that the technology is fairly new and there is still a lot of experimental work going on with it but, from our point of view, if we can get a sustainable supply from our own State, that is a fantastic outcome for the State. It also gives us some assurances that we have a bit more control over fuel supply. It is a bit the same with biodiesel, again a crop-based fuel. We have been trialing that now for over a year in a couple of our buses at Metro. We have been using two or three different mixes. We have a blend at the moment of 20 per cent of the biofuel plus 80 per cent diesel so they call that B20 fuel. That has been working very successfully in our buses.

Basically with our Scania buses we can just tip it in the tank, literally, and it doesn't affect the buses, it doesn't have any detrimental effect on the engine. Everyone thought there would be fish and chips smells coming out of the exhaust pipe, but there aren't. Our drivers were quite supportive of it; there was no loss of power, for example, as was tipped might happen. But again it relies on the supply - having a sustainable supply and also a consistently reliable supply in terms of the mixture because the mixture varies depending on the feedstock which are put in to make the biodiesel. We had experience over this winter where we had some pure biofuel in 44-gallon drums at the depot and when it got cold it basically solidified because its cold, clouding point, or whatever it is called, was too high. It was about nine degrees and once it got below nine degrees, it becomes relatively thick, I suppose, not solid. But we can get around that by mixing it with diesel so when you mix it with a B20 mix, of course, that solves the problem.

We are still doing some trials with that and over the next six months we will try to do some more buses. We currently have about two buses running on it. We want to extend it to a few of the other buses in the fleet. In particular I would like to try a couple of the later model buses. Scania are now saying that they support the use biofuel blends and also 100 per cent biofuels in their new buses - so for Euro 4 and Euro 5.

**CHAIR** - There are no warranty issue there.

**Mr SIM** - No warranty issues at all. So that is biodiesel.

I guess the one that is coming up as interesting to us is the hybrid technology. Basically you have an engine that is either charging batteries or generating electricity to drive an electric motor which is attached to the driveline of the bus. Because it also has regenerative braking, as you put the brakes on in the bus it generates electricity from the energy that is being taken out of the bus's momentum. Effectively you are using less fuel to generate the power to drive the bus. With the technology that Scania has they still have a large engine but because it does not run on time it does not work as hard. They are claiming that they can get for the same sort of operation between 25 and 40 per cent reduction in their fuel cost. You pay more for the bus at this point in time but obviously as technology improves that will come down.

To me that means we are going to be burning less fuel if we are using one of those buses. That is good for the environment and good for our costs because we do not have to buy as much fuel. I am not sure what it does to the capital purchase costs yet because it is still about two or three years away before they get it into commercial production. Certainly all the manufacturers in Europe are going that way and the basic principle is use less fuel, less impact on the environment, particularly greenhouse gases and you can use different sorts of fuels to fuel that engine. You could, for example, have an ethanol-fuelled generating engine, which is using less ethanol. Because it is basically a biofuel, ethanol is cleaner than diesel and gas. That is the way they are heading and they believe that in probably three to five years they will have these technologies commercially available for public transport fleet servers.

**CHAIR** - And for transport fleets as well? Does it follow there as well?

**Mr SIM** - I would think so. Obviously we have been dealing with the bus people. I think it would carry over to the heavy vehicle industry.

I think you know as much about emissions as I do. We have always been trying to keep up pace with the diesel emissions technology.

**CHAIR** - You make that interesting comment there in point 2 that CNG has a greater greenhouse effect than -

**Mr SIM** - Yes, because it has methane I think which is a greenhouse gas. I do not think it has much carbon dioxide so basically water I think comes out the exhaust pipe.

**Mr MCKIM** - Yes, water is a by-product but I do think it has got some other emissions as well.

**Mr SIM** - The other thing too is that the Europeans have a target to reduce their emissions by 20 per cent. They are basically saying that any fuel and its manufacture right through to vehicle, in the whole chain -

**Mr McKIM** - Well to wheel.

**Mr SIM** - Yes, well to wheel. In terms of greenhouse gases, if you look at that well to wheel for all the different sorts of fuels then certainly the biofuels are probably a bit ahead in

that area. I guess from a business point of view we really do not know what impact some sort of carbon tax will have. I presume there will be some impact if the Federal Government introduces some sort of carbon tax or greenhouse tax for the sorts of fuels you use, going forward. Over the next few years you can see that all the excise relativities are changing. In so many years every fuel will be comparable right across. What happens beyond there we do not know and I guess that is where the greenhouse tax will come in so that the higher greenhouse gas producing fuels, such as diesel for example, will have a higher tax put on it compared to something else. So going forward we want to keep those sorts of things in mind.

**Mr McKIM** - I can hardly wait myself, but anyway. Seriously I cannot wait; it has been far too long coming.

**Mr SIM** - I think we would all agree with that.

**Mr McKIM** - That was not a comment about Metro or anything else, it was just a general comment. Could I ask some questions if I might about your submission? I wanted to ask you about your contract negotiations with the Government. I think you said that your submission was dated February this year and in it you said that you were in the process of developing a new long-term service contract, which you have indicated will come into effect from July this year. You made that comment off the back of some discussion in your submission about financial implications of any change from diesel to alternative fuels. Were your concerns taken on board during the discussions and are they reflected in the final contract?

**Mr SIM** - No, they are not reflected in the final contract. In fact it relates to the fact that the Metro index that provides for an increase is still based around bulk diesel delivery supply. So we have not progressed that.

**Mr McKIM** - So you thought there was a need to ensure that correct mechanisms were in place to encourage Metro to invest in alternative fuel technology when the circumstances were right. Despite your talking about your new long-term service contract with the department, can I be clear that you did put to the department that you thought that there was a need to ensure that the correct mechanisms were in place but the department actually disagreed with you?

**Mr SIM** - No, the department has not disagreed with me. There are two points. You are talking about the long-term contract. Currently we have what is called an interim contract, which was supposed to commence on 1 July - in fact we are just about to sign it, so it has not technically started yet. Originally that interim contract was supposed to go to 30 June 2008 and then following 30 June 2008 we were going to have what we called a long-term contract that was supposedly similar to what was being offered to all other bus operators in Tasmania. That was a five plus five version. We have not started negotiations on the long-term contract yet. So maybe it is not written very clearly.

**Mr McKIM** - I am just a bit confused about it.

**Mr SIM** - What page are you on?

**Mr McKIM** - Page 10 of your original submission - the second last paragraph. It says pretty clearly there that 'these matters' - which I take to be ensuring that the correct mechanisms are in place to encourage Metro to invest in alternative technology - are currently being looked by Metro and the department as part of the process of developing a new long-term service contract to come into effect from July this year.

**Mr SIM** - I think they were probably discussed at officer level. Without talking to Jack Lane, who negotiates our contracts, I think I can say that it was agreed that if we went down the path of changing fuels we would also have to reconsider the Metro index because the Metro index is geared to the price movements in diesel. So, for example, if another alternative fuel did not move as much as diesel, then depending of the proportion of the two fuels, obviously the Metro index, which covers all our costs, would not move as much as well. So I think that it was agreed in principle at officer level that we would have to work that through but we have not gone to a lot of detail on that.

**Mr McKIM** - The reason I ask is that you have identified it as quite a clear impediment in your submission and yet that impediment now still remains subsequent to an opportunity to remove it - which was the contract negotiation. I am a little bit surprised at what you say about it.

**Mr SIM** - There is still the opportunity. It certainly has cost implications because the view was that by going to gas that we would actually save on our cost of operations because the fuel would be cheaper. That is simplistically and without taking into account the cost of the infrastructure and so on. So we presume that under our contract the department would want to take the benefit of the savings. They would not want to be still paying us at the rate that they would be if we were still using 100 per cent diesel. So there would be some sort of negotiation needed to get to a more appropriate indexation method, rather than just continuing on the basis of the price increases on fuel, for example.

**Mr McKIM** - I also wanted to be clear about the exact situation in relation to the work that you did with Powerco where you were working closely together to, I guess, have a look at the business case for alternative fuels, including CNG. You said in part of your submission that there were some differing assumptions early in the relationship with Powerco that lead to some differing conclusions to be formed, but then on page 3 you have stated that by October 2006 Powerco and Metro reached a position where there was general agreement about the assumptions.

**Mr SIM** - Yes.

**Mr McKIM** - Those assumptions I understand from reading that paragraph underpin an analysis that CNG would be commercially attractive at above \$1.40 a litre for diesel, and I accept that now in your view has changed to \$1.75, so I do understand that. The slight confusion I have arises from viewing statements you have made on page 6 where you say, 'It is acknowledged that Powerco, using the same spreadsheet and basic assumptions, have reached a more optimistic view about the attractiveness of CNG as a bus fuel'. The page 3 information seems to imply that it is the result of any differences of opinion with Powerco but page 6 seems to indicate that Powerco still holds a different view to Metro, so I am wondering if you have the information at your fingertips that would explain that apparent discrepancy or you might be able to provide it later.

**Mr SIM** - One of the reasons that they had a more optimistic view about conversion to CNG was that they had not taken into account in their modelling originally the changes in excise. They had not taken into account things we have since identified, like site development costs. They assumed that we would convert our whole fleet to CNG, and we said, no, from an operational perspective we would not do that. We believe that going to more than say a third of the fleet, for example, is -

**Mr McKIM** - I understand what you are saying in that case, Mr Sim, but I am still a bit confused about whether there is any difference in views between Metro and Powerco, because that paragraph at the bottom of the dot points on page 6 makes it pretty clear in my view that there is still a difference in opinion about the attractiveness of CNG as a bus fuel between Powerco and Metro. Am I reading that incorrectly?

**Mr SIM** - They may have a different view. I do not dispute that. All I am saying is that we have done a very sound commercial assessment. We have consulted with Powerco. We got all the set-up costs from them. We have done research about all the operating costs from other gas-bus users; we did that ourselves so we are confident about that information. We know about the maintenance costs ongoing with the fleet and we have done that from our own research. I guess this is saying that Powerco did not appreciate some of the differences with the fleet environment in Tasmania.

**Mr McKIM** - Yes, but they could be described as assumptions that underpin your modelling, couldn't they?

**Mr SIM** - Yes.

**Mr McKIM** - On page 6 you say that Powerco, using the same spreadsheet and basic assumptions, have reached a more optimistic view of the attractiveness of CNG as a bus fuel. To me that says that you have agreed on the assumptions - your operational constraints, the excise issues and so on - but they still have a more optimistic view. So to me that says that we, as a committee, ought to become aware of what the differing views are and why they are differing. I am still not clear on that.

**Mr SIM** - I can't speak for Powerco. At that time that we were just coming off high diesel fuel prices. No-one can predict what the price of diesel is going to be tomorrow. However as we were coming down off the highs we were starting to get more information from people like BP, who supply our fuel, that there was going to be a bit more stability in the prices that we probably would not see high increases like we had a year-and-a-half or two years ago. Powerco were very much of the other view, that you had better do something now or you will get caught out the next year or the year after.

**Mr McKIM** - With rising fuel prices.

**Mr SIM** - Yes. They are very much of the view that we should do that to shore up a position now.

**Mr McKIM** - So it was risk management.

**Mr SIM** - A risk-management strategy more so than a commercial and financial strategy. I guess that have a more optimistic view of the world.

**Ms THORP** - Or pessimistic.

**Mr SIM** - Or pessimistic. We have not had any discussions with Powerco since we compared our models and we agreed on the assumptions.

**Mr McKIM** - And this was the model prepared for Metro by that consultancy -

**Mr SIM** - McCormick Rankin Cagney.

**Mr McKIM** - Yes. Is that the modelling?

**Mr SIM** - That was the modelling that we did in conjunction with them.

**Mr BEST** - When did you do that modelling?

**Mr SIM** - I believe it was 2005.

**Mr BEST** - When did Powerco do that appraisal?

**Mr SIM** - I said in this summary that I handed out earlier that we started our investigations with McCormick Rankin Cagney in 2004-05. Then we got together with Powerco in 2005-06, so notionally nine or 12 months.

**Mr BEST** - We had a submission put in today from Mr John Isaac, Manager, Greenhouse & Ship-Sourced Pollution, Environmental Policy and Business, and he has provided a copy of the Australian Government AGO Factors and Methods workbook on emissions. I was just overlaying that with your findings here on the overview sheets. There seems quite a variance in his findings regarding natural gas and the second dot point where you say, 'CNG has a greater greenhouse effect than ultra low sulphur diesel when considering its methane content as well as the total energy requirement to distribute it and compress it'. From where would you have extracted those figures?

**Mr SIM** - That would have come from the European manufacturers. That particular figure probably would have come from Scania. If you researched the UITP web site, which is the Union International of Public Transport, they will have a bit on the greenhouse gas emissions of different fuels. Mine is based on research but not perhaps the level of research that that report relies on. The greenhouse gases that are produced to make the pipes that take the gas from Victoria to here would come into it, for example, so this well-to-vehicle principle comes into play. It is not just the burning of the actual gas or diesel. In the case of diesel there is also transport costs, for example. There is a lot of literature around on greenhouse gases. I am sure Mr McKim knows more about it than I will ever claim to.

**Mr BEST** - Yes, sure.

**Mr SIM** - And there is a lot of conflicting information I guess as well to some degree so, at this point in time, it is difficult to draw a conclusion but our experience is to be conservative, either wait and see what happens elsewhere -

**Mr BEST** - Yes, you have to make a decision, don't you? I am not trying to trap you here.

**Mr SIM** - No, I understand that.

**Mr BEST** - It seems to me that there are a few -

**Mr SIM** - But I haven't seen that report either.

**Mr BEST** - No, that is okay, I think there is a copy of it you can probably get from us. What is the philosophy then at Metro, is there some excitement at all about alternative fuels or is it something that you feel that you have been asked to do and you don't really want to go there?

**Mr SIM** - No, there is some excitement. We think that we have to develop strategies to maintain sustainability of supply, for example, that have a minimal impact on the environment within our capacity to buy either the technology or support the fuel - ongoing costs - and we still are keeping a watching brief. If the price of diesel went through the roof in the next 12 months and stayed there, the model would be completely different. We would then have issues about where do we get the money to invest still. I know that previously when we discussed it, the Government basically weren't, at that stage, able to commit to funding the purchase of the infrastructure, for example.

**Mr BEST** - So if somebody came and knocked on your door and said, 'We'd like to put a refuelling station here', would you be excited about that or would it be, 'Oh, we've got more things to work out through this'?

**Mr SIM** - No, provided at the end of the day there were benefits in it for Metro, financially, I suppose, and operation costs. We do not want to go to a fuel that is going to cost us more to purchase because someone has invested in the technology to deliver it.

**Mr BEST** - Yes, it has to have a result for you.

**Mr SIM** - That is the BOOT concept - build, own, operate and transfer - that someone else does it.

**Mr BEST** - I might be interpreting this the wrong way but it seems to me that you are not really that enthusiastic about - and I am probably wrong so tell me if I am wrong, but you don't seem -

**Mr SIM** - I am enthusiastic to the extent that we are keen enough to keep looking at the technology so we are going to get some more feedback on hybrid vehicles - I think that is important - ethanol -

**Mr McKIM** - Do you want to borrow mine for a week, Tony? When I say 'mine', I know it is a fleet vehicle but you are welcome to give a try if you want to.

**Mr SIM** - No, we do have some enthusiasm. Primarily we have to transport people. We are not a research and development department so we have really got to wait until it is commercially available off the shelf, almost. However, that is not to say that we can't

keep an eye on things like hybrid vehicles, ethanol, biodiesel. Biodiesel was an easy trial for us to do and that is why we did it; otherwise we would not have done it.

**Mr BEST** - Sure.

**Mr SIM** - It didn't cost us very much at all. With CNG, we are aware of the environmental benefits but it is a costly changeover.

**Mr BEST** - You are all flat out trying to keep the services operational and that sort of thing, it is a bit of draw, isn't it, to get another draw of resource and energy to try to pull some of this together. You need someone to come in and offer you some ways through this.

**Mr SIM** - We are trying to do it within our financial capacity and we believe that over the last 20 years we have introduced cleaner technology, innovative technology at a faster rate than certainly any other bus operator in Tasmania and probably faster than a lot of truck operators in Tasmania. I think the most exciting thing for me, for example, is biofuel. You could clean up the whole of the Tasmanian heavy vehicle fleet overnight if you introduced biofuel instead of diesel.

**Mr BEST** - And what percentage is that?

**Mr SIM** - Sorry?

**Mr BEST** - Is that a B2?

**Mr SIM** - It could be a B2. I know BP are talking about introducing that early next year but if you introduced a B20 it would clean it up even more. If you introduce B100 it would clean it up totally and it would be an industry that Tasmania could potentially get other gains out of economically.

That is the excitement to me, to go to fuels that give us more benefits than just fixing up one aspect of Metro's fleet. I think ethanol, biodiesel and the hybrid technology are certainly going to be the emerging technologies.

**Mr McKIM** - I think you said earlier, Tony, that you had had a look at some of the experiences of other bus fleet managers in Australia while you were having a look at CNG. Are you aware whether any State governments have invested with some seed funding to underwrite some of the infrastructure requirements of CNG?

**Mr SIM** - All the other large bus operators are government agencies, if you like, that are funded by their respective governments. There was a Federal grants scheme that was running until recently, when the funding ran out, for 50 per cent of the infrastructure set-up costs. Our last information was that there was no further funding available from that.

If you look at other privately owned bus and truck operators there is not such a great move to gas. I know the trucking industry is talking about liquid natural gas. That has its own issues, I guess, but certainly the government funding arrangements in other States have helped kick off gas as a fuel for urban transport.

**Mr McKIM** - Including publicly owned public transport businesses such as yours?

**Mr SIM** - Yes, publicly owned. Sydney buses, for example, which is one of the biggest gas users, is the old department of transport or whatever they were called - the State transport authority -

**Mr McKIM** - But they are not a private sector company now are they?

**Mr SIM** - No.

**Mr McKIM** - They are a quango, if you like; they are a GBE/SOC model?

**Mr SIM** - I don't know. I think they are more like the State Rail Authority.

**Mr McKIM** - So they are almost like a part of a department?

**Mr SIM** - I think they would be.

**Mr DALLAS** - I know that their gas plant has been bought or supplied by a supplier and he charges them a premium on their cost per litre of gas.

**Mr McKIM** - In order to underwrite the infrastructure?

**Mr DALLAS** - Absolutely.

**Mr McKIM** - So they are underwriting it themselves in effect by higher fuel costs?

**Mr DALLAS** - Yes, exactly.

**Mr McKIM** - Okay, thank you.

Were assumptions along those lines used at all or considered at all by Metro when you were looking at CNG? Did you look at whether if that kind of model was adopted it might make CNG more attractive to you than if that model were not used?

**Mr SIM** - It depends on how it is funded. If it is funded through our contract with government so we paid for whatever it is that the premium to set up the infrastructure was based on, the fuel price of so much per cubic metre or whatever it is, the operating costs would be greater initially to the fund the infrastructure set-up. The other way to do it would be to invest - for example, Metro to borrow a heap of money, invest it and then try to get it paid back over the following  $x$  number of years. The third way is to go to the Government or a government and say, 'Hand us over \$10 million and we will do it', or \$6 million or whatever it is.

**Mr McKIM** - And we'll use that to seed fund?

**Mr SIM** - Yes. Then I assume that the Government would want a return just like -

**Mr McKIM** - Not necessarily.

**Mr SIM** - Well, I am sure they would want to see savings in our fuel costs.

**Mr McKIM** - I am sure but you could deliver that quite easily, it would seem.

Thank you for your answers. What I was trying to explore is that obviously in some of the other jurisdictions there is a capacity for a department or for a larger section of government to possibly allocate some of its resources towards seed funding and this kind of thing, whereas you do not have that capacity the way Metro is structured.

**Mr SIM** - We do not have the capacity but when those other States did their model, as I said before, their fuel price relativities were greater because they did not get the benefit of this 18 cents rebate -

**Mr McKIM** - I understand that.

**Mr SIM** - so they set up their infrastructure and once they had set up the infrastructure then you can get to a critical mass of whatever number of buses.

**Mr McKIM** - Yes, I appreciate that.

**Mr SIM** - Once you have set up the infrastructure they have invested in it so they will obviously keep buying gas buses until they have used up the full capacity of that bus depot.

**Mr McKIM** - Just finally, can you confirm that you did not factor in the near certainty - in fact the absolute certainty - that there will be a price attached to carbon at some stage in the near future?

**Mr SIM** - No, we do not know enough about it yet.

**Mr McKIM** - You know it is coming; you just don't know what it is going to be.

**Mr SIM** - We know it is going to happen, but when.

**Mr McKIM** - By the way that is the same thing that businesses right across the spectrum are telling us now - that there is no certainty in that area in terms of what costs will be and they are finding it very hard to make investment decisions.

**Mr SIM** - It is hard to make investment decisions. I guess we are no different.

**Mr McKIM** - Fair enough.

**Mr GREEN** - Somebody may well have asked you this already I am not sure. I think I heard Brenton talking about leadership earlier on. On the question about economies of scale - and I am interested in Metro wanting to have the compressor on site - do you think it would be appropriate or within the bounds of possibility that Metro might be able to talk to other parties - say, for example, the Hobart City Council - about forming a partnership plan where you might have a joint fuelling station specifically for those two organisations? Would that sort of outcome be reasonable? I know that it is off-site but I

am just asking whether you might entertain it to get the economies to scale. Unless we get partnerships going, we will not get economies of scale.

**Mr SIM** - The trick is to get the economies of scale in order to spread the infrastructure set-up costs. We certainly have not explored partnerships. I know that some councils are looking at gas. I know that on our Springfield site there is probably some capacity to have a joint fuelling facility, but it would need a lot of planning work. We have not done that because we are bounded by residential areas. I am sure that the councils would not want trucks fuelling on Tregear Street, for example. All that sort of stuff needs to be considered. I think that is getting beyond our capacity to do that in total. We can participate in it, but it needs someone to pull it all together.

**Mr GREEN** - I think the corporate entity involved ought to be doing the pulling together of it. All you would need to do is involve yourself with other work-minded people thinking about trying to get an outcome, as opposed to waiting for it to all happen.

**Mr SIM** - We would have a vested interest, I guess, in making sure that operationally it worked for us. As I said before, the reality is that if it were adjacent to our site or on our boundary or somewhere like that, it would probably work really well for us.

**Mr GREEN** - You can easily do it by manifolds –

**Mr McKIM** - Or Metro could develop a CNG retailing business.

**Mr DALLAS** - Absolutely.

**Mr McKIM** - There is some thinking outside the box for you!

**Ms THORP** - In terms of Metro having a funding stream to fund a lot of these ideas that have been coming up, how would it work? Would it give you sufficient dollars if, for example, with the contracts that you sign for bus service provision you still kept getting money as if it were diesel for an extended period and kept the difference?

**Mr SIM** - We would love to do that as long as we could spend it how we liked. But I don't think that the Government would -

**Ms THORP** - It would help with the cost of converting buses or buying new buses and that sort of thing.

**Mr SIM** - If you are talking about the savings being used to fund the infrastructure set up, that is the principle. On the modelling that we have done, we do not get a break-even in 20 years unless the price of diesel -

**Ms THORP** - But you said earlier that the people to whom you providing the services to would expect to see a cost benefit if you went to CNG. On the understanding that you are going to use the money for alternative fuel, whoever that person or entity might be, could say, 'Even though it is not costing you that much and even though we have worked out the contract price based on diesel, we will give you a window of opportunity here to use the difference that you will accumulate to fund other things you need to do.'

**Mr SIM** - The point that I want to make again is that based on the modelling we did, which is over a 20-year life cycle of comparing diesel with CNG, by 2014 we start to generate savings by using 50 buses on gas. But the accumulation of savings from that year until the twentieth year is not sufficient to actually pay off the debt, so you do not actually get money in your pocket to spend.

**Ms THORP** - I thought I had come with a really good idea then.

**Mr SIM** - Yes, you don't actually get money in your pocket to spend on something else, so it really needs either an upfront injection and a handover of the facility for no cost, if you like, before you get some savings.

**Ms THORP** - What if the contract price kept going on with the price of diesel even though you were using CNG? If it were linked to the increase in the price of diesel, you would gain the advantage then of pre-empting, if you like. Can you see where I am coming from?

**Mr SIM** - Yes, I think I see where you are coming from.

**Ms THORP** - It's a woman's head, you see, thinking laterally.

**Mr SIM** - Don't forget we will still have vehicles that are using diesel so their price of diesel will still be going up so we will have to keep our revenues aligned with our costs. We would want our revenues to increase matching those remaining diesel buses.

**Mr HARRISS** - Yes, they run parallel.

**Mr SIM** - They will be running parallel to the gas buses so that the component of gas buses would certainly be generating some savings but they don't generate enough savings to pay off the cost of the infrastructure.

**Mr HARRISS** - Sleep on that lateral thinking.

**Ms THORP** - I will, I will keep thinking about that one.

**Mr McKIM** - I wondered whether the committee would like to accept the generous offer to share the analysis spreadsheet under a commercial-in-confidence basis that Tony made earlier. Sue, are we able to accept something on that basis, that it is a commercial-in-confidence document so it wouldn't then form part of our report?

**Ms McLEOD** - If the committee decides that, that is fine.

**Mr McKIM** - I would like to move that we ask for that document on that basis, that it is commercial-in-confidence so the information contained within it won't form part of our final report. I think that takes care of any confidentiality.

**Mr SIM** - Can I suggest that we explain it to you as well because just handing it over to you -

**Mr McKIM** - A bit dangerous, do you reckon?

**Mr SIM** - No, it's not dangerous, but you probably won't understand it. Once you understand how it is modelled, that is a different matter. We talked to DED about it, I think, at one stage - and I know you have seen the gas modelling.

**CHAIR** - If we can resolve that that is what we want to do, we will come back and we will do it in an appropriate manner.

**Mr SIM** - What sort of time frame are we talking about?

**CHAIR** - We have hearings again next Monday. We would want to do it in the next couple of weeks or something if we could, wouldn't we?

**Mr SIM** - Can we leave it until November, is that possible?

**CHAIR** - Leave it until November? Yes, that is all right.

**Mr SIM** - The other thing is if there is some information we can help with with the other fuels, I have elaborated in general terms. I do not have any more detail than you can research yourselves, but I am quite happy to explore some more information. For example, we talked about some information that we got from Scania. I am sure that they would have some information. We could facilitate that.

**Mr DALLAS** - Can I say something quickly?

**CHAIR** - You may.

**Mr DALLAS** - I guess we are excited about alternative fuels. The other things that we are working on include: using less fuel and using it more effectively, aspects of direct running, things about driver operations - you know, accelerating - the number of bus stops. If you use less of whatever fuel you use, you are actually getting some good goals. We can listen to different providers and the guy selling the gas is going to tell you it is a good deal and the guy selling you the biodiesel will offer you another deal.

So I guess you get mixed feelings about what you do, but the things we can actually control and influence straight away are about driver performance, idling time, and direct running so that we are not doing runs that are not necessary. Those are the things that we are focused on operationally. More of these assessments are important for us in the future. In my view I do think hybrid is where we should be going. It talks about less fuel all round - irrespective of what it is, there is just less of it. So we have some challenges in our own little business. We are excited and I think we are involving the work force very well in that sort of stuff.

**Mr SIM** - I guess the other point to make is that there are other ways of reducing the fuel usage generally in the community - encouraging people to use public transport. How do we get them on the buses and out of their cars? That is exciting strategy we are always trying to work on.

**CHAIR** - It's all right for you urban dwellers. Sorry, we will not go down that path. Thank you very much, gentlemen.

**THE WITNESSES WITHDREW.**

**ENVIRONMENT, RESOURCES AND DEVELOPMENT - INQUIRY INTO 81  
ALTERNATIVE FUELS, HOBART 10/10/07 (DALLAS/SIM)**

