

ECONOMIC DEVELOPMENT AND INFRASTRUCTURE COMMITTEE
Inquiry into greenfields mineral exploration and project development in Victoria

Melbourne — 26 September 2011

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Mr M. Miller, Managing Director, Greenerth Energy Ltd.

The DEPUTY CHAIR — Welcome to the Inquiry into greenfields mineral exploration and project development in Victoria by the Economic Development and Infrastructure Committee, an all-party parliamentary committee. All evidence taken today is protected by parliamentary privilege. Comments you make on the record will be so protected, but comments made outside the hearing are not afforded such privilege. Could you state your full name, business address and whether you are attending the hearing today in a private capacity or representing the organisation Greenerth Energy.

Mr MILLER — My name is Mark Miller. I am the managing director, Greenerth Energy Ltd. Our address is Level 14, 500 Collins Street, Melbourne. I am here in my capacity as Managing Director of Greenerth Energy Ltd.

The DEPUTY CHAIR — Thank you Mark. Your evidence is being recorded, and in due course the transcript will become public. We invite you to lead us through your submission.

Overheads shown.

Mr MILLER — What I thought I would do was give you an introduction to geothermal, and the reason for that is that there is a lot of misconception about geothermal, in particular the geothermal system types. I would also like to address the benefits that geothermal can bring and then finish up with a slide which talks about some of the barriers so far as development of geothermal projects and the industry as a whole in Victoria is concerned. There is a lot of company information in here that I am basically going to skip through. I will stop on the slides that I think will be most relevant to you to inform you a little bit about the science, a little bit about the potential, as I said, and then some of the barriers.

This slide shows a requirement by the ASX, which you are probably all very familiar with. As geothermal explorers we are also required under the geothermal reporting code to identify competent persons who sit outside of our organisation who provide us with input and counsel in particular with respect to any estimates that we provide of a geothermal nature. Our two competent persons are James Vincent Lawless, who has assisted us with the Geelong Geothermal Power Project and Dr Graeme Beardsmore, who has assisted us with an inferred resource assessment of the Greater Geelong area. They are two project areas that I will touch on briefly throughout this session.

I will tell you a little bit about Greenerth Energy. I am not going to dwell on this, but we are a publicly listed company. We listed in 2008, and we are now a diversified renewable energy explorer. Our single focus is not on geothermal, and we can explore the reasons for that as we proceed through the preamble. The board and management are detailed in the document as well, and just as a backdrop, really, our corporate strategy is identified for you. It talks a little bit about where we are looking to develop some of our projects across a broader clean-energy, renewable and energy efficiency platform as opposed to specifically with respect to the geothermal space at this point in time.

I would like to stop here and give you a 101 of geothermal. Basically we are mining heat. We involve ourselves in exploration activities, but we are principally looking for heat, either in the form of hot water or steam, depending on the geothermal resource type. Geothermal has been utilised for centuries, but it was in 1904 in Lardarello in Tuscany, Italy, that the first geothermal power station was commissioned. It is not necessarily a new science, but today it is considered to be one of the leading baseload renewable technologies around the world. In Australia we no longer have active volcanoes, which some people think is a good thing, but as geothermal explorers we are a little sad about that geological fact.

However, today in Australia we are exploring for two types of geothermal systems. One is hot sedimentary aquifer geothermal systems, and the other is a term that is becoming a euphemism for the entire industry, hot rock geothermal. You have probably heard the expressions hot rock or enhanced geothermal systems or engineered geothermal systems. They are vastly different system types, and I will talk a little bit about them. Basically geothermal energy emanates from the core of the earth. The core of the earth is the world's largest nuclear reaction. It has been going for a long time, and we hope it continues to go for a lot longer.

The key advantage of geothermal as opposed to other renewable energy types is that it is baseload power. It is a renewable energy type with zero emissions that runs 24/7. We are not required to have a sunny day or to have our hats blown off by the wind for this energy source to provide zero emissions baseload electricity. There are

some other social and market benefits associated with geothermal, but the key consideration here is baseload power.

The next slide shows the three geothermal system types that are operating around the world. To the right you will see a descriptor called 'enhanced geothermal systems'. This is the predominant exploration type in Australia at this point in time. It involves the location of deep bodies of rock that are being superheated by the core of the earth. These bodies of rock do not generally contain water in place. The bodies of rock are drilled into and fractured to create what we call an artificial heat exchanger at depth. Water is pumped down a single well or multiple wells, and then hot water or steam is returned to the surface to spin a turbine to produce electricity. These are what we call enhanced or engineered geothermal systems. They are not naturally occurring systems. It was work done in South Australia about 10 years ago which identified that EGS or hot rock geothermal — enhanced geothermal systems — were highly prospective in Australia, and much of the industry in its infancy was focused on this type of geothermal system.

The system type to the far left of the slide is the traditional geothermal system type that we see being successfully explored and developed around the world. They are volcanic systems. Geothermal is particularly prevalent in places like Indonesia, the Philippines, New Zealand, North America, South America more recently and in parts of Europe. These systems tend to operate at higher temperatures. The heat is near the surface, and you can often see what we call visible expressions of that heat. You might be familiar with the springs at Rotorua in New Zealand and places like that. So high temperatures close to the surface mean it is more readily and more cost effectively explored for and developed than, necessarily, some of the systems that are in place in Australia, which are deeper systems.

There is actually a depth scale on the charts, and you can see the volcanic systems somewhere in between the 1 to 2-kilometre depth scale. By and large the enhanced geothermal systems are in and around the 4 to 5-kilometre depth scale. The system type that sits in the middle is what we call a hydrothermal system type. It is identified as hot sedimentary aquifer. These are bodies of rock that are contained at depth, principally things like sandstones that contain water in situ and that are being heated by the core of the earth. Explorers seek to identify these bodies of rock, drill down into them and then bring the hot water to the surface to again spin a turbine.

A requirement here in Victoria, as in the other states in Australia, is to return the water you bring to the surface back down into the aquifer system so that the pressure and the integrity of the aquifer system is maintained. We have a requirement to, and we are happy to, ensure that none of that water that comes to the surface is exposed to the surface and that it is returned back down into the aquifer. Typically these systems exist at a depth of somewhere between 3 and 4 kilometres, so they are a little deeper than the volcanic systems we see operating around the world and in instances that are not necessarily as deep as some of the enhanced geothermal system work that is being done in Australia at the moment.

So far as Victoria is concerned, Victoria is highly prospective for hot sedimentary aquifer geothermal, particularly in onshore Gippsland, the Latrobe Valley and in the Otway Basin, which is all basically a single geological basin that was formed millions of years ago. As a result of processes that took place way back then, these bodies of rock are actually contained across both the Gippsland and Otway basins. Greenerth Energy, along with other Victorian explorers, is actively pursuing hot sedimentary aquifer geothermal. The belief is that it is quite possibly going to be the system type that is developed sooner in Australia than the EGS system type for reasons of accessibility in terms of depth from an above-ground plant today — in other words, the turbines do not require such high temperatures to be efficient and we can utilise these in hot sedimentary aquifer systems. As you can imagine, the onshore Gippsland, Latrobe Valley and Otway Basin areas are all proximate to existing grid infrastructure, so developers and governments are not required to put in a grid that is possibly going to transport electrons from a geothermal power station in the centre of Australia to the market. There are a number of reasons why hot sedimentary aquifer geothermal is considered to be an immediate starter as far as the development of the industry is concerned.

I am going to skip the next couple of slides because they pertain specifically to a project and I did not want to get bogged down in details with respect to our specific project other than to say that our project north of the brown coal-fired power station at Anglesea is a hot sedimentary aquifer geothermal project. It has been awarded both federal and state government grants for both the exploration stage and the demonstration stage of the project. We continue to work at developing the Geelong Geothermal Power Project. We have an MOI in place with Alcoa Australia, which is a potential enabler for the project to go forward, so this is obviously an important

thing for this flagship project. We are about to continue further work with respect to the Geelong Geothermal Project and conclude negotiations with the Victorian State Government around the ETIS grant we have received.

I will stop at this slide to give you an idea of how these things work. Essentially that is a 200-metre by 200-metre block of land, so it is about 4 hectares in size. Assessments by both Greenerth Energy and Sinclair Knight Merz, which is the world's leading geothermal support company, believe we have the potential from that single 4-hectare block to power up to 8000 domestic dwellings with baseload zero emissions power. We have identified a body of rock at 3500 metres below the surface. We believe it is heated to about 180 degrees centigrade. As you can see from the diagram on the slide, we are basically utilising two of what we call production wells which bring hot water to the surface. We run it through a heat exchanger. We produce electrons, and we return the cooled water back down into the aquifer system. Today that stands as Victoria's flagship geothermal project, the Geelong Geothermal Power Project.

Onshore Gippsland, as I mentioned, is also a highly prospective area, and in fact has a history of utilising geothermal fluids in industrial processes. In particular the paper manufacturers in that part of the world have used geothermal fluids in the past. We know geothermal fluids exist. The photo that you can see on the screen is the drilling of an oil and gas well in 2004 by Lakes Oil. At that point in time they did not find oil or gas; they found hot water that flowed to the surface for three days. It was the drilling of that well that essentially established the act in Victoria.

To give you an idea of what an existing plant looks like, this is Raser Technologies's plant in Utah in the United States. These plants tend to be modularised, so you build your capability and capacity as exploration and development of the project continues. These things stand at about the height of a house and are able to be screened with earthworks. There are no emissions from these plants, and they have the ability to operate, dependent on the resource obviously, on a baseload or 24/7 basis, and they can operate remotely as well. It is just to give you a sense of what these things look like.

This is an important slide. It really talks to the future of where we see this industry in particular. This is a report that is produced by the Electric Power Research Institute of Palo Alto in the United States. Basically it is indicating that hot sedimentary aquifer geothermal is predicted to be potentially the lowest cost on a levelised cost basis baseload renewable energy form by 2030. That is one of the reasons why we as an individual company and the Australian Geothermal Energy Industry Association as the industry's peak body are committed to continuing to develop this resource here. EPRI is probably the world's leading authority in this space, and as you can see along the bottom line there, there are a number of baseload and intermittent renewable technologies that have been evaluated. We certainly believe that hot sedimentary aquifer in particular, as well as hot rock EGS systems, are well positioned for the future.

In terms of the national interest benefits of geothermal energy, Australia is host to a massive geothermal resource, we believe we have the lowest estimated cost for baseload renewables, there are zero emissions, geothermal is able to be integrated with other technologies, it is scalable, and we have certainly as a result of the ongoing work developed some R&D leadership in this space. The other area that is now starting to emerge is an area called direct use, where you are not necessarily generating power from the geothermal fluid that you bring to the surface, but you are using it in district heating and cooling or direct industry applications. There is also a low environmental footprint, as you have seen with respect to the Geelong Project.

This is the slide I would like to finish on because essentially this is really an encapsulation of a number of both market and — I err on saying regulatory — government considerations that need to be made as far as whether or not the State and the nation wishes to continue to explore for and potentially develop geothermal. Post-GFC we are now in a risk-averse world. The goings-on over the last 72 hours in terms of capital markets around the world are a good example of that. This is against the backdrop of a time in our history when we should be embracing new technologies and driving greater focus on some of these new technologies. As an individual company, and I also sit on the executive of the Australian Geothermal Energy Association, we are not seeing that investment at this point in time. Risk looms large, and risk has tended to dominate our thinking, our policy-making and our funding with respect to this space.

As you can imagine, being renewable energy developers we are caught up in a political debate at this point in time. Actually we have been since the best part of 2008. We enter the third year of life in something of a

vacuum whereby we may have a carbon tax or a price on carbon or we may not have a carbon tax or a price on carbon. That is a fairly substantial enabler when it comes to the development of these new technologies. Latrobe Valley generators can produce power at some of the lowest costs in the world, and while the EPRI predicts that by 2030 hot sedimentary aquifer geothermal will be one of the lowest cost renewable energy generation types in the world, we obviously have a long way to go between now and 2030. There is a substantial gap between what the Latrobe Valley can produce power at and where we are at this point in time.

Mr SHAW — What are we talking? We hear that brown coal is the cheapest energy and it is a competitive advantage for Victorians. We hear that wind and solar are considerably more expensive. How much more expensive is geothermal?

Mr MILLER — At this point in time I would have to say the cost of generation with respect to our project, the Geelong Project — because I am reticent to talk about any other company's project — would be somewhere between 12.5 cents to 15 cents per kilowatt hour. That is \$125 to \$150 per megawatt hour. Anecdotally I understand that the Latrobe Valley generators are producing at substantially below that. Even when you factor in \$23 a tonne of CO₂, there is still a substantial gap. The question really is, and it is highlighted there in point 3, do governments, both the State Government and the Australian Government, wish to develop baseload renewable energy? If there is a genuine desire to do that, then we need to have a very open and honest debate about what that means in terms of cost, times lines and capital, both human and fiscal.

As a developer, we see the inherent benefits in geothermal; however, right now, today, we are substantially higher than what the Latrobe Valley generators can produce at. The gap is large, but herein lies that question: do we wish to develop baseload — and I am not talking about intermittent technologies, I am talking about genuine baseload zero-emissions renewable power — that can support Victorian homes and industry? If there is a desire to do that and a genuine commitment to do that, then a lot of money is going to need to be spent by both the state and commonwealth.

The DEPUTY CHAIR — Thank you very much for that submission, Mark. We have got about 15 minutes for questions and a bit of a discussion. I might bowl one up first. To extend on your final closing points there, how important do you see that renewable energy initiatives are in that space around active roles for state and federal governments? How important are things like setting renewable targets in terms of the active, not market intervention, market design aspects of delivering the right environment for an investment you speak about? I suppose I am specifically thinking about things such as the Victorian renewable energy target scheme. You were kind enough to provide us with some material from the Commonwealth on behalf of the Government's renewable energy targets. How important are all of those factors in driving secure investments in the development of the baseload renewable technologies? What support do you think, from either your own organisation or the peak council, is required on behalf of the State and Federal Governments to secure those specific investment outcomes?

Mr MILLER — I think it is absolutely critical that state governments and the Commonwealth Government work together on this. There are lines that divide our states, obviously, but really we have an interconnector. I think there is a genuine interest in exploring for and developing renewable energy options or least understanding the implications of exploring for and developing our renewable energy options.

If you look back in history, it was government that basically built our generation assets and generation infrastructure. To expect the geothermal industry, which has only been operating for 10 years, to deliver up a solution as far as baseload renewable energy is concerned in this country without substantial government support and assistance, I think, is really quite naïve. It is about understanding where we need to get to on the cost curve so that we can drive cost out of our technologies by the adoption of those technologies locally and be competitive — not in absolute terms but more so — with existing generation, given that existing generation costs are on the rise, as we all know and recognise.

There needs to be a great deal of cooperation. We need to empirically understand what it is going to take. At this point in time, because the industry is in its infancy, it is really all about resource discovery. It is really all about us absolutely understanding where the geothermal energy systems are, what they will cost to explore and develop and, from that point on in time, whether or not government continues to play a role in that. But I suggest to you that given the backdrop of the GFC, and finding ourselves at potentially GFC mark 2 now at this point in time, unless government establishes a commitment to supporting and assisting companies in that early

work and in those exploration wells that need to be drilled, and to absolutely understand whether or not the resources exist — when I say that, I should say we do a lot of above-ground work; we X-ray the earth and we understand that these bodies of hot water exist in these aquifer systems and all these granites exist —

The DEPUTY CHAIR — That is not work that GeoScience Victoria has available like it does in mineral resources. You cannot access that kind of material from it because they do not do it.

Mr MILLER — There has been some work done, but by and large above-ground work is really a precursor to what we call the exploration stage, which is drilling deep geothermal test wells to understand — in our case it is north of Anglesea — whether or not that body of rock that we think is heated to 180 degrees contains hot water to 180 degrees.

The DEPUTY CHAIR — Do you rely on any GeoScience Victoria pre-competitive data?

Mr MILLER — Some, but by and large the work that we have done and that other geothermal explorers have done across Victoria has been of our own initiative. As I have said, the trigger for investment in the industry is going to be companies like Greenearth Energy and others drilling a number of successful deep geothermal wells that essentially become enablers for either what we call pilot or demonstration. Right now a substantial amount of money has been spent without a significant amount of forward movement experienced in the industry, and because of that fact and because of the economic climate they find themselves in at this point in time the investment community has basically pushed themselves back from the negotiating table and adopted a wait-and-see position.

The DEPUTY CHAIR — What are the top priorities for government to facilitate the environment to allow those risks to be taken?

Mr MILLER — Either support individual companies to drill their initial deep geothermal wells or support government agencies such as GSV or Geoscience Australia to drill a number of wells themselves so we can absolutely understand whether or not what we think is down there is down there and how we can best go about then taking that exploration stage to pilot and demonstration stage. Unfortunately the vast bulk of funding and the vast bulk of capital that has been raised on market for geothermal exploration and development in Australia has not taken place in Victoria, it has taken place in South Australia. The vast majority of those funds have been allocated towards EGS, or hot rock projects, not hot sedimentary aquifer projects. That is why I was at pains to point out the distinction between the two.

In Victoria's case specifically, if we want to absolutely understand whether or not these hot sedimentary aquifer resources that exist in both onshore Gippsland and the Latrobe Valley and in the Otway Basin are potentially exploitable, the Victorian Government, in cooperation and partnership with the Federal Government, needs to — and I have always been an advocate of this — stump up some money so that either companies like Greenearth Energy or the agencies themselves can drill some deep geothermal wells for us to be able to have that understanding.

One of the things we lack within government, and this is not a criticism of government but a realism, is that there are very few people, if any, in government, particularly in places like GSV or Geoscience Australia, who have had any geothermal experience whatsoever. It is a new industry. We were not necessarily expecting that to be the case. There is a lot of oil and gas knowledge, but oil and gas knowledge will only take you so far when it comes to the assessment of and the ultimate drilling of deep geothermal wells. It is an applied science in itself and a very specific one. In order for us to take that leap from potential exploration through the exploration curve and into pilot and/or demonstration and the attraction of market funding, we need to drill deep geothermal wells, and those deep geothermal wells need to be successful.

Mr NOONAN — We have heard of the value of partnership funding for drilling from other submitters on this point. Specifically with geothermal drilling, are there other state or territory jurisdictions that are co-funding drilling exploration activities in that area?

Mr MILLER — There is talk of it, but I cannot point you to any specific state and say, 'X dollars have actually gone into a deep geothermal well'. I do not believe that that is the case at this point in time.

Mr NOONAN — We could probably have a look at that anyway. I thought you might know off the top of your head. The second issue is the lack of understanding within GSV. How does one overcome that lack of understanding? It is a new area, as you have correctly pointed out. What are other jurisdictions doing to better position themselves to have the expertise within government in order to better support exploration?

Mr MILLER — I think the South Australian model is an interesting one. The South Australians really started to explore this about 10 years ago, so they have a bit of a head start on Victoria. If you ask somebody in DPI how they see their role, invariably you will hear the words ‘We are regulators’. If you ask somebody in PIRSA how they view their role, you do get a slightly different answer to that. They are regulators and promoters. It is a difficult thing to quantify, but I think it tends to be quite a pervasive thing. The South Australians who work in PIRSA are all advocates for the geothermal energy industry at a local and federal level. They lobby hard, and they lobby successfully. I do not get a sense that we have the same commitment here in Victoria, from a departmental level, to the science that we see in South Australia.

There has been a lot more investment in South Australia. There has been a lot more media coverage. There is probably a greater level of knowledge and understanding as to what geothermal means in South Australia, but in our view we have just as good a chance, if not a better chance, of being able to successfully to develop our geothermal system types here in Victoria than in South Australia. It is a difficult one for me to actually talk to because we have a very good relationship with the DPI and we respect the people in the GeoScience Victoria organisation and the greater DPI, but there is this tenacity that emanates from South Australia that I think has resulted in better outcomes for South Australia and for the industry in South Australia.

The DEPUTY CHAIR — As a publicly listed company, why did you choose Victoria, as opposed to South Australia, given the footloose nature of where your investment wants to be?

Mr MILLER — We had the discovery in the onshore Gippsland area in 2004. It was Lakes Oil that drilled that well, the Trifon-2 well, and hot water flowed to the surface. 2004 is a long time ago, and there was a certain sentiment about the development of renewable energies pre-GFC as opposed to post-GFC. That company, Lakes Oil, has done fabulous work in the onshore Gippsland and Latrobe Valley area exploring for oil and gas, as they have done in the Otway Basin. They formed Greenearth Energy, and then the company was listed.

The DEPUTY CHAIR — So they have come out of the coal industry — petroleum-based coal.

Mr MILLER — They have come out of the petroleum-based industry. They still exist as an entity in their own right, but they are Greenearth Energy’s largest shareholder.

The DEPUTY CHAIR — How important is that relationship with and understanding of the traditional petrochemical coal side of the energy sector, broadly speaking?

Mr MILLER — It is very important, particularly in terms of the data that Lakes Oil in particular has accumulated over literally 40 years of exploring, particularly in the onshore Gippsland and Latrobe Valley area. We benefit as a result of a coordination agreement between our two companies, whereby we share data. We are in proximity to the power generators, so we also speak to the power generators. Collaboration — intercompany or between different industry sectors — is extremely important, as is state and Commonwealth Government collaboration.

Mr NOONAN — I am conscious that Mr Shaw has not had a chance to ask some questions. My final question is really about the macro issue and about whether Victoria is the place to invest, going forward. You have had a change of government here in Victoria. The last government introduced a climate change bill, for example. Victoria was the first state to set a 10 per cent renewable energy target, which probably sent some messages out there, broadly, to your industry. A new government comes in, and there is discussion about whether mandatory reductions in greenhouse gas emissions are entrenched in law or whether they are aspirational. Again, we are hearing different things from different parts of the sector, depending on where they are mining or prospecting. Can you give us a sense, from your perspective and experience, of how important or otherwise statements by governments of the day, particularly in a new area such as renewable energy, are in terms of future investment and continued investment in an area such as yours?

Mr MILLER — They are very important. They are, effectively, market signals that the government of the day, and presumably the government of the next term — because you can only operate on that basis — has a

genuine desire to explore and develop. In our case it is geothermal energy. We felt that the previous government had a genuine interest in and commitment to the space. We spent a lot of time with government people, as I have done here, educating them, because it is a new science to all of us. However, I would have to say that we have not necessarily seen, to date, that same level of commitment. That may well be as a result of the fact that individual organisations like Greener Earth Energy and perhaps the Australian Geothermal Energy Association have not had time yet to duly advise, support and instruct our policymakers in this state. We are always keen to do that, but I would have to say that, at this point in time, we feel as though, for us, there is a little less certainty that there was, let us say, 12 months ago in our respective space.

The same can be said at the federal level for a very different set of reasons. Again, I go back to the point that is midway down that page. If government wants to develop baseload renewable energy, then change is required. That is not just the Victorian Government; that is the federal team as well. If we genuinely want to have a baseload renewable energy industry here, we are going to have to do things differently. We certainly hope that that is the case, and we will do anything we can to support and assist, but given the signals to date, we are wondering whether or not there is the same appetite for these types of projects as there was with respect to the previous administration.

Mr SHAW — It is a relatively new industry.

Mr MILLER — Very.

Mr SHAW — You did mention that Tuscan area in Italy. You mentioned the GFC and that individual investors are scared. The cupboard is scant as far as the Government coffers are concerned. How far back does that throw an investment like this, as far as Victoria is concerned?

Mr MILLER — Being very realistic and pragmatic, I would have to say to you that unless government, whether at the federal or state level, is in a position to be able to support the exploration stage of a number of projects, I think the industry will potentially stall here. The EPRI number that I put up there is an important one, because energy costs are going to rise and that gap will narrow. Our fear is that we will not have done the hard yards in the relatively good times with respect to the natural resources that we have here to position ourselves best in that time period 2030 and beyond. 2020 is going to be upon us like that. It is a sad truism, but none of us are getting any younger.

The DEPUTY CHAIR — Very sad.

Mr MILLER — Exactly. There are a couple of enablers there. We believe we will have a \$23 per tonne price of CO₂, and the renewable energy target still exists, but for developers who come into the pipeline after 2015, because of the surge we saw from 2010 through 2011 with respect to wind projects, solar PV and other renewables, there is a concern that geothermal projects could effectively be locked out of the RET. The most important thing for the industry at this point in time is to drill some deep wells and for industry, for government agencies and for the community to understand whether or not this much — ‘lauded’ is the wrong term — this system type, or this energy type, with so much potential can actually be successfully exploited here. We do not know that yet. We think that is groundwork that needs to be done for the better interest.

The DEPUTY CHAIR — I think we have actually gone over time, Mark, so I thank you very much for that very useful presentation. In a couple of weeks you will receive from our friends from Hansard a draft copy of the transcript of your presentation today, and whilst you are free to check it for errors and any typos, matters of substance stand as they are. That will in due course become public evidence on the committee’s website. Thank you very much for your time and your contribution here this afternoon. It has been very useful for us.

Mr MILLER — Thanks very much.

Witness withdrew.