T R A N S C R I P T

ECONOMIC DEVELOPMENT AND INFRASTRUCTURE COMMITTEE

Inquiry into local economic development initiatives in Victoria

Traralgon — 24 April 2013

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Mr R. Davies (sworn).

The CHAIR — Welcome to the public hearings of the joint-party Economic Development and Infrastructure Committee's Inquiry into local economic development initiatives in Victoria. Evidence given today is protected by parliamentary privilege, but any comments made outside this hearing do not have the same protection. The transcript will become a public document, so it will be a documented record.

Would you now state your full name, the position you hold with a particular organisation and whether you are appearing on behalf of that organisation or on your own behalf?

Mr DAVIES — I work for Loy Yang and have done so for over 20 years. The invitation to participate was extended through Latrobe City Council and I indicated at the time that my presentation will be as an industry participant, not on behalf of Loy Yang. I am an experienced industry participant, and I serve on a number of government bodies associated with coal, therefore I am looking to provide a bit more of a general overview of the industry rather than anything specific to my employer.

Mr FOLEY — That could be very helpful.

The CHAIR — Yes, we highly value your time.

Overheads shown.

Mr DAVIES — My associations include the advisory board of Clean Coal Victoria and Brown Coal Innovation Australia. I also work with CarbonNet, so I think I can provide a reasonably broad coverage. I have packaged the slides in a fashion such that they will be more broadly representative than specific, so without further ado I will move into that phase.

I think it is fair to say that all of the brown coal generators, the miners, have very similar objectives in the coal space; that is to leverage appropriate value yield from the brown coal resources they have access to. That is really about delivering increased business revenues, enhancing long-term business value and improving business sustainability beyond electricity generation.

From the perspective of the reserves, ABARES in 2010 identified that there were about 400 billion tonnes of what they classed as lignite or brown coal reserves in the world, of which Australia has about 8.9 per cent or 36 billion tonnes. The Latrobe Valley is fortunate enough to have about 33 billion tonnes, which in general terms is about 8.3 per cent of the world's lignite reserves. From an energy perspective it is around 330 000 petajoules. This is a lot of energy by any measure, and in comparison with natural gas and oil it is perhaps in the order of two to three times the known natural gas reserves in Australia and substantially more than Victoria's current gas reserves.

From the perspective of coal into electricity there are about 65 million tonnes currently utilised to produce electricity and all of the brown coal–based electricity comes from the Latrobe Valley. The 48 terawatt hours or so of electricity is about 85 per cent, and from a greenhouse gas perspective it is around 45 per cent of the total monitored Victorian emissions and about 70 per cent of the stationary energy sector emissions; so it is a substantial producer of electricity and greenhouse gas and large consumer of coal.

The next slide provides a snapshot of the types of mining technologies utilised. They include large bucket-wheel excavators — very capital-intensive large machines — ranging through to bulldozers et cetera.

From a pathway to product this slide shows that Victorian brown coal can be used in a range of different processes, which I think Geoff Hill touched on earlier. Brown coal can deliver a suite of products, ranging from chemicals and dried carbon products to transport fuels, liquefied natural gas and electricity upgraded coal. There are various pathways that involve processing technologies to achieve that outcome. A key aspect of those going forward will be carbon dioxide capture and sequestration. The projects are unlikely to get broader community support if CO_2 is not managed in some fashion. It will not be a free-for-all 'combust more coal and produce more CO_2' — it will probably not be acceptable in that form. Geoff also touched on the CarbonNet as an important pathway to achieving that sequestration of carbon dioxide from processes.

From an indicative resource value, the table that I have shown indicates that the approximate value of the production from 100 million tonnes of raw coal. The production of raw coal has an approximate value of $10 per tonne, and with processes such as drying the coal to produce a dry or almost black coal equivalent–type

product, you could be talking about $65 per tonne, electricity at $45 per megawatt hour, oil at $85 a barrel or urea fertiliser at $300 a tonne. All of these are market products, so they go up and down as markets move. But essentially the revenue you can derive from 100 million tonnes of coal is shown in the middle column. It ranges from about $1 billion to $11 billion. The significance of that is that from a tonne of coal you can yield product, which would be gross state product if it was exported, of somewhere between $10 and $110 per tonne in the example of ammonia urea. To put things in some scale, 1000 million tonnes of brown coal exceeds Victoria's natural gas reserves, so it is a big energy resource by any measure.

The type of work that is being undertaken with developers of these projects is more of a facilitation role than driving the actual development of the projects. We work with the Victorian Government and Latrobe City Council on these projects. As developers come to us with concepts for projects we work with them to try to advance those projects from a concept to being something more formal. This involves undertaking feasibility studies and undertaking formal front-end engineering design, financial assessments et cetera to get there.

One of the important elements associated with these developments has been the recent Advanced Lignite Demonstration Program, an initiative of the Victorian Government, which is a $90 million fund that is used to support the pre-commercial demonstration of these technologies. I am aware of around 9 or 10 projects that are currently into the second round, which is the request-for-participation phase. This funding scheme could lead to some form of commercial production going forward.

From an industry perspective, support for those proponents is generally provided where there is a clear potential for a sustainable commercial outcome. It is not about undertaking research, development and demonstration — projects leading to commercial outcomes is a key focus. Brown coal drying is a very important aspect associated with that. Victorian lignite has very high moisture content — in excess of 60 per cent. In most processes that is an inhibitor, so that moisture needs to be removed so you can convert it to hydrocarbons and the other products that I spoke about. For a dry black coal equivalent product the moisture has to be removed.

Some projects could also assist Victorian power generators to reduce their emissions by the provision of energy-efficient and cost-effective coal drying. Part of that could be used in the current power generation processes, provided that energy efficiency and the project economics support a business case.

This slide provides a snapshot of the types of technologies that I am aware of in the Advanced Lignite Demonstration Program. There is a table there that gives a general overview of the project. It is fair to say that there is about 10 million tonnes worth of annual demand for those total projects. There are all sorts of products: coal drying; coal briquette for export and domestic use; other carbon products; pyrolytic oil; PCI, which is a type of coal for injecting into steelmaking furnaces; syngas; and a range of products that were listed in the pathways earlier. We have been exposed to a range of products under the ALDP. The Government is currently reviewing applications, so I am not aware of the progress is at this point in time other than to say it is under review and we are expecting to see some outcomes of these types of projects in the June–July period. All of the projects require will require sites, and are capital in nature so they will require some fabrication offsite and some construction on site. A point Geoff touched on is that the ability to get those products out of Victoria is an important element of the processes, and I would like to talk a bit more about that.

Beyond the ALDP projects, we are also looking at some projects for much longer term developments and on a much larger scale. This slide shows an overview of some example projects. It is certainly not the total list of projects that are around at the moment. The projects are looking to produce products such as hydrogen, di-methyl ether and dry carbon products and high-efficiency, low speed diesel engines for a much more efficient power generation. There is a mix of proponents around who are looking at the longer term, with most of the projects coming into operation post-2020. In summary, much longer term projects and much larger scale.

I will make some observations in terms of the market for doing business. This is an abundant and cost-competitive coal resource. Over time the delivery of new projects in the region has been challenging, and there are a whole lot of reasons behind that. Industrial relations challenges, the wrong proponents, and highly volatile product markets have impacted these developments. The development of commercial coal drying is a very important element, as I touched on earlier, to unlock these projects. Coal drying has not advanced to a commercial status at this point in time.

It is important that the types of proponents are not, in my terminology, journeymen — they need to be people or companies who do what they say they will do in terms of developing a project and be able to fund the capital required. Some of these projects range in value from $1 billion to $10 billion, and therefore it has to be a substantial entity to fund a development of that ilk. With transport and port options the considered view is that 2 million tonnes of product is the capacity for export in this state at the moment. That is due to issues ranging from port factors — the capabilities of ports to export the product — through to the actual road transport of products. The long-term view is that to get products from the much larger scale and longer term projects to market would require the development of substantial infrastructure beyond the Latrobe Valley. To develop that new infrastructure will involve billions of dollars, not millions of dollars.

Some local councillors have passed the comment to me that the Latrobe Valley does not like the white shoe brigade coming into the region — that is, people with a project concept but not the wherewithal to deliver that project. Some of the proponents of projects that have been on the front page of papers have spoken about employment opportunities of 3000 to 5000 jobs and these huge investments, but they have then really gone nowhere. So there has been a bit of a false start, a false hope, created out of those projects.

Government support at all levels is very critical. That includes the development of feasibility studies, the permitting, the engagement of government, supporting them with the major project facilitation et cetera. It will be pretty important for these larger projects.

To wrap up, Victorian brown coal is an energy resource of national and state significance that underpins ongoing energy security and a potential increase in GSP for Victoria. World-class outcomes for government and industry can be delivered which will result in efficient resource utilisation. Working with some of the existing players who operate large mines on a daily basis with very high supply reliability is a good starting point. Medium-term economic and resource market trends are indicating there is a basis for diverse export products on brown coal. We talk about markets that have fluctuated, for example, between about $80 per tonne for a black coal product through to over $200 a tonne. In respect of these market forces, a project has to be sustainable over a 10, 15, 20-year period in markets that are moving up and down with lots of external drivers for that. The product market value ranges from $10 to $100-plus per tonne of raw coal, and given that there is 33 billion tonnes of coal in this area that is a pretty substantial potential gross state product. The gross state product potential for 100 million tonnes in a realistic scenario could be $5 billion, and that is based on all sorts of different products, not on any one type of product.

Another element that really sits there is that the community needs to be taken on the journey. We have seen some pushback, for example, on coal seam gas in a more recent times. Coal is a valuable resource to Victoria, but it is not necessarily being regarded as such, because the promotion of the anti-coal lobby has been more effective perhaps than the pro-coal lobby in this space. But there are substantial economic and broader benefits for the region from brown coal.

This region has thrived on its power generation developments and other developments over time. Climate change and things like the carbon tax and the management of CO_2 are obviously other areas that need to be undertaken consistent with community expectations. Generally the community does not understand carbon capture and storage and what the implications might be, and it is very difficult to educate them; it is a complex area. The arguments that have been going on around coal seam gas have probably even clouded that further in more recent times.

Technology solutions and supply options are evolving, and coal drying is an important technology. Major infrastructure is certainly needed for export, port and road developments, and broader based cooperation and support across government is needed to achieve the commercial outcomes.

Mr FOLEY — Thank you very much for your presentation. I am sure the officers will get around to asking this anyway, but if you could provide a copy of your presentation to the Committee staff that would be fantastic in terms of informing us when we get to our report-writing stage. That would be much appreciated.

In terms of your presentation headed ‘Are we there yet’, you talked about the number of false starts and the expectations that have been placed around the resource and its multiple potential uses. You referred to I think some white shoe brigade–type proponents who waft in and waft out of the field, and there are clearly those

when you look at the history, but I do not think you could call those involved with the Monash project white shoe brigade types, with some of the largest multinational corporations in the world.

Mr DAVIES — It certainly was not directed at any particular proponent.

Mr FOLEY — My words, not yours; let the record show that. But even with those substantial companies we have still seen, as you referred to, a number of false starts.

In the energy security space — which is what we are talking about as a subset here — and its importance to local economic developments as well as its broader contribution to the state and national energy grid which is equally a part of the equation here, what is it that the Government's approach to this resource has to take account of in your view? Is it fair to say that government needs to keep a number of options open in relation to where its resource and energy security future lies, and given the amount of false starts we have seen in the brown coal area, why is it a particularly important option in government's management of those different options to see which one is going to work technologically, which one is going to work economically and which one is going to work in terms of community licence-to-operate issues? In all of those kinds of fields, as an interested observer and not one who is particularly informed, I get the impression that for all of its promise, brown coal still has a substantial number of hurdles to get over in those areas.

Mr DAVIES — The Monash Energy project is a project I was very familiar with, as I worked with the proponent from day one. Monash Energy was a very credible company as a result of Anglo and Shell participating in that project — the issue with those projects is they are very large and very capital intensive. Just to raise funds for projects of that magnitude, global scale projects, is a huge undertaking and without the technical risks being addressed, that is problematic. I would probably put it into the positive context though that the advanced lignite demonstration program, which is targeting the pre-commercial demonstration of technologies, and there is a substantial amount of money on the table to support those projects. The scheme is framed to demonstrate at a pre-commercial scale, that these technologies are able to leverage the brown coal resources and deliver commercially viable products. That is to me a preferred pathway to jumping into a global scale industry. I think the confidence that stems from seeing some developments at that smaller scale and the government funding filling the gap between what is a commercial project at a larger scale but not commercial at a smaller scale, a pre-commercial scale, really demonstrates whether the brown coal can actually be utilised on a commercial basis for other products.

It is fair to say that brown coal has been successfully utilised in power generation for close to 100 years, so brown coal certainly can be utilised beneficially. These are different products with different markets, different characteristics and different technologies, and if they can be demonstrated at a pre-commercial scale I think that gives the community confidence so that when a proponent comes along and says, 'We have seen this demonstrated, a technology at a scale that now can be done at a more commercial scale' that those projects will come to fruition.

Mr FOLEY — And addressing the relative merits of brown coal versus other energy options?

Mr DAVIES — From my perspective brown coal constitutes, according to ABARES data, about 24 per cent of known and proven economic reserves of fossil fuel. Victoria is fortunate to have 24 per cent of Australia's energy in a relatively small area. Australia is a wealthy country from its energy exports, so we need to find the path to leverage this energy resource — I think of it less as brown coal and more as just energy — is a pretty important driver for Victoria to find a path to leverage that resource because of the quantum of energy and the value.

Mr FOLEY — If I could, Chair, in terms of then the distribution and export of the product, you indicated there were a series of issues with that. I assume that would depend on the scale and the ramping up, but what is your view as to how and where export would take effect from?

Mr DAVIES — I missed the last part of the question.

Mr FOLEY — How and where export would depart from.

Mr DAVIES — There are various views around. There is a group known as GRID, which consists of a range of industry participants. GRID has produced various studies which have been shared with government to

try to advance the discussions on future port and transport developments and identify what are the challenges, issues and costs et cetera. Government has undertaken its own studies in terms of — I think it was referred to as GRIS — in that space as well, but I think it is quite clear that no matter what basis you do the assessment on export something beyond 2 million tonnes with existing infrastructure is going to be problematic, just based on the material movements.

As it stands, there is an emerging port down at Port Anthony near Wilsons Promontory which may offer a new pathway. You have the expansion of Hastings into a more container oriented port. Brown coal products are exportable by containers, but there is obviously an economic penalty in doing so. Bulk shipping is obviously a preferred option. As it stands, they are probably the biggest constraints. Beyond that you have the port of Geelong and the port of Melbourne, but there are obviously issues in terms of getting products through the rail system beyond the scale that has been referred to. Those studies are, I believe, available to government and potentially this committee to understand where the thinking is at. I probably cannot do this aspect justice in this session.

Mr CARROLL — Thanks for your presentation. The theme of your presentation was the support of government being critical for the industry, and the terms of reference for this committee are to look at ways in which government can help local economic development and help private enterprise. Can you inform the Committee what support local, state or federal governments have given Loy Yang over the past five years and whether or not there have been any barriers to you receiving support?

Mr DAVIES — I would prefer to talk about industry more generally rather than being specific to Loy Yang. There have been a number of funding schemes that have been available and largely driven through the Energy Technology Innovation Strategy, so the types of areas of support have included some funding towards a coal dewatering technology known as mechanical thermal expression. That was a project undertaken by most of the industry participants in conjunction with the CRC for Clean Power from Lignite. This included the power generators, the Victorian Government, the Australian Government, Monash University — to try to advance an economic coal drying/dewatering technology. There was a demonstration project built. I think investment was circa $6.5 million, of which the governments collectively funded, I think, around $4 million.

There has been large-scale demonstration project funding for carbon capture. That was awarded through ETIS and eventually conducted through CarbonNet. Brown Coal Innovation Australia has funded a number of smaller scale projects at more the front end of research and development areas to advance technologies to be ready for demonstration. I am unable to quote the exact funding, but it is into the millions of dollars that have been funded at the R&D end. So you have the R&D end and you have the demonstration, which is the ALDP. ETI — Energy Technology Innovation — a Victorian government group under DPI, has funded a number of projects. They have also offered a number of projects funding to a much larger degree, including the Hazelwood 2030 project and HRL's IDGCC project, which is tens of millions of dollars of funding, however those two projects did not proceed.

Mr CARROLL — One of your slides was about the potential of brown coal with urea fertiliser. Where is that at, and does government have a role in assisting it?

Mr DAVIES — I cannot comment specifically on a given project. There was a project that was being undertaken a few years ago, with a range of feasibility studies undertaken. That project stopped for a period, but you will need to ask the proponents why that was the case; I cannot really answer that. My understanding is that there is another company currently looking at ta fertiliser product from brown coal, but I am not in a position to comment on the state of that project.

Mr SHAW — I would like to follow up also on what value we add here to brown coal. You mentioned there is electricity and Ben mentioned fertiliser. What industries in this area now take the brown coal and produce those products as by-products of brown coal?

Mr DAVIES — On a commercial basis there is really only one major direct customer, which is the Energy Brix briquette facility that processes circa half a million tonnes of coal into dry cold briquettes. Some of those are used in our industry as auxiliary fuel. Products are also used in some of the dairy sectors for steam raising. A customer of those is also Auschar, which produces a char product and heat bead. They are substantially the only customers I am aware of that you would call commercial customers at this point in time.

Mr SHAW — From the slides you showed there is a lot of opportunity there to utilise that brown coal to a higher level.

Mr DAVIES — Very much so. It is really about producing products that markets want. If you look at other countries around the world and what their needs are, a good example would be Japan. Japan was devastated by the nuclear issues they had as a result of the tsunami, and in the long term Japan does not have a lot of native energy resources and is looking at options going forward for different fuel sources that are low carbon energy sources. There are two that come to mind. One would be the dimethyl ether, which one company has been looking at in the longer term; another option would be hydrogen, to support a hydrogen economy. The carbon dioxide is captured at a local level and the clean fuel is exported for power generation purposes in the other economies. Japan is an example; China is another example where they import a lot of coal. You can understand why there is a lot of interest from Japanese and Chinese companies in these products that stem from brown coal. And if you put it in the context of having this abundant energy resource as well as potential for the feedstock, you can understand why we see a lot of people coming to Victoria to talk about coal opportunities. This is because they have needs — energy security needs — over the long term.

Mr SHAW — And you would prefer those to be done in this region — the value add?

Mr DAVIES — The value add; absolutely.

Mr SHAW — Not that we are exporting brown coal as such at the moment.

Mr DAVIES — Not to any degree.

Mr SHAW — Just those briquettes you were mentioning possibly?

Mr DAVIES — There is certainly interest in undertaking projects that are just a dry coal product, but as I mentioned, the coal prices at the moment are fairly flat and those projects are perhaps less attractive at the moment. Some of the chemical processes, while more capital intensive, have a much higher value product. Hydrogen is a very valuable product; dimethyl ether is a very valuable product, so you do the value add here. You use the advantages of having the potential for some carbon storage in the Victorian region, which again is superior to most other parts of the world from the studies that have been undertaken to date. Therefore you can see a potential pathway if you are able to address the aspects that need to be resolved. Transport and ports is obviously one of those areas.

The CHAIR — Excellent. Thank you very much for your time and your presentation. Within about two weeks you will receive a transcript of the day's proceedings. Please feel free to make any grammatical alterations where you believe there has been an error but no changes to the substance of the document. On behalf the Committee, I thank you very much for your time. I have found it really educational, and I am certain that the other members of the Committee have done likewise.

Witness withdrew.