

TRANSCRIPT

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into recycling and waste management

Melbourne—Monday, 24 June 2019

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WITNESS

Mr Ian Guss, Director, Recovered Energy Australia.

The CHAIR: I just want to take the opportunity to extend a welcome to members of the public who are here. I welcome Mr Guss from Recovered Energy Australia. Mr Guss, thank you for making yourself available. All evidence taken at this hearing is protected by parliamentary privilege as provided by the Constitution Act 1975 and further subject to the provisions of the Legislative Council standing orders. Therefore the information you give today is protected by law. However, any comments repeated outside this hearing may not be protected. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament. All evidence is recorded and you will be provided with a proof version of the transcript in the next few days. You have 5 or 10 minutes to give us a presentation and then we will ask questions. Okay, it is in your hands so off you go.

Visual presentation.

Mr GUSS: Thank you, Mr Chairman. As you are aware, I have a lot to say. I will try and curtail it, but please ask me whatever questions you like. In order to go forward, I thought we would start with a presentation. There are a couple of embedded videos, so it might take 5 to 8 minutes if that is okay. There are a lot of slides, and some of them I will flick through because they are more for visual rather than discussion if that is okay.

So who are we? We, the directors of REA—and my two colleagues are sitting over there—have been working around the Victorian community, government and industry for many years and have evolved the current waste-to-energy proposition in consideration of our unique exposure to the environments that we have been working from. We are incorporated specifically for the purposes of deploying best practice, cost-effective waste-to-energy infrastructure. We are completely self-funded, have received no government assistance to move forward with this particular project, and we do not have any definitive allegiances to specific waste industry participants, practices or technologies. Our model has been to identify pragmatic logical solutions that simplify the decision for communities and investors to commit to beneficial change. We understand that each community has specific environmental, social and economic requirements and these necessitate locally specific solutions. Various waste processing technologies and solutions offered cannot be assumed to be readily transferable from one environment to another. We have our own specific criteria. We will get into that a little bit more later.

I spent many years in commercial investment but then, as related to this, from 2007 to 2015 I led the Victorian state government's investment attraction and policy development area for the economic department of government specifically biofuels, bioenergy and waste-to-energy—so we have been talking about this for a long time.

Steve Buckle, one of my collaborators, has a long, successful history of commercialised businesses and was fundamental in the development of the wind industry in Victoria, having been founding director of Wind Power, which ultimately developed Wonthaggi, Bald Hills, Stockyard Hill and Waubra, amongst a number of other things, and eventually sold out to Origin, which became their renewable energy department. The other director, Craig Eyes, spent 10 years with the Victorian government and has always been involved in energy development, looking to grow sustainable industries in that sector. So we are not waste industry people. We came out with a very strong intent to improve the sector that we have been involved with, in a city that we have lived in all of our lives.

So what are we proposing? We have been talking, as we said, about this for a very long time. What we have understood is that you need to simplify the decision-making process. So our intent was always to work with the existing cost structures, simplify logistics and provide an environmentally superior local solution for residual waste. Our intention at this stage is to develop this project in Laverton North, where we propose to process between 150 000 and 200 000 tonnes of residual MSW per annum. In the context of waste-to-energy, that is a relatively small-scale plant. In fact our plant is quite modular, and under the cost structures in Victoria that size is what we see as being economically viable, but in a different cost structure environment we could in fact be quite a deal smaller.

This particular capacity that we have identified is what we call a local solution for a local problem. We see this as being designed for the waste of three to four councils. We need it and we understand that it needs to be cost-comparative with landfill options. We need to see greater than 97 per cent diversion from landfill, and we need to be working with industry and local government to make these particular projects work. We are working on a timeline at the moment. We are underway. We are looking to work to timelines, but it is becoming, admittedly, increasingly difficult with all the white noise in the air at the moment to achieve our targeted start date of 2021. From our project

we expect to be dispatching around 15 megawatts of baseload electrical energy, of which we quantify that about 60 per cent of that as renewable.

So we understand the project puzzle is difficult. We have worked to resolve this puzzle for quite a number of years. Every one of these jigsaw puzzle pieces needs to fit together for a project to evolve. We see waste-to-energy as part of the existing system. We certainly do not see it as the panacea and answer to all issues in the waste sector. What we see is that this is, at our scale, almost a pressure relief valve on the system, but we see that the waste system today needs more moving parts. We need to increase system capacity and alternatives, and we see this project as part of the system. Our particular focus is looking at the residual household waste bin and any residual that is from material recovery facilities now going to landfill. We absolutely are supportive of a strong, functional recycling system, but we know that has issues at the present time and will, in the course of time, always have issues. We see this as part of the solution.

Our site for this project is located in Laverton North in the industrial 2 zone area that is nominated and identified in the current statewide waste infrastructure plan as a resource recovery hub of state importance. The nearest residential neighbour is over 1.7 kilometres from our site. We believe this is part of the simplification of the decision. This is designed for and has always been an area for noxious industry; this is what it was intended to be used for. State planning has allowed for the encroachment of, I guess, different sorts of industries, but as you can see from the slide, this is our site. It is well located amongst existing resource recovery infrastructure. In fact what you see to the south boundary—the empty piece of land there—that in fact is a water-retarding basin. So it is not scheduled for any use whatsoever other than for the overflow control of I think it is Kayes drain, but it is a water-retarding basin. On the right-hand side of the picture you can see we are right next door to Alex Fraser. It is now operational, but that was the asphalt plant. So they are the sorts of neighbours that we are currently working with.

It is funny, our Chair seems to have done a report into waste-to-energy in the regional environment. For us it is very important to work with what the community wants. We do not need to be pushing against the tide. The report that was prepared by the Chair in fact made some very strong findings. It was, if I am not mistaken, a community engagement process.

The findings made it clear that in Melbourne's west they thought the burden and impact of waste management should be shared more fairly across the community, and that having mega waste sites—either landfill or otherwise—is not appropriate, and the concept of environmental justice, which calls for shared responsibility and intergovernmental equity, should be embraced. Waste-to-energy facilities should therefore be located across Melbourne and regional Victoria, servicing local and regional communities.

We have always believed that it is much easier to work within a community if we can reduce the logistics task and make the solutions more locally oriented. Communities have demonstrated that they are prepared to accept that they have a responsibility for their own future and for their own waste and are not as accepting of the fact that they should accept responsibility for everybody else's waste. The large aggregation of current disposal facilities that we have in Victoria are receiving waste from all over Victoria, so at this stage the model that the state government has gone about pursuing has focused on large-scale aggregation. This is fraught with a number of difficulties and qualifications, and we do understand that the reducing capacity in older landfills is putting increased pressure on the existing landfills in the west at the present time. However, that said, there has been a lot of discussion over many years about what should be done to supplement Victoria's waste treatment and disposal options. I think the time for philosophical discussion has probably passed.

We have done extensive community engagement in our region. We have worked very closely with our environmental advocates within the community, who are extremely supportive. In fact, in the top right corner is a 3D model which we used for presentations, which demonstrates our plant process. That is actually in their offices, where they used it to promote our alternative as a superior alternative to existing waste practices and something that was required to demonstrate a step change in the current practices in the waste industry.

We have had numerous articles in various newspapers. It is interesting, with social media today, you can track the comments. We have had hundreds of comments, and I can categorically say that out of the hundreds of comments we have had, maybe half a dozen that have asked questions but not a single one that has been dismissive or judgemental and anti what we are proposing. In fact from our community engagement the single most significant question being asked was, 'What is taking so long?'. So this is not a representation that we support or suggest, but this is simply put up as an example of what councils think. This was a table put together by the City of Port Phillip in their discussion

around the Fishermans Bend option. As you can see there, and what we have taken note of and has been common, is that incineration is a problematic sell within the community. It is not a desired outcome. So we have taken note of this. Our particular focus has been on gasification. For those of you that do not understand, gasification is an evolution of thermal processes. It is quite different from incineration. It is a thermochemical process, which effectively treats waste at high temperature in an enclosed vessel in the absence of air so there can be no combustion. What happens is similar to if you think about adding heat to water, when it's hot enough it turns to steam. When you add enough heat to the waste you have a molecular disassociation of the waste so that things turn to gas. You go through phase change. Effectively this produces a process where we can break down the steps towards thermal decomposition process, which lets us control the sort of chemical reactions that happen and therefore the toxicity and the emissions are quite readily managed so they cannot impact the environment. The gas itself is what we use to heat water and produce electricity. It also allows us to get to very high temperatures, higher than typically we would see in an incinerator, which means potentially we have greater control of some of that halogenated volatile organic carbon that can come from the processing of plastics. So just a short 20-second video that discusses gasification, if that is okay.

Video shown.

Mr GUSS: Gasification is a newer process than incineration, but we use this slide to demonstrate it is far from new and it is fairly well distributed. Gasification has grown in the last 10 years exponentially, and it is typically something that is more prevalent in South-East Asia. The Japanese have been using slagging gasifiers for decades to deal with their waste-to-energy plants—their waste considerations. Our engineering partner is Sedin. We have highlighted that they are one of the largest gasification engineering companies in the world. This is another video, of our plant, if that is okay.

Video shown.

Mr GUSS: Sorry about the fractured video, but that seems to be your technology rather than ours. This next slide shows our process there. I guess the critical thing there is our primary gasification chamber runs somewhere between 800 and 1050 degrees. But the exhaust passes through the syngas chamber, which will be between 1100 and 1250 degrees centigrade, which in the context of waste-to-energy is very important. It is actually the standard temperature range required for hazardous and medical waste treatment, so we are well above that level that is required, I think, for the sort of waste that we are currently targeting from an emissions cautions point of view.

It is always nice to see cartoons, but we would like to throw up a few pictures to show that these factories actually exist. These are actual operational plants that we have visited ourselves. We have seen them in operation. There are some 30 installations in about seven or eight countries. These are some of the plants. The interesting one there on the top right is a facility that sits in a fishing village on an island in the middle of nowhere, where they had no options for their waste. They were putting waste on barges. Fishing waste on barges in 40 degree temperatures tend to upset people after about a week. So the community had no options. It was interesting when we went there the governor came and caught us and said, 'We had all the problems that that you had. We were worried about the smell, the emissions, how it would act, what would happen'. Now they are building a lookout to the right there so people can actually look out over the top of it because it is the best location to see the sunset. They are using the steam to actually help add value to the fishing industry that is currently on the island.

In the bottom right is a plant that has now been decommissioned. It is run, and we have data for over 15 years that it has been running. To the bottom left of the slide there you will see that there is an online data system that records the emissions every minute and sends it to the central government in China. Every single plant in China must report its emissions every minute. Obviously with the amount of facilities, they have got over 400 waste-to-energy plants in China so obviously there is a lot of data. They only really keep exception reports, and frankly you do not want an exception report in China. We have established a plant, and it is very modular. We have established this modular design is important to provide for plant flexibility. We have established three lines of six gasifiers, which means we have increased our capacity. So we can effectively maintain the facility while it is still running. We can take down one gasifier or one train as required. If we have some anomalous readings from one line, we can isolate it quite easily. We have gone to great lengths to make sure we have plant redundancy and process tracking capabilities. We have done an enormous amount of modelling. This has been something that has been a really important work. We have probably now spent in our EPA works approval in the order of \$3.5 million, \$4 million worth of work assessing every potential issue—I guess making everybody comfortable seems to be what we have to do, and I mean everybody. What we see, based on the emissions that we have taken from nine operating plants—and we have

categorised these here on this slide—if the top red line is what are the maximum allowable limits under the European allowable limits, these are the sort of measures we sort of expect. Blue is at the site boundary and orange is in the nearest house, as you can see these are well within the allowable limits. To validate that, it is not just about what you emit, it is about what the impacts are on health. So we have had a separate health assessment done.

This is the executive summary. It is quite clear: no risk to the health of workers in adjacent industrial areas or residents in the surrounding community from air emissions; no odour impacts from the proposed facility for residents in the surrounding community; no noise impacts on the proposed facilities; no water impacts; no impacts on community health and safety from the transport of waste. This is a pretty definitive report that we received on our health impacts. This report looked at the cumulative impacts of our facility over its operational life. So this relates to not only what comes out of the stack but how it deposits potential toxins and emissions on the surrounding community over the life of the plant.

We did a very extensive carbon assessment, so we had MRA, one of the waste consultants, assess best practice landfills—and there are not a lot of them around—for every tonne of MSW going to a best practice landfill that generates around 0.778 tonnes of CO₂. We have assessed that our plant generates around 0.48 tonnes of CO₂ per tonne of SW processed, so a 62 per cent reduction in CO₂ emissions for every tonne of waste that we process compared to that waste going to a best practice landfill. That does not take into account all of the legacy issues that come with landfill obviously because we do not have those legacy issues, such as leaching and post-closure management. That does not also take into account the offsets for the carbon intensity of our Victorian power generation. We sort of consider that a bonus, but if you do take that into account, then we effectively are a carbon sink.

We have no fugitive emissions, no nuisance odours, no pests, no post-closure management—smaller scale. We have got a system that we are comfortable maximises energy. It meets the criteria the EPA have set for energy efficiency—in fact it exceeds them. So we think that this all plays out as a good option for residual waste processing. At the present time we have a planning permit approved that is being issued by Wyndham council. We have a works approval that has been lodged—in fact lodged several times, and lodged again today—because we have had a very robust review, I think it is fair to say, of what we are proposing. In an ideal world we would like to be in construction at the beginning of next year, but we will see how that all plays out.

These are our perceived issues—challenging new investment in waste infrastructure. Now, we could talk just about our project, but this committee is obviously interested in how we perceive, from our history with the waste industry, things that are challenging investment and, having been involved in many projects—waste-to-energy, bioenergy, biofuels, investment, waste and policy development—I guess this is a little bit of our history. This is our view on some of the things that are limiting or challenging to investment. There have in the past been targets for waste diversion that do not appear to be a clear or mandated incentive for diversion of waste from landfill. The levying in isolation will not give you the comfort that there will be increased diversion. We have quite differential levies around Australia. Personally, we do not need you to increase the levy, but you need to increase the levy in Victoria now because as of last week South Australia announced an increase of its levy to \$140 a tonne. You have got New South Wales at \$143 a tonne. I do not believe we need to harmonise, but you need to be within \$50 or \$60 to stop the transport of waste across the border. We are sucking in waste; we will suck in more waste.

On state waste, governance is unclear, confused and inconsistent. I think we have got seven pieces of work going on regarding waste at the moment: between yourselves, Infrastructure Victoria, the response to VAGO and the commissioner for environment and the ESC review. If you are an investor, what do you draw from that? We also have situations where you do not really know who is in control, who is following what policy and who is driving what outcome. The State government operates in a very compartmentalised manner. We know that the Department of Economic Development gives grants to people to do things that are in the waste-to-energy space that maybe DELWP does not even know about or particularly support. We know that there is plenty of conflicting activity going on, where there are regional waste management groups that are kept out of the loop of community and council actions. We know that the EPA has proposed certain compliance aspects—but when looking at the press they were pretty clear about the EPA and the discussions about who was responsible—WorkSafe or themselves—around various stockpiles. We are not involved in that. We have had a robust process with the EPA, but I would have to say that in the end if we look at our documentation, it is much better for that process. We think that the EPA is probably under-resourced, but has been generally consistent with somebody who is dealing with something that is new. The resources within the EPA have probably been stretched given the current scenarios, I think that is fair to say. But I do think that there is room for them to be better resourced to deal with, I guess, the growing concerns.

We have incomplete and misleading waste data. I do not believe that the waste data—and we have examples if you are interested; well, put it this way, reporting of recycling is voluntary. I do not think anybody is coming out to volunteer that they are stockpiling material if they don't have to. I do not believe that the data accounts for material that is being transported from interstate. So you would need to be looking at the data and thinking that maybe it is a bit more optimistic than maybe it is. We talk about recycling, but we actually talk about recyclables and recycling. At this stage it appears that the definition of recycling is “not going to landfill”. That seems to be the definition of recycling or the measurement of recycling in Victoria. We have, no doubts about what are “recyclables” but what is “recycling” is a different and unclear proposition.

We believe the lack of a chain of custody of the levy is facilitating these costs in illegal disposal. So the levy at the moment is charged at the disposal point. If there was a better chain of custody so that the producer of the waste was responsible for the levy until the waste was passed to a regulator or an approved carrier who then passed it to a regulated disposal point that then had responsibility for its payment or alternatively the waste passed to an approved recycling facility and the levy responsibility would be rebated at that point—a bit like GST is treated now—then some of the incentive for stockpiling and illegal stockpiling would disappear. And you would also have better control of the end use, because at the moment you do not need to licence a recycling facility, which means that anybody can be a recycler, and I say this, and I could be wrong in some of these aspects but I believe that to be the case. If we have better control of the end location, then we will have better reporting as well. You will also have, I guess, better outcomes.

The policy development has been overly complicated and protracted. I have been involved personally in policy development since 2007. I mean, we have talked about the same thing for a long time. We know we want to reduce landfill. There is no reasonable person that does not believe that we should be using materials as often and as efficiently and as economically as possible. There is a practical financial overlay that needs to be considered. I do not know that we can argue, as some of the municipalities do, that exporting is part of our recycling system. I think that export is part of a recycling system, but if it is simply an export of a lightly treated material—as an example I brought in a categorised RDF material—the discussion that we will have is that we have to pre-sort to make that material. I am not sure why I need to make that material. My system can handle material that is in the residual bin that is from a source-separated system. The household source separation system has been implemented as it has been assessed as the premier basis for separation. If we have a problem with what is in the residual bin, and it may have some recyclables, that would appear to be a problem of education and community compliance, and it is fair to say that education in the waste sector has been lagging. In my mind that is still rubbish.

The CHAIR: Where does this product go now?

Mr GUSS: I got that from an RDF plant in New South Wales.

Dr RATNAM: What is the RDF? Can you explain the RDF?

Mr GUSS: Refuse-derived fuel. People will talk to you about sorting out the end bin or having 40 per cent residual; that is what they are talking about developing. People say that is a fuel for energy. We do not have anybody, there are only—sorry, I stand corrected. There are different qualities around that. We do not have a standard in Australia for a refuse-derived fuel. There are limited plants in Australia that can use that. There is a very established process in South Australia where there is material going to a cement plant, and in New South Wales recently Boral's plant has been using a large volume of refuse-derived fuel, but we do not have a lot of facilities capable of using it, so making this means that we are sending it overseas. Now, I do not know how that would be received overseas, but certainly there are always monetary considerations in foreign countries, particularly where they are low-labour and low-income environments where, if somebody paid me to take it, I would take it. Is that the legacy that we wish to be perpetuating?

The CHAIR: Thank you, Mr Guss.

Mr GUSS: Just one more thing—the competitive tensions of targeted state procurement.

The CHAIR: No, we will come back to that because we have got about 10 minutes and I have got to ask one quick question based on the last slide you have got. So from that, would you then recommend that we should have a dedicated authority to deal with the whole waste recycling one-stop shop? Because one of the comments you were talking about there was there are too many cooks frustrating you as a private industry trying to find a solution. Is that something we ought to consider?

Mr GUSS: I think that that is a decision for people within government.

The CHAIR: I am asking your opinion.

Mr GUSS: I think there needs to be more defined and cohesive responsibilities and roles and that it has to be clearer to the market. And frankly the compartmentalisation is not just between government departments; it appears to be within the department itself, so some of that needs to be resolved. It is not for me to determine whether a separate and a singular—what would you call it—waste authority is the resolve to that, but all I can highlight is what we experience.

Dr CUMMING: Just on your point, Chair, what I understand of the hierarchy is that Metropolitan Waste and Resource Recovery Group was really meant to be driving that waste, but they are not the master. You have got Sustainability Victoria, who they report to, and then you have got the EPA and then you have DELWP. So I take that point that you have made in the way that it seems to have turned into a bit of an octopus with no head and that there needs to be someone who actually drives—maybe the state government—and makes some decisions on where they want what and how much money they are going to spend and invest in this, seeing that, as I had raised earlier, I do not believe individual local councils doing individual education campaigns with their rate base trying to figure this waste problem out themselves is the answer, seeing that they were probably charged with, many years ago, just picking up the waste. So I do believe on that that councils are an arm of the state government. So as the body, the state government should be giving councils more direction. But the question that I would like to raise with you, Mr Guss—I am a supporter of what you are hoping to do in Laverton—

Mr GUSS: Thank you.

Dr CUMMING: I have seen a similar facility in New South Wales, and I believe that what you are proposing in the way of a waste-to-energy technology in smaller locations, which could probably go into country Victoria, could be possibly a solution, so I give you a big tick. But I really struggle with even the presentation that you have given and—even in this brochure—your non-support for another industry, which is incineration, or trying to pin yourself off against them. I personally see your solution as a great solution for smaller areas, but for larger problems in incineration or a combination of all the different solutions that we have readily available, would you like to comment on that?

Mr GUSS: Well, we are not anti-incinerator.

Dr CUMMING: Thank you.

Mr GUSS: All we did was assess community resolve and opinion around incinerators and determine that we did not want to push against the tide.

Dr CUMMING: And, Mr Guss, I guess I am not one to be like the *Herald Sun* or the pub test: I am looking for best solutions and the best solutions for all of our problems, so I will take your first comment as that you understand that there are probably a lot of different solutions.

Mr GUSS: Absolutely. We were and have been technology agnostic. We decided that this was the first option we saw that was cost competitive, which was an important consideration, and scalable. I would question, though, your comment regarding, firstly, New South Wales. There are no thermal waste-to-energy facilities in New South Wales.

Dr CUMMING: I thought there was a gasification one that I have seen.

Mr GUSS: Not for mixed—no mixed waste.

Dr CUMMING: Okay then.

Mr GUSS: And secondly, the question is: people flippantly talk about large. What is large? Because large has a number of contexts.

Dr CUMMING: Yes.

Mr GUSS: A large facility in the middle of Europe in a highly densified location is quite different from what is considered to be or should be considered to be large in a smaller city like Melbourne.

Dr CUMMING: Yes. So, Mr Guss, I guess I will explain myself then. What size waste has to go into your facility, as in: do you have a specific cubic kind of metre that you have to cut it into to be able to put it in, or what kind of waste—all the different waste that can actually go through this? Are there certain things that cannot go through this system?

Mr GUSS: No, we specifically elected to go with this system so that we have very wide flexibility. In fact that first plant which I showed you that was operating for 15 years had a pre-sort facility at the front end which was decommissioned very early in the piece because they determined that they were not recovering enough recyclables to justify it. This technology was originally designed for medical waste, so it was high calorific. There are applications of the technology processing a variety of wastes including industrial waste but the system is also designed for low-calorific residual waste, like we would expect to see in MSW.

Dr CUMMING: So would your system take couches and furniture and—

Mr GUSS: Like all systems it would be shredded, but of course.

Dr CUMMING: So shredding. So your system has a shredding element, where—

Mr GUSS: It has a front-end shredder, as would an incinerator.

Dr CUMMING: No. I have seen old incinerators where they have to shred it to a certain size, but I have also seen incinerators that actually accept the couch and accept the larger waste, so I understand.

Dr RATNAM: Thank you very much for your presentation. It has been really interesting and insightful. Just a couple of quick questions if I may. You mentioned the scale of it—that you are looking at waste from three to four councils. With other circular economy types of proposals that are in the pipeline where we are aiming to reduce the amount of waste that goes to landfill—so we could potentially get 35 to 40 per cent out with food organics, we are getting e-waste out of the stream and hopefully we are going to increase our recycling targets—that level of waste is going to go down. What kind of impact will that have on your model? Do you have to then go to more councils to get that waste? Is it fixed at the amount of waste that you need?

Mr GUSS: Look, I think you have heard from a previous presenter that the actual tonnage of waste that we can process is really a determinant of the calorific value. So the processing volume depends on the energy content of the waste. So drier things tend to have more energy and then you can put less throughput. It really depends on the nature of recycling. Typically what happens is the greater proportion of recyclables being taken out now are what we would call high calorific—so your plastics, your rubbers, your woods and the like—and they tend to reduce the average calorific value of the residual that is left over, and so the volumes that would go through that we could handle are still quite large. One of the reasons we looked at a smaller plant is it is not as sensitive to, I guess, the changes in the waste stream and the available material. You must remember that for where we stand today, waste is growing at roughly four-and-a-half times population growth, and we are sitting in a state that is one of the fastest growing populations in the OECD. So even if we were concerned about the reduction of the residual waste as a percentage of the waste generated, the absolute volumes are increasing. But we cannot lose sight of the fact that for everything we are talking about and worrying about in the circular economy, volumes to landfill, if nothing changes, are predicted by 2035 to be at around 21 million tonnes from around 9 million tonnes today—of generation that is, not disposal. So even if we could believe that our recycling levels could be maintained, we would still need 3 million tonnes of new infrastructure just to cope with the increase in volume anticipated by 2035. That is that slide there.

Dr RATNAM: Will you build in flexibility in terms of your contracts? Are you saying that you would need three to four councils to sign up? Would you build in flexibility? For example, should they reduce the amount of waste they are able to generate—for good reason—how would you manage that? Would you need more contracts?

Mr GUSS: We recognise that there are different versions of contracts that could be implemented. Whether we just have a contract for the red bin—I will call it a red bin, because we have no consistency around the State, but the residual bin. If we contracted for what is in that bin and we took the volume risk, then that is something we could talk about. If we talked about having contracts that were for a certain amount, with a percentage being take or pay, as opposed to 100 per cent, we could talk about that. But it really comes down to the contract terms—as long as the contract term provided reasonable time to meet investor requirements. We do not believe we need a 20-year contract. One of the things about being smaller and more cost-effective—we are talking about something between a \$100 million and \$120 million investment; others are talking \$1000 per treatment tonne for similar plants. We are basically at a

much smaller capital investment for the dollars of treated tonne that we are talking about. It is about payback and return on investment. We can achieve that much quicker than some so we are less worried about residual volumes contracting. I mean, the fact is the smaller the plant is the less impact that reducing volumes has on our operation, which is one of the reasons we went to a small footprint.

Dr RATNAM: Can I ask about by-product? I appreciate that it sounds like you will have worked quite hard in terms of reducing carbon emissions. What are the other by-products of the process, and what happens to them?

Mr GUSS: Like all facilities, if you throw in things like bricks and concrete, we have what we call an inert residual. We call that our slag. It goes through at very high temperatures, is sterile, so that comes out and is used. We have had it tested for industrial waste classification. Obviously the EPA will have to certify it, but that would be used as road base. The amount of that that comes out depends on how much of that goes into the bin. At the moment what we have assessed in the residual bin has about 12 to 14 per cent of that material in it. We have quite a small amount of residual air pollution ash, which we call fly-ash, and it is something less than 2 per cent, which is what we would encapsulate. It is quite small. Because of the very high temperatures we have it is quite small in the context of similar sorts of thermal plants.

Dr RATNAM: And slag could have—

The CHAIR: We are running out of time.

Mr LIMBRICK: Thank you for the presentation, it was wonderful. Can I just clarify a couple of things? One thing I think you mentioned before is that for this plant you are not requiring any ongoing subsidies or government investment, it is economic in its own right. Is that correct?

Mr GUSS: What we said was that we are comfortable with being competitive with the current or the anticipated landfill disposal prices. Obviously the levy factors into that, but other than that it would be very nice to be assisted. It might get us a bit more comfort, but we are not relying on additional government largesse. We also do not believe that the policy as it stands today is dismissive of waste-to-energy. In fact waste-to-energy has been in our policy since 2007. If there is an issue, it is more about broader waste policy than it is about waste-to-energy policy.

Mr LIMBRICK: One other question. There has been a lot of discussion in this inquiry about plastics and non-recyclable plastics, so with this type of system those non-recyclable plastics such as soft plastics and bags and all that sort of thing—they can go into this and the calorific content can be extracted as part of this process, and it will not go into the environment?

Mr GUSS: Absolutely. In fact it is designed to handle it.

Dr RATNAM: Just one further follow-up question on the slag: it is a product of how much of those materials get put into the waste stream—I heard what you said there—so it could be a varying percentage. You are saying that some of that fly-ash can be used for road surfaces or the slag you are saying is going to be used?

Mr GUSS: The slag. The fly-ash itself needs to be assessed by the EPA. We believe we have re-use options but at this stage, for the purposes of approvals, we take the most conservative approach possible, which is to stabilise it and dispose of it to landfill.

Dr RATNAM: Is the slag completely safe? Does it have dioxins and furans? I know there has been some concern about—we do not have a testing facility in Australia, so are you all comfortable that that can be used?

Mr GUSS: We do have testing facilities in Australia. We have tested for D&F at various facilities in Melbourne already—dioxins and furans. All we can tell you is what we have tested. We have tested samples of the slag and they have come up quite inert. It looks like volcanic ash. Dioxins and furans are a commonly discussed topic which are very misunderstood in the current processes. In fact we do not create the environment for dioxin and furans generation, but we also put in the typical and well-regarded processes to ensure that if they are created, then we capture them in the fly-ash. Dioxins and furans will not report to the slag, they will report to the fly-ash, which is the smaller percentage of material.

Dr RATNAM: For this scale, why did you go for this model versus other incineration? Why as a company did you choose this method?

Mr GUSS: I beg your pardon?

Dr RATNAM: Why did you choose this method versus other types of incineration that, for example, Australian Paper are considering? Why the difference in choice of method?

Mr GUSS: We looked at a number of things and, as we said before, we wanted to work with what the community is prepared to accept. We have to make the path as smooth as possible. Ours is, we believe, more cost-effective. It is more modular so we can provide different scales. It gives us more process control and for us it has more flexibility to deal with some of the less palatable waste streams with good conscience.

Dr CUMMING: Mr Guss, I am going to pick up on some of the things that Dr Ratnam and Mr Limbrick brought up; one being that around the residual ash and the like, currently all of that waste goes to landfill and best practice is, within a landfill, that those landfills are aligned. But this actually reduces the volume for landfill, and what I understand from your process, which is quite helpful, is that you can actually put things in your system such as medical waste and such as others and that is treated in a way that—yes, it is burnt, but you have those filter systems that can actually collect and reduce the volume of what would normally be out in the waste system anyway and possibly going to landfill. Is that correct?

Mr GUSS: If I could be quite clear, we are not building a facility for medical waste or hazardous waste. It is a very important distinction because we would put the various protocols that need to be in place to handle those. That is not our target and it is not a part of our licence.

Dr CUMMING: But those facilities are around?

Mr GUSS: To be perfectly honest, every, or most credible, modern waste-to-energy plants will deal with most material that goes through to a different level depending on its design specification. You can fix anything for money.

Dr CUMMING: That is right—with technology too. That is what I understand. The other point that I guess, for others to understand, Dr Ratnam brought up earlier was around councils and council contracts or probably large-scale contracts, and one of the points you raised earlier, Mr Guss, was around the levy and trying to bring us in line with even South Australia or New South Wales to incentivise reducing recycling. But what I kind of picked up on, and I guess you might want to explain a little further, is how possibly in your costings and your protections of your contracts, and from what I have seen from previous presentations on similar technologies over the years, you are factoring in current landfill costs, as in currently—I am just throwing this around—if they are \$70, that is what you are trying to match. Is that correct, for contracts in the future? And that is why, in some ways, if it was \$140, then virtually that means that it would be almost cost-neutral. 'If we throw this into landfill, therefore it's the same as the waste levy' or 'Wait a minute, if we put our waste into waste-to-energy, we will be collecting that money' and therefore you would be using that money for these new technologies and keeping up-to-date and probably making your plant better in the future. Is that correct?

Mr GUSS: There are a couple of points there. Firstly, to clarify: I did not suggest that the levy had to go up to encourage recycling; I suggested that the levy and the differential between the levy was a potential problem for the transport of waste across borders. What happens in recycling is part of waste policy and not part of my discussion.

Dr CUMMING: Yes. I guess, Mr Guss, I got it that if Adelaide was higher and Victoria was lower, somehow that would incentivise people crossing the waste from South Australia to Victoria because they would be saving money—and dumping it in our holes.

Mr GUSS: This is a slide I got last week from the EPA in South Australia, which clearly indicates that they know material is going interstate. I do not think it is going to Queensland somehow. With respect to the rest of your question, what I have said is that we wanted to be cost competitive with landfill. We know that there is a structure of landfill prices that are in train at the moment, and we have been working hard to meet that criterion. We believe we are very close to that. So 'cost comparative' is what we have said. There is also the question of costing all the externalities. If you start to cost the externalities of landfill into the price points as well, then government needs to make a decision: does it want a lower carbon footprint, does it want less legacy issues, does it want to demonstrate better practices? So we believe that our anticipated price point at the moment is very close to where we need to be competitive and by the time we are operational it will be on par with the landfill rates. Does that mean that we are going to make more money? We can set our price at the price we need to operate. We are benchmarking landfill simply because we know that is the least cost disposal option. In a perfect world we would be the least cost disposal option.

Dr CUMMING: That is right, Mr Guss.

Mr GUSS: But there is capital investment required on our part, and it is more technical with higher operational costs, it has more jobs, it has more maintenance than a comparable landfill. It was very important in our consideration that we work towards a price point where the community was not expected to pay considerably more.

Dr RATNAM: You mentioned that one of the plants had been decommissioned. I am not sure where that was. Do you know why it was decommissioned and where the plant was?

Mr GUSS: Sure. We went to that plant a number of times. It was decommissioned because it was processing 300 tonnes per day and next door they built one that processed 2000 tonnes a day, so it soon became redundant to the local requirements.

Dr RATNAM: Where was that?

Mr GUSS: That was in China.

Mr LIMBRICK: Just a quick question: I wonder with this particular technology, and you also mentioned the plasma gasification technology, what is the advantage of this over that type of technology?

Mr GUSS: I did not mention plasma technology. I am familiar with plasma technology, and I guess there are a number of differences between what we do and plasma technology. Plasma technology I am not sure is at the scale we have talked about, but I am not technical enough to tell you the difference. I understand that plasma technology requires significant energy in its own process. We have looked at the whole-of-process environmental footprint and outputs, and that has been part of our selection process. We did not consider that plasma was appropriate for what we wanted to do. It does not mean it is not appropriate. We just do not know enough about it.

The CHAIR: Okay. On that note, thank you very much, Mr Guss, for your evidence. It has been very helpful. If members have any follow-up questions, later on the secretariat will forward these questions to you, and we will really appreciate it if you are able to answer them.

A copy of the transcript will be sent to you in the next couple of days, so if any corrections need to be made, please do so. Otherwise we will publish them as a true statement and evidence.

Witness withdrew.