

STATES OF JERSEY

SCRUTINY COMMITTEE BLAMPIED ROOM, STATES BUILDING

WASTE MANAGEMENT STRATEGY

Present: **Deputy Phil Rondel (Review Chairman)**
 Senator Ted Vibert
 Senator Jean Le Maistre
 Deputy Rob Duhamel
 Deputy Bob Hill
 Deputy Gerard Baudains

**QUESTIONS AND ANSWER SESSION FOLLOWING PRESENTATION
BY MR JOHN ACTON
(COMPACT POWER LIMITED)**

on

Monday, 7th February 2005

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DEPUTY RONDEL: Good morning.

MR ACTON: Good morning.

DEPUTY RONDEL: Could you please give your name and the company you represent for the record. Then I have to read you a small note?

MR ACTON: My name is John Acton. I am the Chief Executive of a company called Compact Power and I am also the Director of Engineering. I thank the Committee for allowing me to speak to them this morning.

DEPUTY RONDEL: Thank you. Prior to starting, I have to read to you the following notice. It is important that you fully understand the conditions under which you are appearing at this hearing. You will find a printed copy of the statement that I am about to read to you on the table in front of you.

Shadow Scrutiny Panels have been established by the States to create opportunities for training States Members and Officers in developing new skills in advance of the proposed changes of government. During the shadow period, the Panel has no statutory powers and the proceedings at public hearings are not covered by Parliamentary privilege. This means that anyone participating, whether a Panel Member or a person giving evidence, is not protected from being sued or prosecuted for anything said during a hearing. The Panel would like you to bear this in mind when answering questions and to ensure that you understand that you are fully responsible for any comments that you make.

MR ACTON: Thank you.

DEPUTY RONDEL: Could you please commence with your presentation?

MR ACTON: Thank you. I am going to talk about the Compact Power process, which is a pyrolysis and gasification technique, which we have been developing in the United Kingdom now for nearly 14 years and it is coming to a stage of development where we think we shall be making that break-through to one of the questions I have heard, which is the “two-plus-two” rule, which has actually bedevilled us since we first started.

Mr Acton gave the presentation on behalf of Compact Power Limited

DEPUTY RONDEL: On behalf of the Panel, thank you very much. I will start off by putting

the first question. Having taken note that you deal with commercial and industrial waste, would your unit or units be able to deal with asbestos?

MR ACTON: No. Asbestos is, by definition, virtually inert and it comes in various fibres, as you know. Some of them are moderately dangerous; some of them are very, very dangerous and the majority of it is so. There is no way that thermally ... because, if you remember, what it was used for was thermal insulation. It was made for making refractory blocks and so it isn't suitable for material which is totally inert and has very good thermal characteristics. So it isn't suitable for that, Chairman.

DEPUTY RONDEL: Okay. Could you give me the volumes for your bottom ash, please, and your fly ash?

MR ACTON: Bottom ash is dependent obviously on waste stream and it varies between the types of waste that we're using. On clinical waste, which is what we're operating at the moment, it's about 4% to 5% of the input is residual by weight. If we were on sewerage sludges, it could go as high as 25% to 30% because of the high limestone content and various other inert materials. When we are running on tyres, if we didn't capture the carbon, it was less than a ¼% because all we were left with is the reinforcing wire. I think it virtually is a function of the waste stream. It is not going to be really very much different from a good quality bottom ash that you would get from a good combustion process by any other technique, because, if you remember, it comes out immediately after the pyrolysis and gasification phase. So, at that stage, you will be getting approximately the same sort of residual percentages. In our case, because of the way that we gasify, you will actually have more fixed carbon in it than you would perhaps if you had burnt it off. Certainly the CO₂ captured would be slightly better.

DEPUTY RONDEL: Senator Vibert?

SENATOR VIBERT: I wonder if I could just get a better understanding of the process from you. From what I have heard, you can actually individualise your waste so that you can actually get a different kind of carbon. In other words, on one particular day you could say "Well, we're doing tyres today" and you would do tyres and, from that, you would get a different type of bottom ash.

MR ACTON: Yes and no. We can actually do it at the same time. We could actually process clinical waste in one of the pyrolysers and we could be using the other three for a variety of different wastes. What we shall be doing at Avonmouth is we shall be devoting one -- and we don't know which one because we can alternate it -- for treating the clinical and hazardous 3,000 tonnes a year. The other three will be devoted to a variety of waste streams, but mainly municipal waste. However, we have run one side, for example, on municipal waste and we have run the other side on clinical waste, because one of the advantages is that we can move the heat from one high CB waste to one that is a much lower CB and that gives us ... so long as the net balance is about 15MJ, then the process works.

SENATOR VIBERT: Could I also try and get some ball park figures from you? Your basic unit that you've been talking about is doing 30,000 tonnes, that's your first component.

MR ACTON: Yes.

SENATOR VIBERT: What would be the ball park approximate cost of that type of building and process? Have you got any ball park figures you could give us?

MR ACTON: We are getting some figures, which are being honed at the moment as we are coming together. They are slightly sensitive because we are just bidding Wrexham and I know that there is another company in the room that's also bidding it, so we are a little bit ... so I'm a little reluctant to give any figures at this time.

SENATOR VIBERT: Could we enter an in camera session now or can you pass us the figure on a piece of paper so that we have got it, because it really quite is important that we try and establish some kind of costs structure to this.

MR ACTON: Sure, I can understand that.

SENATOR VIBERT: Because it makes a difference in the kind of thinking. So would it be possible in fact for you simply to let us know on a piece of paper which will remain confidential to the Panel a 30,000, 60,000, 90,000 approximately ball park figure? Would you be prepared to do that for us?

MR ACTON: I would be very happy to do that.

DEPUTY RONDEL: In confidence.

SENATOR VIBERT: In confidence, yes. The final point I would like to put to you is there could be an opportunity in Jersey, for instance, for you to have a reference plant here.

MR ACTON: Right.

SENATOR VIBERT: I am putting an option here or a thought here, in which the Government of Jersey, if it felt that the technology was going to be valuable, could become a stakeholder in the technology. Is that something that your company would consider?

MR ACTON: Yes.

SENATOR VIBERT: It would?

MR ACTON: Definitely. I mean, we are looking to develop and to produce strategic relationships with key partners, and key partners are not only engineering partners and waste partners, but it is obviously people who have a belief in it and would like to take advantage of what we think is a very good technology.

SENATOR VIBERT: Thank you.

DEPUTY RONDEL: Any questions, gentlemen?

DEPUTY HILL: Yes.

DEPUTY RONDEL: Deputy Hill?

DEPUTY HILL: Okay. Could you tell me, you are obviously Compact, so how compact are you on Avonmouth? What sort of ... we call them verges here, but we can talk in the English language. How many acres would you say your site would take there, because you can expand, you say?

MR ACTON: Well, the way that I usually describe it is a 32,000 tonne plant, without the waste hall, occupies the same space as a large tennis court, just to give it a feel.

SENATOR VIBERT: What's a large tennis court?

MR ACTON: About 30 metres ... sorry? That means you have got ... like me, I need the bit on the sides because I do ----

SENATOR VIBERT: Do you mean it's doubled? Do you mean the whole doubled?

MR ACTON: Yes, yes.

DEPUTY RONDEL: You mentioned a stack height of 21 metres. I presume the location makes

a difference?

MR ACTON: A significant difference. Every case has to be separately assessed. It has to take into account background emission standards. It has to take into account topography, wind direction and this is normally always covered in the environmental impact assessment. We have actually completed the one for both Bristol and for Wrexham and also for Dumfries and in all of them we are looking at ... in Dumfries I think we are looking at a 26 metre stack. Bristol was 21. Wrexham I think is going to ... I am not certain about Wrexham because the planning size was determined before they decided to move away incineration, so I think we have inherited the stack height that was already planned for an incinerator, but I'm not certain on that.

DEPUTY RONDEL: Currently we have an incinerator in the valley. There is talk also of a possible site which is very exposed on the coast. Would that affect the chimney height?

MR ACTON: It could do, yes. Valleys, of course, are bad news, particularly if they are ones which have got stagnant air, because they are not cleaned by prevailing winds or what-have-you. They don't always have to be, but they can be. Obviously, with sea coasts, you get prevailing winds and, again, you have to find out where the hot spots are and you have to legislate for it. So there is no easy rule. The stack height as far as the Environment Agency is concerned is determined by a computation of what is in the gas, what is the waste, etc, etc, and, from that, having applied all those factors and taken into account topography and geophysical conditions, you get a stack height. I did look at one in Devon which they were going to stick right at the bottom of the valley and ... well, it would have needed a stack about 100 metres high, I reckon. So we decided to put it on the top of the hill and make it smaller.

DEPUTY RONDEL: Water vapour from the flue?

MR ACTON: Because we do high temperature -- the exhaust gas is between 200 and 220 degrees centigrade -- it is well above the normal viewpoint. If in fact we get very adverse conditions, very cold, then you will get some detectable, but it is some way away from the stack and so it is very difficult to determine whether it is sort of ... but it is very unusual to get those sorts of atmospheric conditions. As far as I know, we've never had detectable emissions made from ours, but it's not saying that, if it was in Dumfries, for example, where it is probably colder,

there might be some days, but it's so rare because you can compute what temperature you would have to drop it to before it in fact became visible pluming and, because we use dry coolers, we don't get any pluming off of the pluming mechanism. Therefore, you would be looking at the dispersion from the top of the stack and it would be some several hundred metres away before it in fact, and had dispersed quite widely, before it had been cooled sufficiently to be detectable. But, no, if you can take it back below it's viewpoint it will become visible.

DEPUTY RONDEL: Odours from the plant?

MR ACTON: Sorry?

DEPUTY RONDEL: Odours from the plant?

MR ACTON: Well, odour actually comes mainly from the waste stream and what ... we use the air from the waste hall as a means of our oxidation air. For every tonne we are using about 6,000mm³ of air, so it's quite a ... if you're running on 4 tonnes an hour, that amount of air that's being shifted out and it does put the waste hall under slight negative pressure, very slight, but sufficient to stop egress of odours. Any air that's taken in will actually go through the oxidation process and, as far as I know, there is no odour that can withstand 1250 degrees for two seconds.

DEPUTY RONDEL: Senator Le Maistre? Sorry, Deputy Duhamel?

DEPUTY DUHAMEL: Yes. Could you highlight the advantages of the modularity within your solution process in terms of the advantages that could accrue to small island communities in using your technology?

MR ACTON: Yes. It has several advantages, but the principal one is active redundancy. All thermal, all processes, it doesn't matter what it is, will occasionally go wrong and obviously what one has to do is you have to have active redundancy, which means components which are working all the time available. Now, what we've done on ours is we have got four active units with eight pyrolysis tubes inside and one of the things we have demonstrated very, very conclusively at Avonmouth is that the oxidation ... the pyrolysis tubes, which are actually the bit that is the most stressed and in which we have invested a tremendous amount of time developing, is a component which we can change, but we have to obviously take that unit off. We can

change it in under 10 hours once it's off. Now, the beauty of having four chambers is, of course, that you can come off fairly quickly and so you will probably be off for no more than 15 hours to do a complete tube screw change, so that would be your maximum exposure, and of course that helps greatly when you're talking in terms of availability and reliability. Every major component, as is customary in all well engineered projects, is duplicated on the essential features. It is only those static devices that have good reliability which you can measure and which have been measured, like the boiler and like the oxidiser, which is a static device, etc, which we don't believe there is any need to duplicate. However, we look at a complete stream. A 32,000 is complete with its gas clean up, boiler etc. So if you were having the 64, you would actually have two steams complete and, again, the common coupling point would be at the steam output.

DEPUTY DUHAMEL: Right. Could you tell the Panel your experiences when you were running your plant on MSW? Any particular problems in terms of outage levels caused by running on that particular fuel?

MR ACTON: Well, it's no secret that our experience on MSW is short and to the point. We haven't actually ... we in fact operated at Coventry for some years on MSW and we had to use MSW to prove the IPPC because we weren't allowed to run clinical waste. However, being the plant is only a single plant, we had to go on to clinical waste as soon as we could, and so we tended to do just small batch demonstrations for people of that type. The RDF was a fairly long cry and so on. So we haven't got exhaustive experience on MSW, and this is our argument with DEFRA as to why they should give us some money, because until we've got, we've demonstrated that we can actually run on MSW, I don't think I'd put my money in. So, you know, I mean, it's ... it needs somebody who is prepared to take the risk and that's what DEFRA are saying they are going to do.

DEPUTY DUHAMEL: Would it be fair to say that running on clinical waste is a more challenging material to be dealing with rather than MSWs?

MR ACTON: I think it is the most challenging of all waste streams. It has got to be done at a higher temperature. The oxidation temperature on all our processes is always the same, so it

doesn't matter whether it is MSW or clinical, we always operate it as if it were clinical waste. So even MSW would be treated at the same temperatures and the gases would be subjected to exactly the same clean-up. So we believe that clinical waste is the challenge, but that's ... and it has certainly beaten a lot of other people.

DEPUTY DUHAMEL: Thank you.

DEPUTY RONDEL: Senator Vibert?

SENATOR VIBERT: I take it that the fibrous type of material, that is the reason why you get such a high price for actually getting rid of it?

MR ACTON: Indeed.

SENATOR VIBERT: Have you actually had an opportunity to put your proposals to the Public Services and Environment Department in Jersey?

MR ACTON: No. We did in fact try and invite ourselves to put a proposal, but our kind offer was refused. So we have never actually ever been able to do that because, I think ... but we have expressed interest very much in working with you and seeing how we could help.

SENATOR VIBERT: So they have actually made no approach to you, bearing in mind your technology is now quite well known in waste management, the system, and that you came through the DEFRA process?

MR ACTON: We've actually had indirect approaches, but no direct approach. We were approached by one of the consulting engineering practices, which I think was Babtie Fichtner.

SENATOR VIBERT: Babtie Fichtner.

MR ACTON: Who approached us and we provided some information, but when we looked at the conditions that were being ... the "two-plus-two" rule just leapt off the page, so we said "Sorry, but we'll have to pass on that particular one."

SENATOR VIBERT: If I could be time specific and say in the last 12 months, have you had any approach from you to come and talk to them about the system?

MR ACTON: I don't think so. I can't remember that precisely, but I don't think so.

SENATOR VIBERT: Thank you.

DEPUTY RONDEL: Deputy Hill?

DEPUTY HILL: Could I just come back, because you mentioned, I think it was, PFI in Cornwall.

MR ACTON: Yes, a PFI.

DEPUTY HILL: What does that mean?

MR ACTON: Well, this is a public finance initiative, which is a way that ... it is the kiss of death, apart from people like the waste companies, who seem to ... it is a huge amount of investment by anyone bidding them. The project was proceeding quite happily with the incumbent local authority owned LAWDAC and just as they were about to ... I think it was 10 days from planning consideration, the Government advised them that they had won PFI status and from that the whole thing was stopped and they have now invited proposals from all the major waste contractors for, whatever it is, a 25 year PFI contract to take all of the waste arisings collection and so forth. So it is not something we would do, but we would be very keen to talk to the winner to see if they would be interested in our thermal technology.

DEPUTY RONDEL: Any further questions, gentlemen? If not, on behalf of the Panel I would like to thank you very much for attending. Thank you.

MR ACTON: Thank you. We will now have a short break until the next presenters arrive.
