Transcript BAA1

Interviewer (Ir): OK so this is [redacted]. So yeah, first of all just, thanks very much for taking the time to...

Interviewee (Ie): Yep, no problem at all.

Ir: Yeah. So the bulk of the interview is about policy instruments and energy efficiency, but I'll just start with a few questions about your job role and the organisation you work for just to kind of place the rest of the information in context.

Ie: OK.

Ir: So, if you could just briefly describe your job role to start us off.

Ie: My role is data centre manager. Which is, actually covers being head of data centre and hosting for [redacted]. The information service has 3 or 4 different facilities where you're housing computer equipment. And as of January this year, my role is to manage all those, look at their utilisation, their future development, or not as the case may be! And how we make the best use of them in terms of efficiency and capacity.

Ir: OK, good. Erm, so it's an enterprise data centre...

Ie: It is, it's a kind of a... the data centre is kind of a hybrid really, it's running our enterprise services, it's running our HR, finance, [redacted] record systems etc. But it also runs a lot of our [redacted] platforms as well. So it is very much a hybrid.

Ir: OK. Could you give me an idea of the square footage of the, across the halls?

Ie: Er, yes we have... 3... I can do it in square metres cos...! The research hall has 344 square metres of IT space. The 2 smaller halls are both 192 square metres each. And then we have a fallow hall which is for our future expansion, which is 144 square metres. The building in total is erm, 2200 square metres footprint.

Ir: Hmm. OK. Well a think that covers all that stuff. Am I right in thinking you're not participants of the Code of Conduct?

Ie: That is correct, at the moment we are not participants of the EU Code of Conduct. This facility has been open a little bit more than a year now. So now that we're starting to get it bedded in we're looking at all the accreditations and things that we want to do. So as part of the plan we're submitting that we go for the CEEDA accreditation, and also include the EU Code of Conduct within that. We then also want to do ISO 27001 security accreditation as well. So they're on the roadmap.

Ir: OK.

Ie: Pretty much subject to when the funds are made available for me to actually engage the people to do it.

Ir: OK, and what are your... what makes you want to seek accreditation with those things?

Ie: Really I think for me the accreditation is... it underpins what you do in a day to day basis, and it gives you insight into the industry in general. I think there's a danger if we don't go for accreditation is that we will work purely in isolation in [redacted]. And we will maybe miss out on some of the tricks that we can use to be more efficient or... better utilisation, just generally better at what we do. It's something that we've never done in the past, and I've seen benefit from it elsewhere, and I think that [redacted] can really benefit from following the same kind of thing. So getting more tips on how we can improve efficiency, how we can model it better, is all part and parcel of getting that accreditation and getting the insights.

Ir: OK. Yeah. So that covers all that. Do you have much of a feel for... it's obviously not the EU Code of Conduct specifically is not that widely adopted at present. Do you have a feel for why that is?

Ie: My general feel, from talking to various colleagues in the industry is that it's a bit of hassle to be honest. People are just under pressure to get on with their day job and find it, just, too much time. They haven't got the time to spare. Or they're aware that their facilities are probably somewhat lacking, or their processes are somewhat lacking, and they don't really wanna expose that. So I think there's a number of strands really. One is the time and the pressures, and the other is maybe a bit of self preservation. I think some data centre operators are a little bit scared that if they expose their weaknesses, they could be subject to some severe scrutiny from certain areas.

Ir: OK. Is there anything about the code of conduct that... any areas in which you think it could be improved or... to increase its uptake or increase how effective it is?

Ie: For me I think that... really what seems to be lacking for me is that they don't market it very well. There doesn't seem to be a lot of discussion about it, a lot of promotion of what the benefits may be to individual operators. I mean I've come across it really by accident, talking to people about the other accreditations. And I think that it's a shame really because I think... whilst I haven't got into detail on the EU Code of Conduct, I would like to learn more about it, I'd like to see what it offers. I'm aware that it's kind of a best practice benchmark, way of operating. And I think that if they were able to articulate more the extent of those benefits and what you could do with it, there would maybe be more uptake. But until I get fully into the process, I'm probably not best placed to expand on what it's benefits are. But I do see that there is a real need to be able to demonstrate that you're operating a facility in a controlled and managed way, within a generally adopted framework. And I think that the EU Code of Conduct gives us that capability.

Ir: Erm, OK. Do you come under the Climate Change Agreement for data centres?

Ie: [redacted] comes under the Climate Change Agreement in general.

Ir: Right.

Ie: So we do apply the Carbon Reduction charges to various things. There's a debate going on internally within [redacted] about how that is reflected on the data centre. But as [redacted] yes it will form part of our carbon reduction commitment.

Ir: OK, but you're not involved in the data centre specific...

Ie: I'm not involved in the data centre specific discussions. I leave that to our energy and environment team who do it on behalf of [redacted] as a whole. They just tell me how much I've got to pay!

[laughter]

Ir: Do you think that, erm, approaches, well essentially it's an energy tax coupled with a rebate on that energy tax isn't it I suppose. Do you think that kind of regulatory approach has much potential for stimulating energy efficiency in data centres?

Ie: I think it has to a degree. What I see from a [redacted] level is that there's a view that if we impose the kind of levies and charges then we can reduce the power consumption. I think that that's false, I don't think we'll be able to reduce the consumption. What we'll be able to do is do more compute with the same consumption. If I'm gonna reduce the overall kilowatt hours per CPU in terms of our general compute capability... but my compute requirement and power requirement is gonna continue to grow. So it's not gonna have that impact that some people think it might. But they don't see the impact that you can do a hell of a lot more with what you've got. And that you could previously. And that's where the benefit is. And I think that's the message that has to get more widely accepted really. It's not gonna drive down power reduction, consumption reduction.

Ir: Yeah, but it might drive efficiency...

Ie: But it might drive up efficiency and capabilities.

Ir: Yeah. OK. Erm... do you think there's anything missing from the current policy and regulatory environment that could be useful in stimulating energy efficiency and more wide kind of interest in energy efficiency in the industry?

Ie: Erm [pause]. That's an interesting question , [laughter] I mean I do think that... if there's a way of encouraging differing technologies within the data centre industry for generation of power etc and the cooling capabilities then that would be beneficial. I mean... you see, we've seen things around putting PV cells on houses and stuff like that. But the amount of power you need for a data centre means that that kind of thing is a little bit unsuitable. But if we could develop a way of taking that further and make it more compatible with the data centre industry then that would help. And some incentives to do that would be beneficial. It is quite expensive technology. But other than just driving down what you do with your own local generation... then you're quite limited. I mean if there was some kind of incentives for doing local power generation using environmental ... sustainable methods then that would be beneficial. I don't know if there are any incentives at the moment. I've never really investigated it. One of the things we did look at here when we were building the data centre was building an energy centre. So that we could produce our own power. We were gonna design it so that we could produce power for [redacted]. But it was cost-prohibitive. It was gonna cost us far more than we were gonna save just by making this as efficient as we could. So there's maybe a trick there somewhere within government policy that could be utilised to reduce the draw on the national grid and do more localised power.

Ir: Erm, obviously as I've seen today your data centres are very efficient and you know all the kind of latest technology and stuff. But there's a lot of data centres that are way below that level [laughter]. What do you think prevents those data centres from taking efforts to improve their efficiency?

Ie: Err, there's a number of things I think. One will be cost. Probably one of the bigger things is, I don't think people understand how inefficient their facilities are. So people don't monitor it, they don't measure it, so they don't know what they're doing, and therefore, the computers are working so why... it's fine. And it's getting to that level of understanding of - these things really do need to be monitored and managed carefully so that you can identify where problems are, and then target your investment to make sure you do develop, and increase that efficiency. I look around [redacted] and much like most other [redacted] we have a whole raft of different machine rooms or computer rooms or data centres as people call them [laughter] all over [redacted] ranging from everything from a single rack in a cupboard at the bottom of the stairs to a 40 50 rack room. But nothing is measured. So when I say to people 'how much power do you use for that cabinet?' they don't know. They can't get the detail out of the site. Our [redacted] management team can't provide that information. So it is about that, understanding what you've got, monitoring carefully and then looking at, how does that match against sort of industry benchmarks, and what can we do to improve it. So I think that's the biggest thing. Get the monitoring right, and then secure funds to do the improvements.

Ir: OK. So do you think things like the code of conduct and other standards are a good way to encourage... well share best practice?

Ie: I think they are. I think having the standards in place is quite critical to the industry developing and getting better at what it does. And the more you can display those standards working, and giving you benefits, then the more likely other people are to try and follow suit and take them up. And certainly for us, we want to do it here at the data centre, the main data centre. And then I want to start to look at how I roll out across other facilities around [redacted]. Because we can generate significant benefit from doing that. But until I get that demonstration of capability, it's very difficult to get the buy-in from other people to accept it.

Ir: OK. Do you think there could be a role for other, kind of, more supportive policy measures like subsidising energy audits and engineering consultancy services and things like that? Do you think those kind of approaches might have a part to play?

Ie: They may have. I think it would be dependent upon the particular institution or business that are looking to do it. I mean we're quite fortunate in the environment we're in. We have access to a lot of these kind of capabilities anyway with little or no cost. So it's probably a unique scenario. I think in the wider business, because everything is, it's all down about the bottom line, anything that can be done to encourage developing those capabilities and services from engineering reviews and energy audits would be beneficial. Whether that's being done at a central level, a government level or whether it's down to policies of the individual businesses. I think there's probably a role to play in both areas.

Ir: OK good. I think that's just about all the policy instrument type stuff. I was also gonna ask you a couple of quick questions about aisle containment, which is kind of the focus of my... the technical side of my PhD. Erm, so you've got aisle containment in, you've got hot aisle containment in one data centre, and then you've got obviously you're rear door coolers in the other one so aisle containment becomes... or it's effectively hot aisle containment essentially. So what were your main drivers for going down the hot aisle containment route?

Ie: Well initially it was that aisle containment was the main principle because aisle containment is more efficient than having no containment, because you can separate the air. Hot aisle containment gives you better efficiency because you can return hotter air to the actual CRAH or the CRAC unit, so that the hotter you can get the air back to that the better, the more efficient that works. Because if you return the air too cool it stops working, it thinks that everything's fine anyway, it doesn't need to work as hard, it just stops pumping cold air out and you don't get the cooling you require. But containing that hot air and getting that back quickly to the CRAC unit is more efficient, largely more efficient than having cold containment. The containment itself is the key thing. Whichever way you go, make sure you're getting that containment, you're segregating the air, because hot and cold mixing just completely ruins the effectiveness of your air conditioning units. So that was the main principle behind it. Hot aisle for us was a nice easy one, it was a new build here. So when you're building from scratch hot aisle containment is probably marginally better. In a retrofit area you probably gonna be forced down cold containment route. Simply because of the constraints of your building. That's not always the case, but more often than not that would be the case.

Ir: Do you have much of a feel for why... you know, it's a fairly well established approach to your cooling now to use containment. Do you have much of a feel for why lots of data centres haven't taken it up yet, or as still lagging behind?

Ie: I think it comes back to something we mentioned earlier. One is, people aren't measuring and monitoring what's going on in the data centre. And I think there's also a general... there seems to be a general lack of understanding, which is quite surprising, in some areas of data centre management, that actually separating that air is beneficial to the actual computers. People just don't seem to get it and I don't understand why. It is basic physics really [laughter]. It's very surprising that people don't do it more, because it's not costly really. You can do fairly low cost and effective containment strategies. You don't have to go for the ultimate containment capabilities, you don't have to go for things like we've got here. You can get away with butcher's curtains and doing some fairly basic things, and it will have a massive impact on the actual performance. So it is very surprising that more people don't actually take it up. But I think it comes down to the fact that people don't understand how inefficient their facilities actually are. Because they don't measure anything. So I see very few people, when I talk around [redacted] I see very few people that actually seem to understand the problems of bypass and recirculation of air. They just don't get it, they don't go and check anything. They just think that they've stuck a server in the room and there's loads of cold air about so everything's fine. They really just don't understand, they're too focused on the IT itself and what that's doing rather than how that's being managed. So I think people need to broaden their perspective a little bit, look a bit further. Maybe it's the facilities management and IT people that just don't talk to each other. One of the benefits here is that I run the facility and I'm also responsible for making sure the IT is managed effectively in the room. So I've got both halves. Which is, I say a nice problem to have, sometimes it's a major headache! But at least it's all under my control.

Ir: OK. I think that just about covers everything.

Ie: OK.

Ir: Yep, thanks very much for giving up your time.

Ie: Well hopefully it's been useful.

Ir: Yeah very much so.