Transcript ABB2

Interviewer (Ir): So this is interview [redacted]. That's just for my records. Erm... So right, so first of all thanks for taking the time to er, to do the interview. We couldn't do this piece of work without yourself and people like you giving us your views and things so it's much appreciated. Erm, just to briefly outline the structure of the interview, I'm gonna ask you just a few questions on your job role and your company for a bit of background. Then we'll move on to some questions about sort of policy instruments around driving energy efficiency in the data centre industry. So that's about the long and the short of it.

Interviewee (Ie): OK.

Ir: OK so first of all if you could just describe, as I say, your job role, what your responsibilities are.

Ie: OK. I'm [company] project director, I generally work in 2 distinct areas. The first area is I'm responsible for the build and operation of [company] infrastructure. And the 2nd one is I also have overall responsibility for the delivery of [company] funded research projects.

Ir: So, so you must have quite a lot to do with energy efficiency and... do you have responsibility for M&E and stuff like this?

Ie: Yes.

Ir: Yeah. And do you have much of a role in winning customers and that kind of thing.

Ie: Erm, I'm usually dragged in at some point in the proceedings, particularly when people want to know about the energy efficiency of the data centre. I have very little to do with the setting of the price, other than to provide some costs and some background data.

Ir: Yep, good. Erm...so this is a co-location data centre as you've said.

Ie: Yes.

Ir: Do you have lots of different individual customers?

Ie: Erm, we have a number of different customers from a range of different industries. So ranging from financial services to health services.

Ir: Oh.

Ie: So a wide range of clients.

Ir: OK. Erm... which team within the company is responsible for the electricity bill?  
Ie: Erm, that's probably me!

Ir: And do you have a sort of system in place for how you pass on the bill to the customer or does it very or...

Ie: Yes we do. We're very concerned... we have, the pricing structure takes one of 2 approaches, the first one is we take the risk, the 2nd one is the customer owns the risk. In other words we'll sell you a rack and we'll give you a price per rack, and we will give you a nominal electricity usage and provided you stay within the usage band, we own the price risk. The other one is we'll do you a deal where we'll sell you a bare rack and we'll sell you electricity at a cost. And obviously that's electricity marked up by the PUE rate, but the rest of it we just purely pass on at cost. We're not in the business of making money out of electricity per se, as you probably know that's very much frowned on. We're allowed to add an administration fee to those costs, and that is literally all that we do, so keeping the PUE down and the energy efficiency is as much in our interests as it is in the clients'.

Ir: OK. Could you give me an idea of the size of the data centre in terms of the footprint and the power consumption.

Ie: Well it's designed to be a total...the total footprint of the data centre is about 10000 square feet, or about a thousand square metres. The er, technical area is a little over 6500 square feet. 650 square metres. Er, and it, as I've said downstairs it's coppered up to about 1.5 megawatts. We originally thought that the density and the rack density would be much greater than it is, and we have a capacity for between 120 and 180 racks, depending on the kind of racks that are put in and how we configure them.

Ir: And you're currently operating some way... well you're working towards full capacity but some way below...

Ie: We're operating well below. We're operating below quarter of a megawatt at the moment.

Ir: OK good.

Ie: How we remain small but beautifully formed.

Ir: Yeah. How long have you been operating on this site?

Ie: [company] came to this site at the end of 2007. We opened a smaller data centre which we're now dismantling, on the other side. And that filled and we then needed to move in here.

Ir: And do you have a specific tier classification?

Ie: We are...that depends what you mean by tier. If you're talking about the Uptime Institute then we're probably tier 3 ish. But we're classified as level 3 under the Data Centre Alliance certification. [redacted].

Ir: OK good. I think you mentioned before about your PUE, so you measure PUE in a fairly consistent...

Ie: Yes, we do it all the time, and we're bone idle in the sense that we use a very raw figure for PUE. We don't tend to extract things and just... exclude stuff, we tend to take very raw figure. What's the IT, what's the total electricity coming in, and what's the IT load, that's the PUE load.

Ir: Yeah.

Ie: And there's a very good reason for that cos I think you can kid yourself a great deal. We do monitor a whole range of other things because it's very easy to get a good PUE. For example we could restrict the airflow through, and the fans in the servers would then ramp up, and actually that makes the PUE look better, so we monitor overall power consumption as well, and I... as well as the IT load. And we watch very carefully what's happening there.

Ir: OK. I'm doing some work around that myself as well.

Ie: We did look at, erm how... we did some work with [redacted]?

Ir: Yeah yeah.

Ie: [redacted]

Ir: You have to try these things I suppose. Well I think that gives us an idea of who you are and what you're doing and stuff. So I was gonna ask you next a few questions about the data centre code of conduct...

Ie: The EU CoC..

Ir: EU Code of Conduct yeah. So are you participants of the code of conduct?

Ie: We are due, and in fact this afternoon, I'm about to fill in the 2nd year, so yes! We're full members and we submit and report against it.

Ir: So you've been... you say you've been members for 2... a year?

Ie: We... I can't remember which way round it is, you either become a supporter or a participant member. And we were initially a supporter and became a participant member last year.

Ir: OK.

Ie: It took a long while for it to come through, we actually started the process... took about 7 months for it all to come through but yes.

Ir: OK. Erm, could you explain what your reasons were for applying?

Ie: Yeah, a number of our... in [redacted], a number of the opportunities that are open to us are public sector opportunities. And there is an interest in the public sector in energy efficiency and the environment. Erm, I'd have to say it still probably comes back to price in the end but there is a, certainly as part of tender processes, we are asked that.

Ir: They ask specifically about the code of conduct or they ask...?

Ie: Certainly... no they don't ask specifically for the code of conduct, but they often ask what environmental measures that we take, what is our environmental policy. And as part of that we decided that we would go along with the EU CoC. In actual fact it was extremely easy for us. Because much of the philosophy we had already adopted. And forgive me but you're probably aware that [redacted], and we both speak on the same subject, we're fairly passionate. I'm also a bit of a closet environmentalist. You can't be anything but a closet environmentalist if you're in the data centre business because people hit you if you say you're an environmentalist!

[laughter]

Ie: So it's kind of important. Energy use optimisation rather than simply energy efficiency is perhaps... where I, where my own interest lies, but when it came to the EU CoC, we either did it or were in the process of doing it so it was a relatively easy process.

Ir: OK. So you didn't particularly see it as an opportunity to improve your energy efficiency above and beyond what you were already doing in terms of...

Ie: There were a couple of nudges in there, but in general it wasn't an opportunity to improve, it was something which gave us a badge for something we were already doing.

Ir: OK. Erm... do you have much of a feel for the opinions of other, err, organisations within the industry that you might have dealings with? Do you, did that give you any impetus to join? Or was it purely sort of off your own back, you saw it as something that would be...

Ie: No we were also involved with the DCA, and the certification of the and the DCA certification and developing that because of the [redacted]. So it was a... some interest, and we knew that if we did the EU CoC it would take us a step down the road to DCA certification. So as part of the development of the DCA certification we decided we'd do the EU CoC and the, erm, and the DCA... by the way I've mislead you because we've been full members for 2 years not one year on the EU CoC. [redacted]

Ir: OK. Erm, you mentioned that the code of conduct kind of nudged you towards doing some things that you perhaps might not have done, or might not have done at that point. Was there anything that you had to do for the code of conduct that you felt was unhelpful or didn't help your efficiency or had disadvantages in other ways?

Ie: No. The code of conduct's quite loosely framed in many ways and it is a code of conduct so the reality is most of it is... if you are following good practice anyway, most of it are nudges in a couple of directions. If you're not following that then I can understand why it would force you to make some radical changes, but actually we weren't required to make any radical changes whatsoever, to comply.

Ir: You mentioned that it took quite a while to become accredited. Was there much in the way of an administrative burden around applying?

Ie: Erm, the administrative burden is not great. Erm, the administrative process once you've submitted the form is interminable.

Ir: In terms of it dragging on.

Ie: Yeah. It's a bit like a black hole, you know you send messages but nothing comes out.

Ir: Yeah, which must be frustrating.

Ie: Yeah.

Ir: OK. Do you think that puts other people off from applying?  
Ie: Erm, it's not painful. It's irritating but not painful, so it may do, but it shouldn't, if that makes sense. You're not doing any more work, you've done the work you've submitted it, you've just gotta kind of wait for the commission to react and respond.

Ir: OK. Erm, is there anything about, we might have some obvious answers to this bit! Is there anything about the scheme that you think could or should be improved?  
Ie: I think the administration side of it. People put an awful lot of time and thought into developing the code of conduct. And I think most of it is extremely well thought out. And if you're trying to be a better player in the industry it's helpful. Certainly none of it is unhelpful. The administration process itself just takes too long. And I think one of the reasons why it might be slow to get people to actually adopt it... there are 2 reasons, one is the administrative process itself, and the other one is, it is not widely, it's not as publicised widely to clients as it should be. One of the problems that you have is you're in an industry where you're permanently trying to drive costs down, so actually standards are adopted when they will help you gain business. So if your clients are asking you for it, it suddenly becomes really important!

Ir: Yeah.

Ie: So I'd do more publicity on it. Particularly with larger organisations. And I would improve the administration. So that it took a much shorter time for the accreditation to finally come through.

Ir: Some people I've interviewed have commented that... the kind of monitoring and continual reporting process maybe isn't enforced and some people possibly, some members might not report regularly and things like that, do you think...

Ie: Yeah, we're about to do our report, so... and it's about due, so we're trying not to be over due. It certainly isn't enforced as well as it should be. But I say that only anecdotally on the basis that, quite frankly, we're going to do what we need to do, and other people can worry about their end of it to be brutal. Having made the decision that we're going to do it, we're going to keep it up.

Ir: Yeah. Do you think that the lack of enforcement has an impact on how effective the code of conduct is? Do you think it would be, have more of an impact on energy efficiency if it was more enforced?

Ie: Not necessarily, because it also has to be valued. You need to have those 2 things, so in other words you need to have your clients telling you you need it, and then you need it enforced. Because if you don't need it, why do you care if it's enforced?

Ir: OK. Do you think it would put people off if it was more heavily enforced or policed?

Ie: I think if you don't do... it has to deliver value. And there has to be a perceived value for it, both with clients and for us, as operators. So if you can make it deliver value, then the enforcement isn't a problem. If you don't make it deliver value, in other words if clients don't value you having it, enforcement's a massive problem, people just drop off the twig.

Ir: Yeah. OK. Erm, do you think the code of conduct has had much of an impact on the sort of, broader industry? Obviously there's been some comments that not that many people have signed up to it, but do you think it has any wider impacts on the industry beyond people who actually become participants?

Ie: I think there is a pervasiveness about it. There's an awareness that people need to think about it. How much impact it's had is, I think, far more difficult to gauge without erm, a serious study. To say who's taken it up. Some of the questions you've asked, how did it change your behaviour... but I think the very fact that it exists... knowledge has gone out by osmosis, rather than by any reasonable marketing or... and certainly, you could go to a lot of IT directors who hadn't got a clue, wouldn't have a clue [here he means IT directors in co-lo customers]. And you could... and none of the procurement departments would. However, some people in the public sector do. And it certainly, when it's brought back to people as a badge if you like, it is recognised as an environmental commitment.

Ir: OK. Erm we've probably kind of tangentially touched on this, but do you have feel for why there hasn't been greater uptake of the code of conduct?

Ie: Perceived value.

Ir: Yeah.

Ie: As simple as that. You know, we can talk around this for an hour. The hard reality is that, people will engage in painful things if they think they're going to gain from it. And I... we didn't find it particularly onerous or painful. It was a couple of afternoons of form filling, and checking against our documentation, preparing the whole thing. The cost was relatively low. But we were in the fortunate position of having set out to design an energy efficient data centre! [laughs] We didn't wind up with legacy data centre where it was 'ooh, how do we do that? How do we answer this one?'. So I think erm, if we can deliver to the industry a perceived value, in other words their clients value it, then I think you've see uptake rise, and until then some people will wonder why on earth they would bother.

Ir: Yeah. And that's more of an issue than people just not knowing about it or not getting round to looking into it or that kind of thing?

Ie: I don't think... I think there is now an element of that. I wouldn't want to downplay that completely. But at the same time, you don't do stuff in business that you don't value. Erm, so the EU CoC badge of excellence, courage honour, call it what you like, the red badge of excellence, is sort of that needs to be valued by industry clients. And as we move to a cloud environment, cloud provider economy, digital economy, then if nobody values the EU CoC people will just go into the cloud and look at price and facilities. So you may be barking up the wrong tree. Because if we as an industry go along to a client and say 'we have this badge' and the client says so what, move on, next, what's the price? You eventually begin to start wondering why on earth you were wearing the badge in the first place.

Ir: OK. Well I think that was it for the code of conduct. How are we doing for time? Twenty five to OK, going quicker than the other interviews that's good! Erm,

Ie: Well, importantly for you am I answering the questions?

Ir: Yeah, I think so yeah. So I was just gonna move on and talk about some other policy instruments besides the code of conduct.

Ie: Go for it.

Ir: Erm, so firstly kind of broadly, is there any other policy instruments that you think are missing from the environment, that would help to further drive efficiency, or maybe engage more data centre operators in improving their energy efficiency?

Ie: Is there anything that's missing? Erm... I think the certification of the DCA certification actually in many ways, and building on the EU CoC is something that isn't missing... it can't be missing, it exists... but that also needs a lot more publicity and a lot more proliferation through the industry. Erm, I think the focus in data centres largely because of the Uptime Institute, has been around resilience. And not around energy efficiency. Although that's shifting. And I think the data centre alliance certification strikes a really good balance between all the operational aspects. And it also allows adequate weight to environmental performance. Not just energy efficiency, to environmental performance, and I think that's kind of important in a data centre. So I would like to see that certification widely accepted. And widely sought by purchasers of digital services, be that conventional tin hosting or be it cloud.

Ir: OK. You mentioned the CCA do you think something like the CCA and or the CRC or CCL and all that, the kind of approach of taxing energy and or...

Ie: No I said the Data Centre Alliance

Ir: Oh sorry...

Ie: Rather than the CCA. Well, it's taken a long time to get through to government that the, their actual commitment on carbon reduction, their taxation regime was counter-productive. Because if you kept all of your PCs under your desk, and distributed your servers and just used highly inefficiency air conditioning, then your... but you had lots of people doing that, but all of them below the thresholds. You weren't driving overall energy use optimisation. Whereas bringing those servers in somewhere where you have high quality facility, with a great degree of energy optimisation is actually exactly what we want. Unfortunately, the way in which the taxation regime went, that meant that as you, your electricity usage increased, although you were doing it efficiently, and therefore as a societal benefit, you suddenly found yourself the recipient of a tax, which you then needed to pass on to your clients, who actually didn't need to pay it because they could in many cases just have a data cupboard. And we remain in the UK a country where 80% of the data centre, of what you would call a data centre, are racks in highly inefficient cupboards. So in general policy instruments have not been well thought in, for data services and digital services, and the data centre sector. They've been counter-productive.

Ir: Do you think the CCA helps address that, in terms of allowing a way to avoid the full extent of the tax?

Ie: It is some mitigation. How shall I put this? It's a mitigation of the law of unforeseen consequences. You know if you don't think things through properly then you needs something... I think it's in mitigation but I'm not convinced that actually a radical rethink and encouragement of people to the exact opposite actually, which would be to completely absolve the data centre industry of it. Providing it met certain efficiency levels. But on the other hand tax people on their electricity usage and IT usage outside, might be a much better way of doing that. Because what you're trying to do is stop people having data cupboards, and put it somewhere where it's cooled efficiently, where it's resilient, where it's secure. Which increases business resilience, it increases energy use optimisation. Why not?

Ir: OK, so the approach of... yeah having a set of standards that people are encourage to, or even forced to adhere to, rather than taxing energy or that kind of approach you think is more...

Ie: Taxing energy's a, is a blunt instrument, and in this case has been counter-productive. What's mitigated against it being totally counter-productive is there are people who need resilience, and therefore the cost of resilience has been greater than the costs incurred by the additional fees resulting from the taxation, so by and large, it still made sense for some people to move into the data centre. For large numbers of other people it still makes sense to have a cupboards in the corner. Or a number of cupboards in the corner. You can play games with your carbon taxation depending on where you put your cupboard. It's very difficult to play that kind of game with the data centre, because it's a big lump that uses a lot of energy, so as a blunt instrument it er, it's not doing the job. From our... from the point of view... it may in other sectors but from the point of view of the digital sector it's not doing the job it was intended to do, and putting in amelioration methodologies... they're not counter-productive, but they are a band aid on what is potentially a seeping wound. Actually it needs something of a re-think. And we are a big enough industry for it to become important.

Ir: OK. Erm, I don't know if you've read this report, but a few years ago the US department of energy had a big workshop with data centre industry people, trying to come up with ideas for how... what sort of policies they could use over there to drive efficiency

Ie: I haven't read the report, but I attended a talk on it.

Ir: OK. So a lot of their recommendations were things around subsidising energy audits and design services, and those kind of approaches. Do you have much of a feel for if you think those would be useful over here, or...?

Ie: I'm not convinced. And in a way you could argue the CoC is a self-audit. And you could argue the DCA certification is actually an external audit. So if we subsidised it, would it encourage a greater take up? I'm sort of a believer that we do things in our best interests. So the honest answer is, erm, if I go to you and say, I'll house your data for your PhD securely for you, in a non-energy efficient data centre for £10 or for £15 in an energy efficient data centre, as a poor PhD student, where are you gonna put your money? So I tend to think if we put drivers in place to encourage people down that road... and we publicise... in other words we match policy with publicity - that would be far more effective than putting subsidies in place for energy audits.

Ir: Do you think there's an issue within the industry that some - I mean obviously yourselves have got a very nicely designed, very efficient data centre - do you think in other, in some data centres there's issues where they don't necessarily have the knowledge and expertise to improve their energy efficiency off their own bat?

Ie: Yep. Public sectors rife with it.

Ir: Yep.

Ie: The places that you don't want it and don't expect it. Absolutely. They don't have the knowledge, don't have the expertise. Nobody's ever thought about it in that way. Not all of the advice they get is cogent. And they don't always have the money to invest at the time they need to invest it.

Ir: Hmm. What do you think is a, the best way to address that? Do you think through standards and things like the DCA if you can encourage more...

Ie: Yeah I do, and I think that again, it comes back to publicity, it comes back to government saying 'we don't care where you put it, but it must be secure, it must be resilient, and it must meet these standards of energy efficiency'. And perhaps not just energy efficiency but environmental impact.

Ir: OK good. How are we doing? OK. I was just gonna ask you a couple of brief questions at the end on aisle containment. My work, my sort of experimental and modelling work is all focused around aisle containment. So you have, er, well essentially hot aisle containment.

Ie: Essentially we have hot aisle containment yes.

Ir: OK. So has that been in place from when you opened up the data centre?

Ie: Even our previous data centre had hot aisle containment, albeit it was a true hot aisle.

Ir: Yeah, OK. So what were your main motivations for bringing hot aisle containment...

Ie: Energy efficiency simple as that. We have always striven to be a company that looks hard at our energy and is competitive by being energy efficient. The industry for a long time simply passed on costs, energy costs, to its clients. And therefore didn't care. We set out to be innovative and competitive through innovation. For a number of different reasons. Cash - let's make no mistake about it, we're competitiveness, but also because there is a commitment to the environment. Doesn't mean I don't waste large amounts of energy every day much to my annoyance.

Ir: Yeah. Were there any kind of barriers to you, or any difficulties in installing aisle containment, either in this data centre or the previous one?

Ie: Nope.

Ir: Do you have... obviously it's becoming fairly widespread now, but it's probably been a fairly well established technology for a long time. But do you have much of a feel for why the uptake of it wasn't quicker than it has been?

Ie: Cos you just used to pass the costs on to the client! [laughs]

Ir: OK. Anything on a practical level, or... do you think it was mainly a financial thing rather people wanted to do it but weren't able to do it or...

Ie: Well the other thing you have legacy, you've got a legacy and there are costs to doing it all the time, and if you're just passing the costs on to the client, what's the driver? The other thing is a lot of the legacy data centres were not it... I mean they are in London in prime real estate areas, but outside of London a lot of the data centres... the, I'll say privately, and by that I mean not open to the public, not necessarily private sector, data centres, so including local authorities and public sector, are in legacy buildings under legacy... and they require investment to turn it round. So you know the argument, well you know you just pass it on to the client. But actually one of the things you discover is that different groups of people, own different bits of life in the public sector, so the IT department might own for example the data centre, but the electricity bill's paid by estates. And so some of the inefficiencies and the cost savings have been on different departments, sort of different people's balance sheets. And therefore it's been quite easy to mask those inefficiencies. For what it's worth I think that given the size of the industry, and [redacted]... when I said my mantra is energy use optimisation... I'm a good boy, in your terms, in terms of these questions that you've asked, and in terms of the company, if I waste energy really efficiently... and I'm good at wasting energy really efficiently. Over the last 7 years or so I've accumulated enough knowledge to be able to waste it probably more efficiently than most other people around. That is a disgraceful statement to make. I still pump heat, and reject heat into the atmosphere, and actually we need to be looking at methodologies for making use of that. We need to look at, and probably re-use of heat is grossly, in data centres is grossly impractical. Probably. For a number of reasons. Marginally impractical to grossly impractical, but not attractive under most circumstances. That means we need to think about something else. And that's probably electricity generation. But with efficiencies of only around 5% it's uneconomic. So for me, it is perhaps one of the longitude challenges for this, for the 21st century generations, for your generation perhaps. Which is, if we're all gonna consume more data, and we do get our wish and we bring it together as an agglomerate in data centres, then we're going to have people like me who are putting 1 bar electric fires, spending a kilowatt on your 1 bar electric fire, and trying to waste that heat efficiently! As efficiently as possible. And our challenge is going to be what on earth are we going to productively with it.

Ir: One for my successive PhD students I think!

Ie: It is something that's... well I think energy use optimisation in our society is very important. But you know we're proving that generation, by... non-carbon generating means, is much more difficult than everybody thought. We've decided we don't love nuclear power. [redacted] It's a bit dangerous when the sea water comes over - so we shut down nuclear power stations that are miles from the sea, and not on a faultline, but hey ho! But it is... it may not be a pleasant industry in many ways, but it does provide energy without a huge amount of, if you ignore the embedded carbon, but even if you don't ignore it, it does provide energy at sensible levels of carbon emissions for its operation. At tolerable levels, on a global level. The fact that you can get strange and unpleasant substances that you don't want to ingest, or even sit next to for too long, is you know, another matter altogether. We can't carry on stuffing carbon into the atmosphere. We're not moving as fast in making renewables practical as we need to, and therefore we need to cut down on energy usage. And between 2 to 3% depending on who you believe of global energy usage, data centres are an important part of that. So my argument is that our challenges are about efficiency, all the things that you talked about are very valid, but we need to think equally hard about energy use optimisation. You know, we need to expand our definition of energy efficiency a little bit to include what on earth we do with it all, but that's a personal opinion.

Ir: No I agree! OK well I think that comes... brings us to all the stuff that I wanted to cover so...

Ie: Good.

Ir: OK.