

# **Health, Social Services and Housing Panel Telephone Mast Review**

**TUESDAY, 23rd JANUARY 2007**

**Panel:**

Deputy A. Breckon of St. Saviour (Chairman)

Deputy C.H. Egré of St. Peter

Senator B.E. Shenton

Connétable M.K. Jackson of St. Brelade

**Witnesses:**

Mr. M. Liston (Jersey Electricity Company)

**Deputy A. Breckon of St. Saviour (Chairman):**

Good morning, we are now back in session. It is 9.30 a.m. Welcome, Mr. Mike Liston and I will come to you in a moment. We just need to go through certain procedures first. I will explain who we are and why we are here really and then hopefully you know as well. I am the Chairman of the Health, Social Security and Housing Scrutiny Panel and this is a sub-panel that has been set up under that main panel. The other members are Deputy Collin Egré, Constable Mike Jackson and Senator Ben Shenton. I am sure you know them all anyway. Our terms of reference under the Scrutiny review, we are looking at telephone masts and the terms of reference are: "The sub-panel will consider the concerns of the public relating to perceived health implications as a result of the increase in applications for mobile phone mast installations following the recent expansion of the mobile telephony market. In undertaking this review the sub-panel will have regard to the advice provided by the Health Protection Department, International Standards and Best Practice in respect of health precautions, health concerns raised by the public and reporting its findings and recommendations to the States." We have another procedure which is for the benefit of witnesses and I will ask Collin Egré to read that to you and there is a copy of it in front of you.

**Deputy C.H. Egré of St. Peter:**

You will excuse the formality of this particular stage but for legal reasons I have to go through reading this document. "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 I am about to read to you on the table in front of you. The proceedings of the panel are covered by parliamentary privilege through Article 34 of the States of Jersey Law 2005 and the States of Jersey (Powers Privileges and Immunities) (Scrutiny Panels, PAC and PCC) (Jersey) Regulations 2006 and witnesses are protected from being sued or prosecuted for anything said during hearing unless they say something that they know to be untrue. This protection is given to witnesses to ensure that they can speak freely and openly to the panel when giving

evidence without fear of legal action although the immunity should obviously not be abused by making unsubstantiated statements about third parties who have no right of reply. The panel would like you to bear this in mind when answering the questions. The proceedings are being recorded and transcriptions will be made available on the Scrutiny website.” We have all been told that we have to talk up.

**Deputy A. Breckon:**

Thank you for that, Collin. I will just follow on that you have been supplied with questions but they are not cast in stone. You might say something where we might wish to ask a supplementary to that. Also at the end there will be an opportunity, should you wish to say anything else that you think we might have missed that is relevant, please do so, but that is optional, you do not have to. Otherwise, that is the formal bit over so relax, you are not on trial for anything and hopefully you will enjoy the experience of being in this wonderful building. If there is anything that you are unable to answer, that you might need some back up of your company, it is not a problem. This is part of a process not the end of the process and it could well be that we might ask you to come back with some further information or you agree to supply that. The other thing, just before we get into the question part is Collin mentioned there we do take transcripts from this and it becomes a matter of public record. Having said that, when we do get them back you will get them first and you will get 3 or 4 days to look over them because you might say 50 when you should have said 30, so you will be given the option to correct anything that you may have said and then, after that, they will then become a matter of public record but you will be given that opportunity first because there could be something, as I say, where - not to mislead us - you just say: “I think it is 30 but it might be 50” so you are given that opportunity. So that is really the official bit and, as I say, although it is fairly informal in here, you are not on trial for anything so please enjoy that and we welcome this exchange and thank you for coming. I will lead in with the questions which I think you should have had and feel free to say as much or as little as you like. The first question is the extent that your company is involved in providing any form of service to mobile telephone service providers in respect of erecting mobile masts. I would ask you, Mike, at the same time if you could introduce yourself as well.

**Mr. M. Liston (Chief Executive, Jersey Electricity):**

I am Michael Liston and I am the Chief Executive of Jersey Electricity. The supply of services that Jersey Electricity provides to the telephone operators is very much similar to the service it would supply to a developer of domestic properties. We provide electricity supply on request. We are obliged by law to make the supply on request and generally this takes the form of providing an electricity supply from our existing electricity distribution network to a roadside pillar provided by the telephone operators and they then take the electricity supply, mostly by way of buried cable, to the mast installation, which is generally some distance away from the roadside and therefore from the pillar. Normally the supply is at the lower voltage, much like households, of 230 volts. On some occasions the supply needs to be at the slightly higher voltage of 400 volts.

**Connétable M.K. Jackson of St. Brelade:**

Does that single phase or 3 phase which you are saying depend on the size of the area involved?

**Mr. M. Liston:**

Largely, yes. It depends on whether the mast is part of a base station which, in some cases, master stations have a role that is more extensive than the peripheral masts. But in no cases do we find that the capacity of the supply that we are asked to provide exceeds that which you would expect from a normal 3 bedroom house.

**The Connétable of St. Brelade:**

Does that demand increase in a sharing situation where noting that there is a tendency towards wishing to share masts? Does that lead to increased capacity which --

**Mr. M. Liston:**

Yes, it would. However, that would make very little difference to the works involved. So the size of the cable maybe slightly larger but it is insignificant anyway. The length and depth and breadth of the trenching, all the works, would be not be materially different.

**The Connétable of St. Brelade:**

In terms of cost to the phone companies, the whole of the exercise of linking into you system I would imagine is attributable to those companies, is that correct?

**Mr. M. Liston:**

Yes, the full cost is recovered from the operators, except in the first 25 yards because under the electricity law we are not allowed to charge for the first 25 yards. But other than that little oddity there is no cost to other electricity users from the activities of the telephone companies. We recover the full cost.

**The Deputy of St. Peter:**

So the power consumption that is required is proportionate to the amount of equipment they have on board so if you have extra operators you will have extra power requirements?

**Mr. M. Liston:**

Yes. The income, frankly, is trivial. In each case, as I say, it is about the same as a domestic dwelling.

**Deputy A. Breckon:**

I know under the law I think it is correct saying that the Jersey Electricity Company would be able to get

rights over land, would that still apply for the operators or do you leave them to do their own thing?

**Mr. M. Liston:**

We leave them -- they normally negotiate with landowners. In fact, it may come up later on, it would do naturally in the subsequent questions, and it was asked before we spoke today, on some occasions the telephone operator will take what is called the landlord's supply. So rather than asking us to provide an electricity supply they will go to an adjacent farm or, in a couple of cases, for example, there is an installation on the chimney at La Collette Power Station and, indeed, at our Queens Road, Jersey Electricity building, where we provide the electricity supplies. Fort Regent as well as the airport has similar arrangements with one or 2 of the operators.

**The Connétable of St. Brelade:**

In terms of the trenching in the roads I have a slight concern in that very often trenching is needed to go through parish roads and there can be a subsequent cost to parishioners for reinstatement at a later date. How do you view that principle and the principle that road should be reinstated back to original condition?

**Mr. M. Liston:**

Well, we are obliged in our normal business as an electricity utility to make good excavations and then come back within 6 months to deal with any subsidence, so the same applies here. What I would say is - on the point that you raised about the hope that the companies may be inclined to share more than they have been so far - that there are occasions where there would be excavation saved if the companies were prepared to share facilities.

**The Deputy of St. Peter:**

You will be familiar with the different forms of base stations. We have been having discussions with various technical people about what a base station is. In fact we have almost got the definition down to a base station is any part of either a macro, micro or pico site. They all serve as a base station. So the power supply for something like a pico site, which would be comparatively small because their power output is small, would indeed be expected to come from the main building. What would your involvement be in that sort of installation?

**Mr. M. Liston:**

Well, we do not normally get involved beyond this services pillar that we provide the supply to. We will do if asked but generally not. To my knowledge the telephone companies have their own contractors who do their own excavation and the cabling from our point of supply to their facility.

**The Connétable of St. Brelade:**

We have 3 companies over here at the moment; Telecom, Cable and Wireless and Airtel. Have they provided you with any of their projected plans for a developed network in the light of the 3G (third generation) development. For instance there is an indication that there will be more masts required on the Island. I am wondering whether their projections would fall in with your trenching projections in the Island and whether economies could be made by talking at an early stage.

**Mr. M. Liston:**

We do not have such details available. The telephone companies are tending to be quite quiet, maybe for commercial reasons. They know that we are a supplier to all 3 so maybe it is understandable that they are reluctant to talk too much about their plans. But what is a fact is that the intentions as indicated by the suppliers, by the telephone companies, insofar as they have asked for quotations for supplies to various points around the Island, there is quite a significant difference in the extent to which they have already built those installations. So, for example, whereas Jersey Telecom have asked us to quote for 49 services - and have built 41 of them - Airtel have asked us for 46, a similar number, but have not built any although we do know that there are about 12 sites, as I said earlier, where they have taken supplies from adjacent premises with agreement of the landlord. Cable and Wireless have asked us again for a similar number of quotations for the provision of electricity supplies, 48 in their case, of which 24 have been built. In summary, half of the Cable and Wireless network is yet to be built; Airtel, most of it is yet to be built; Jersey Telecom is substantially complete. Those are the only indications we have of their future intentions.

**The Deputy of St. Peter:**

If can bring us towards the health risks. You will be aware that going back in comparatively recent history there were concerns about health risks associated with electrical distribution points. What precautions do you take as a company to deal with the electromagnetic interference that may come from your own sites?

**Mr. M. Liston:**

In general we have, as a company, adopted the international standards, precautionary standards. You may recall that at the time we were seeking planning consent for the construction of the second continental electricity interconnector at 90,000 volts, we were obliged to do full environmental and health impact assessments and as part of that process we were required to, or should I say, the States Planning and Environment Department, as it was then, engaged the World Health Organisation - and I see you have a representative from that organisation as the next witness - to do a review of the research that had been done into such things. No surprise, their conclusion was that there was no proven link between electromagnetic fields from power frequencies -- I can perhaps talk very briefly about that in a moment, but you may well already be familiar with the difference between the power frequencies of electricity supply, 50 cycles per second, and the radio frequencies involved with telephony, which is

about a billion cycles per second. They reaffirmed that there was no evidence of any health risks but did advise the Planning and Environment Committee that the precautionary principle best practice would be to limit the exposure from the public electricity supply system to 100 micro teslas or less. We said that we would adopt that precautionary level of exposure and we have done and that particular installation, the second interconnector, has since been measured to just check that the emissions are no higher than that and we comply. But generally the 100 micro tesla is a demanding standard but one which, because in Jersey we have 97 per cent of our electricity network underground, we comply with readily throughout the piece. As far as telecommunications is concerned there are similar precautionary standards adopted generally and certainly in the UK. To our best knowledge the authorities in Jersey and, indeed, the operators in Jersey comply with those standards so we are not aware of any health risk and certainly my reading, as an engineer interested in these matters, has not revealed to me any research that has established a health risk between the exposures to radio frequencies which are common with masts and base stations. Although you will no doubt have been told, and will be told, that there is less history of sound research with these radio frequencies because the phenomenon of mobile telephony is a much more recent one than the science of power frequencies which is very well established and research goes back now 35-40 years.

**The Deputy of St. Peter:**

The point I was getting to, which you told us why, was the fact that there were obligations put on you, as a company, to deal with any perceived health risk that did exist and you took advice. When you say you were obliged to, who gave you that obligation?

**Mr. M. Liston:**

We were asked if we would be prepared to accept what is generally seen as a demanding standard.

**The Deputy of St. Peter:**

Could you just say who asked you?

**Mr. M. Liston:**

As part of the process by which we were seeking planning permission for the works to install the second continental electricity interconnector we were asked during that process, in the light of the WHO (World Health Organisation) recommendation that a prudent 100 micro tesla limit be adopted as in many of the countries adopting “prudent avoidance” principles.

**The Deputy of St. Peter:**

So that request was through the planning process?

**Mr. M. Liston:**

Yes. There was not a question of compulsion but we readily adopted that (a) because it seemed sensible and (b) because it was readily achievable.

**The Connétable of St. Brelade:**

Are you aware of any of the international organisations putting limits on mast emissions at the moment? Have you got any knowledge of --

**Mr. M. Liston:**

I am aware of them and where they exist, yes.

**The Connétable of St. Brelade:**

It seems to be the case at present that some of these international organisations are doubted in the minds of some of the general public. Would you have any comment to make on that?

**Mr. M. Liston:**

I do not think the general public is rational enough to be taken seriously when it comes to matters of science. I am a Fellow of the Royal Academy of Engineering, I am a Fellow of the Institution of Engineering and Technology and I am active in both those institutions. I sit on various committees. None of which, I have to say, are associated directly with the health issue. But there is, in the scientific community, some dismay that some research works that have been undertaken in the last probably 10 years in the matter of electromagnetic fields and the risk of health effects, that some research has been done which has been published without having been subjected to the normal rigours of peer review and unfortunately - probably the media has some responsibility for this - some of this work which has since been discredited by the scientific community has led to fears among the public which the scientific community generally would say is completely unfounded. However, I see no evidence of any complacency. It is a common conclusion each time some new research is undertaken and is published and sometimes published prematurely, it is not unusual to find members of a research organisation, individual members, who are on a committee of research or investigation expressing dismay that it was a minority view that had come out and that the process for publication still was not complete. Now, this is not common but it happens. Unfortunately it is that kind of situation which generally stimulates media reports which create the concern.

**The Deputy of St. Peter:**

When that concern is created we end up with a situation where we have a perceived risk. Now, within the science of risk, perceived risk is regarded as a function of risk because it can affect health. We have met people over the last few days who are genuinely concerned about issues and it is genuinely affecting their health. How would you go about trying resolve this particular problem?

**Mr. M. Liston:**

I think in all cases there is an effect from misinformation and especially when there is a perceived health risk and that risk is being imposed rather than taken voluntarily. I think we all know that as human beings we react very differently to imposed risk and assumed risk. So very often we find people who will be worried about such things as emissions from television masts but will smoke 60 cigarettes a day or go bungee jumping in their holidays. I think in all cases the solution, or part of the solution is a source of understandable and authenticated information so people can, assuming that they have not got themselves into a position of prejudice where they will not, accept a body of opinion which represents scientific best opinion. On occasions people have spoken to me about their concerns about the health effects of mobile telephony. Quite extraordinarily people who express some concerns about the proximity of a mast seem little concerned by their usage of a mobile phone handset and the risks are very different, even though there is still no evidence of a health risk I think it is well known that heating effects caused by long use of mobile phones near the head exist. Whether those heating effects lead to long term health problems is another matter not yet proven. But I think the scientific community, as a body, says that we need to do more research in this area.

**Senator B.E. Shenton:**

Going back to the official view, the official document of Health, the Health Protection report on mobile phone base stations does state that it is not possible at present to say that exposure to RF (radio frequency) radiation, even at levels below national levels, is totally without potential health effects. Now, that is hardly reassuring for someone who believes that the masts outside their bedroom window is causing them sleep deprivation or cancer or whatever.

**Mr. M. Liston:**

I agree with you entirely. I am certainly not trying to defend the commercial or any other interests of telephone operators. What I am saying is that some people will become very anxious if it is not possible to prove that no risk exists. Other people will be reassured by the absence of proof that risk does exist. I think it is a personal perspective on risk.

**Senator B.E. Shenton:**

In your opinion is it possible to prove that there is no risk?

**Mr. M. Liston:**

I think it would be extremely difficult because some of the mechanisms which may, in 100 years time, be discovered as a possible health effect of electromagnetic radiation are not known yet. The scientific community is unable to find, at the moment, a plausible mechanism by which electromagnetic fields cause health effects, certainly physiological effects are proven. At very high levels of electromagnetic fields there can be -- and this would be in exceptional circumstances, probably mostly confined to



workers in the industry, in industries where there are high levels of electromagnetic radiation, that might be radar or even broadcast, radio and television broadcast but it is known that high levels of electromagnetic fields do induce currents in the body and can have physiological effects like twitching. The long term effects, health effects, of that are not yet established.

**Senator B.E. Shenton:**

You have no concerns about having masts on JEC (Jersey Electricity Company) land where your workers are based?

**Mr. M. Liston:**

Well, in the cases where we have got installations - that is at La Collette Power Station and Queens Road - the emissions from those installations are well within the standards recommended as being prudent by the agencies, the Health Protection Agency in particular. So we do not have any concerns.

**Senator B.E. Shenton:**

One would assume that the only reason that you have the installations on your land is because you are being paid by the companies to put them there?

**Mr. M. Liston:**

Yes, but quite frankly it is probably -- if this is an important matter to you of quantity then I will come up with the exact numbers but I would say it is probably about £ (*figure removed as commercially sensitive*) a year, something like that. But we took the view that we had masts ourselves on these buildings for telemetry purposes, for the control and monitoring of the electricity supply network, particularly the high voltage network. We had already got the installations in place and if it avoided another eyesore of another mast in that vicinity and it did not inconvenience us to have an additional mast put up for telemetry purposes it seemed a sensible thing to do.

**Senator B.E. Shenton:**

One last question, does your public liability insurance that you hold cover you for any future health risks that may be caused by having mobile base stations on your land?

**Mr. M. Liston:**

I cannot answer that because I do not know the answer but I will find out. In terms of third party liability I would not expect there to be any exclusions in our normal cover for any future liabilities arising from health effects.

**Senator B.E. Shenton:**

It would be very helpful to the panel if you could let us know on that because we would like to verify

that.

**Mr. M. Liston:**

Yes.

**The Connétable of St. Brelade:**

In terms of radio frequency emissions, what sort of monitoring does your company undertake? I would imagine you monitor your own. Would you see with your experience there being equipment capable of satisfactorily monitoring emissions from telephone masts?

**Mr. M. Liston:**

That already exists. Normally my expectation would be that it would be hand held portable devices. I would not expect it to be fixed installations that were monitoring electromagnetic radiation. The science of it is well understood. The power rating of individual base stations and the demands on individual stations, the traffic on those stations, it is a straightforward calculation as to what the electromagnetic radiation will be at any point in time and at any distance from that installation.

**The Connétable of St. Brelade:**

With your experience of these things, would you expect those emissions to change in any way once the equipment had been set up? Is it the sort of --

**Mr. M. Liston:**

They change by the hour of the day, by usage and, for example, overnight the level of emissions will be significantly lower than they would be during busy periods in the day from a telecommunications traffic point of view.

**The Deputy of St. Peter:**

You mentioned your own facilities on your own mast, your telemetry links. Can you describe how those links work?

**Mr. M. Liston:**

Microwave generally. Microwave between Queens Road and La Collette.

**The Deputy of St. Peter:**

What sort of power output do you have from those microwave links?

**Mr. M. Liston:**

I do not know but, as you know, microwave is very focussed. It is not as ubiquitous as radio

frequencies. (Subsequently confirmed as very low power, at approximately one watt). (*Clarification provided subsequent to meeting.*)

**Deputy A. Breckon:**

Do you have a database of all the masts, the location of them, or do you know if there is one in existence?

**Mr. M. Liston:**

Yes. We will certainly have records in detail of the terminal point, the service pillar, that we provide the electricity supply to. We would probably have some records but we would not say that we could be confident that they would be complete as to what happens beyond that, i.e. the telephone operators work from that pillar to their own installation.

**Deputy A. Breckon:**

I wonder if, given your experience, you would like to comment on and perhaps give comparisons with other things that may radiate harmful, or supposed harmful, emissions. We have talked about computer screens in the past. There was a scare there where people introduced filters on the front, and even TVs and things like microwaves, domestic things. In general terms, in your opinion, is there a risk associated with them which is of a comparable nature of emissions from phone masts?

**Mr. M. Liston:**

I think probably what many people might find surprising is that the dosage from phone masts in a community like Jersey - I do not mean in a particular installation so many yards away from a particular mast, but in general - the dosage from the installation of mobile phone masts is about the same as from broadcast television and radio. One is very new in the public experience and one has been around for so long that it is probably not even identified as a risk.

**The Deputy of St. Peter:**

You mentioned broadcasting masts. How would you view things like radar, both terminal and SSR (Secondary Surveillance Radar), and things like ILS (Instrument Landing System) systems at the airport? Would they be seen to have high power outputs compared to broadcasting?

**Mr. M. Liston:**

I cannot answer that with the degree of confidence I would want.

**The Connétable of St. Brelade:**

The JEC have not been involved with the mobile telephony market but have you ever considered doing so?

**Mr. M. Liston:**

No, because we did not consider that the market that we anticipated emerging would cover the cost of providing the infrastructure. Would we enter a market with 4 players in mobile telephony and be prepared to make the necessary capital investment to support that market? Most definitely not.

**The Connétable of St. Brelade:**

Which leads to my next question. Do you see the market here as being rather over saturated?

**Mr. M. Liston:**

Very much so. I think the potential -- at the moment market share is still very much with Jersey Telecom but with the replication of infrastructure I cannot understand how the business model would be supported by requiring the installation infrastructure capable of supplying the full market but, in reality, probably only accessing maybe a quarter and maybe less. History shows that the incumbent tends to keep a fairly large market share so to my mind the market available to the 3 other new competitors certainly would not meet our investment criteria.

**Deputy A. Breckon:**

The only other question that I have at the moment is about disruption. Would you say that there has been any disruption to road users and residents or anything like that or is it considered normal installation work?

**Mr. M. Liston:**

It is normal business for us and nothing significant. It is mostly a fairly short road crossing. But I think we would be hopeful that the telephone companies do start sharing infrastructure. We are aware that a proposed facility at St. Catherine is the subject of a joint desire now to share a facility. Hopefully that will be the way forward but if the proposals that we are aware of represent the full extent of the network as it is proposed to be rolled out then it is probably getting a bit late to really get any benefit given that Jersey Telecom is largely now built, Cable and Wireless is about half built. I think Airtel's business model may be more demanding in terms of return on investment which may well drive them more to finding sites where they can take supplies from an adjacent premises. My guess would be that Airtel probably would be more inclined to share facilities than Cable and Wireless and Jersey Telecom because we have urged those 2 companies in particular to share supplies on a few occasions and there has been an adamant refusal.

**The Connétable of St. Brelade:**

Whose role would you think it ought to be to ensure that this does happen?

**Mr. M. Liston:**

I would think the planning authorities. We encourage that but we have no authority in that respect.

**The Connétable of St. Brelade:**

How do you see the role of the Jersey Competition Regulatory Authority in this?

**Mr. M. Liston:**

I would have expected that they see their role as promoting competition and the provision of a secure and reliable supply of telephony services to a standard appropriate to the market that we are in. So they may well take the view that third generation is a requirement. But I would not expect them to see their role as getting involved in insisting on facility sharing. I do know, however, of other regulatory authorities who have expressed the view that the companies are obliged to. I do not know the extent to which they have been able to enforce, as regulatory authorities, their wish to see masts being shared. I guess the telephone operators would probably say that replicating their infrastructure does not have a major impact at this kind of level, on electricity supplies for example, on the cost to the customer and that competitive forces will prevail so that they would not be disadvantaging their customers by building their own networks.

**The Connétable of St. Brelade:**

We understand that in Guernsey there is the situation whereby OFCOM (Office of Communications) were brought over to carry out independent monitoring of the telephone companies there. Would you think that that would be an appropriate model for us to use here?

**Mr. M. Liston:**

I would expect that the JCRA would themselves look to OFCOM if they were concerned about standards or behaviours. That has been their behaviour to date.

**Deputy A. Breckon:**

Thank you for that, Mike. I did say at the start to relax and we do appreciate your honest answers in your endeavour to inform us. I also said at the start if there was anything you wished to say then you would be given that opportunity and also if there is any follow up that you think you would like to add in the days ahead then please do that. So the floor is yours if there is anything you would like to say.

**Mr. M. Liston:**

Thank you for that opportunity. I think maybe the only thing I would want to reinforce is my hope that the outcome of this Scrutiny investigation will be reassuring insofar as it will bring together the scientific evidence in a way that the general public can be confident in. Although I doubt very much that it will reassure everybody.

**Deputy A. Breckon:**

That would be a good outcome, I am sure. I will now adjourn until 11.00 a.m. Thank you again.