

# STATES OF JERSEY

## Environment Panel

**TUESDAY, 26th MAY 2009**

**Panel:**

Deputy P.J. Rondel of St. John (Chairman)  
Connétable J.M. Refault of St. Peter  
Mr. M. Haden (Scrutiny Officer)

**Witnesses:**

Mr. C. Ambler (Chief Executive, Jersey Electricity Company)  
Mr. D. Padfield (Operations Director, Jersey Electricity Company)

**Deputy P.J. Rondel of St. John (Chairman):**

Good afternoon, gentlemen. For your information, this meeting is recorded so everything that is will be transcribed and we will have copies of it. Firstly, if you could introduce yourselves. I will start off with myself, Deputy Phil Rondel, Chairman.

**Connétable J.M. Refault of St. Peter:**

Constable John Refault of St. Peter.

**Mr. M. Haden (Scrutiny Officer):**

Mike Haden, the Scrutiny Officer.

**Mr. C. Ambler (Chief Executive, Jersey Electricity Company):**

Chris Ambler, Chief Executive of the J.E.C. (Jersey Electricity Company).

**Mr. D. Padfield (Operations Director, Jersey Electricity Company):**

David Padfield, Operations Director of Jersey Electricity.

**The Deputy of St. John:**

If I could firstly ask our officer to give a résumé of the purpose of this review, please.

**Mr. M. Haden:**

The initial purpose was to better understand the J.E.C.'s claims to provide a source of low carbon electricity for Jersey. The Panel a couple of months ago received evidence from Jersey Gas who had an alternative view and so the Panel wants to explore that. There are 2 other issues as well which we have indicated. Secondly, was to explore the potential for saving energy costs in States buildings which is related to another review the Panel is doing. Finally, Mr. Ambler has suggested in his letter that he would like to talk about the role of electricity as a technology in supporting future renewable development.

**The Deputy of St. John:**

Firstly, Mr. Ambler, would you like to give us a résumé of what you ...?

**Mr. C. Ambler:**

Of course. I do not know how much detail you want to go into and I know that we sent you a letter outlining the J.E.C.'s position on this. There is quite a lot in there; I am sure you have questions. I have also drafted a short presentation which I am happy to go through and it will take you through the steps if you think that would be useful.

**The Deputy of St. John:**

That would be useful, thank you.

**The Connétable of St. Peter:**

Do you mind if we break in if there is a question?

**Mr. C. Ambler:**

Of course, please do.

**The Deputy of St. John:**

If we could have a fourth copy for our member who is ill today, please.

**Mr. C. Ambler:**

Of course. I have just set out in half a dozen slides our position on this and I was just going to page through. You should have slide 2 in front of you. Basically, as you probably know sustainability generally is an important aspect of our business. It is really at the heart of what we try to do and it is something we have been working very hard on over the last 10-15 years so it is important, this process of assessing carbon intensity. The basic headline position on this is that our carbon emissions are essentially based on the 'actual system carbon intensity'. So if we look at, for example, the carbon intensity of the electricity grid, it basically comprises of a weighted average of the carbon intensity of our locally generated power at La Collette and also Queen's Road, and also the imported power which has a significantly lower carbon intensity. It is essentially a weighted mix of those 2. It includes an allowance for distribution and transmission losses. It is something that has been endorsed by the B.R.E. (Building Research Establishment), which is an independent and respected research and test authority in the U.K. (United Kingdom), whose job it is to look at carbon intensity, specifically for long-term planning applications, policy decision-making and investment in things like buildings which typically have a long-term planning horizon. It is validated for the energy policy building by-laws and long-term decision-making. Also, when this arose as a source of discussion last year we commissioned another consulting firm from the U.K. to look specifically at this, a firm that has no particular ties to the Island or the B.R.E., because we ourselves (the board of J.E.C.) wanted to be confident that what we were doing was appropriate and rigorous. They have validated our approach that I am about to set out for you. We believe this methodology is sound for 4 key reasons. First of all, the method has a solid legal basis and is an established European standard. Under this particular E.U. (European Union) directive 2003/54/EC this directive contains a requirement on all member states of the E.U. to ensure that all electricity suppliers by law publish

information on the fuel mix and environmental consequences of the electricity they supply. So it is a requirement for all suppliers to give to their customers, or make available to their customers, line of sight on fuel mix and the environmental consequences; included in that is the carbon intensity.

**The Deputy of St. John:**

Can I put a question there? You said your “fuel mix”. So therefore, currently the majority of your electricity comes from E.D.F. (Électricité de France) through the link. Your fuel mix that you ... if you have a breakdown, for instance, for any length of time, your fuel mix obviously because of oil-powered power station would be somewhat different. How have you worked out the balance? If you had, say, a down-time for 4 or 5 days what kind of ratio have you got within your parameters to have a down-time and you running on oil?

**Mr. C. Ambler:**

What we do is basically we look back to the prior year and we say: “How much of our electricity that is delivered across our grid is comprised of E.D.F.-generated imported power, how much in kilowatt hours has been determined from locally generated power?” and it is essentially a weighted average of those, so we mix those 2 together. If your question is ...

**The Deputy of St. John:**

It is historical data you are looking at?

**Mr. C. Ambler:**

Yes, it is and that is the requirement on the E.U. suppliers to provide that information.

**The Deputy of St. John:**

The reason I put in the question, given that there has been a little bit of report in the French media about disquiet among some of the workers at various nuclear power stations, I was wondering if that might create a problem for us at some time in the future whereby we could have to rely more heavily on producing our own electricity if we have to.

**Mr. C. Ambler:**

There is always a possibility of that. We have a long-term arrangement with our supplier in Europe, which is E.D.F., and you mentioned earlier that the majority of our power comes from E.D.F., but in fact all of our imported power comes from E.D.F. However, there are alternative suppliers that we can draw on if E.D.F. are unable to supply the mix and there are other suppliers who can provide a similar carbon intensity of electricity as well. One of the things I will go on to explain a little bit later on in the presentation is that we do have choices here of where to source power, but at worst if there is no supplier available that has the average fuel mix that we are looking for - and of course we are always looking to continually improve that carbon intensity - at worst, we can buy carbon credits on a traded market to bring our carbon intensity down.

**Mr. D. Padfield:**

Is it possible to make an off-the-record comment about that?

**The Deputy of St. John:**

On the record?

**Mr. D. Padfield:**

Off the record.

**The Deputy of St. John:**

Not at this moment.

**The Connétable of St. Peter:**

What percentage of down-time have we got on the E.D.F. link on an annual basis?

**Mr. D. Padfield:**

The percentage down-time is about 5-10 days on average and it is not down-time driven by faults, it is a down-time driven by planned maintenance. More significantly, in order to keep the facility of La Collette alive - and by that I mean 2 issues, one is the plant available to be used, but also the staff with enough practice and experience to keep the plant operating - we tend to generate for about 6 weeks a year.

**The Connétable of St. Peter:**

At that time are you then shutting down your supply from E.D.F. or is that running in tandem with ...?

**Mr. D. Padfield:**

No, we back it off. We reduce the intake capability from it and that is obviously displaced by the local generation. It is also significant that currently we cannot supply all our energy needs at system peak from the cable system that is connected to France so we have to generate through system peak for about 3 months of the year using a very small amount - a very small amount - of local generation.

**The Deputy of St. John:**

Could I just give you a reason why we could not take your comment off the record, because this is a public hearing and the media are present in the room and therefore it should always be on the record?

**Mr. D. Padfield:**

I understand what you are saying. It is just I did not want it recorded down in writing. I am more than happy to say something ...

**Mr. C. Ambler:**

We will ask the lady if she is willing to keep it off the record. Is that allowable?

**The Deputy of St. John:**

Can I confer with the officer? Would that be acceptable, Officer, or not?

**Mr. M. Haden:**

You would have to take it off the transcript later, I guess.

**The Connétable of St. Peter:**

I suggest that when we come to the end of the formal open brief and then ...

**Mr. D. Padfield:**

It is just a comment on the way that we have been supported in the past by E.D.F. and more importantly R.T.E. (Réseau de Transport d'Électricité), which is the grid company, during industrial disputes in France, but I would not want that publically known.

**The Deputy of St. John:**

Thank you for that. You can continue with the presentation. Sorry to ...

**The Connétable of St. Peter:**

Could I just carry on just teasing a little bit on the locally generated things? Your carbon emissions are normally 59 grams of C.O.2 (carbon dioxide) per kilowatt hour, but when your ...

**Mr. C. Ambler:**

Imported. It is the imported carbon intensity.

**The Connétable of St. Peter:**

Your weighted average here of 80 grams C.O.2, when is that? Is that when you are running at full local intensity or just when you are doing your top up intensity?

**Mr. D. Padfield:**

First of all, the 59 grams is the figure for 2007 and that can vary by as low as 40 and as high as 60 across the annual average.

**The Connétable of St. Peter:**

So that includes your weighting for your locally produced ...

**Mr. D. Padfield:**

No, that is the weighting for the energy supplied by E.D.F. to Jersey.

**The Connétable of St. Peter:**

Coming through their network?

**Mr. D. Padfield:**

It is coming through the network. To that we add a couple of per cent of local generation which comes in around 900 plus grams of C.O.2 per kilowatt hour.

**The Connétable of St. Peter:**

Nine hundred?

**Mr. D. Padfield:**

Nine hundred plus. So a small amount of local generation significantly affects the C.O.2 average which is why we take a lot of effort, I suppose, to make the most of any local generation for security purposes rather than for any other reason.

**Mr. C. Ambler:**

It is just worth getting into context. Typically, the amount of locally generated power is around 5-10 per cent, maybe a little bit more than that, of the total power that we ship to customers so it is a very small portion of our total supply mix.

**The Connétable of St. Peter:**

One more just before we move off. There was one other item I wanted to pick up. You made a comment about on the carbon credit market you could do trading. Are you at the moment ... because you are diverting your carbon-heavy electricity sourced locally on to the E.D.F. supply are you gaining carbon credits for that and are you trading in those?

**Mr. C. Ambler:**

No, we are not currently trading in them.

**The Connétable of St. Peter:**

But you are gaining them?

**Mr. C. Ambler:**

No, we are just simply buying 90 per cent of our power from E.D.F. imported which has a given carbon intensity which is set out ... measured as in the law and we generate the balance locally which is of a relatively much higher carbon intensity.

**The Connétable of St. Peter:**

So you are not acquiring carbon credits because you are using E.D.F. energy as opposed to locally generated energy?

**Mr. C. Ambler:**

No, but there is no requirement for us to do so.

**The Connétable of St. Peter:**

No, but it would be a business advantage for you to do so because you could sell them back to the carbon credit market, could you not?

**Mr. D. Padfield:**

We are not part of the U.K. carbon trading scheme at this moment in time. It is a question to ask the energy and environmental people. There has been some discussion about Jersey joining in a larger scheme and there would be a financial benefit to J.E.C. if we could accrue credit from our low carbon energy.

**The Deputy of St. John:**

Before we move on, I just have to clear something because in answer to an earlier question you said that 100 per cent - all your power - was coming from the E.D.F. Now we have got between 5 and 10 per cent of the power being generated locally. Can you just confirm ...

**Mr. C. Ambler:**

I am sorry if that is what I said. That is certainly not what I meant to say. It does vary somewhat, but typically 5-10 per cent of the total amount of power we supply locally is generated locally; the balance is imported, so 90-95 per cent is imported.

**The Deputy of St. John:**

That is quite important because to be told basically 100 per cent or all of it was coming from another link ... that is the way I took it.

**Mr. C. Ambler:**

Apologies.

**Mr. D. Padfield:**

In 100 per cent context; Chris meant that we buy all our imported energy ... 100 per cent of the imported energy is bought from E.D.F. because we do have alternative suppliers. We could buy, say, 95 per cent from E.D.F. and 5 per cent from Swiss or Spanish or even German companies and we have had opportunities to buy energy from German companies in the past.

**The Deputy of St. John:**

That has answered the original question.

**Mr. C. Ambler:**

The reason why I said that was because the price of that power is determined through an exchange, through a traded exchange, so it is not a bilaterally negotiated price with E.D.F. All of the imported power comes from E.D.F., but it is priced through an exchange so traded markets impact the price we pay.

**The Deputy of St. John:**

Carry on with your presentation, please.

**Mr. C. Ambler:**

So we are saying that the methodology is sound because it has a firm legal basis and is an established European standard. I have mentioned the E.U. directive. If I can just ask you to flick forward very briefly to slide 8. I will not read it all out, but essentially this is an excerpt from that E.U. directive. The highlighted bits there say under part (b): "Member states shall ensure electricity suppliers specify in with their bills and promotional materials made available to final customers at least the reference to existing reference sources such as web pages where the information on the environmental impact in terms of at least CO<sub>2</sub> produced by the overall fuel mix of the supplier over the preceding year, is publically available." So that sets out very clearly the law and the requirement on suppliers to provide the carbon intensity, on average, of the electricity they ship. Back to slide 3. E.D.F. complies with this and has confirmed an import emission of 59 grams and, therefore, the weighted average - and that is a 2007 figure as David has rightly said - emission intensity is about 80 grams based on that figure, taking into account both imported and also generated electricity. That is the first reason why we believe it is sound. The second reason - and I think these factors are also important - is we think it is appropriate given the nature of the relationship between the J.E.C. and E.D.F., and as I said earlier E.D.F. is the sole supplier for imported power. We have long-term contracts with them and other commitments which allow them to plan their new capacity build.

**The Deputy of St. John:**

"Long-term" being, please, in years because what do you consider long-term: 10 years, 20 years or longer or shorter?

**Mr. C. Ambler:**

Do you want to answer?

**Mr. D. Padfield:**

Currently we are operating under a 15-year contract for supply, backed up by a 25-year contract for a connection. So those are considered to be long-term, I would suggest.

**Mr. C. Ambler:**

So we have long-term contracts. We have also given them a clear signal through this relationship on the need for new generation capacity and the security to build it. We have some examples listed in sub-bullets here: the first and second France-Jersey interconnector. The first one, of course, was built in 1985 and the second one built more recently in 2000. Of course, you will be aware that we are investing a significant amount of money in the third interconnector, probably north of £50 million. All this is very important because it shows a very clear signal to E.D.F. and others that we are in this business for the long-term and that we are putting assets on the ground at a significant expense and that they should feel comfortable putting generation assets on the ground at a significant expense to meet that commitment over a period of time. That is what they have done with nuclear construction in the past and that is what they are going to be continuing to do with new nuclear.

**The Deputy of St. John:**

The new interconnector is going to come ashore in a similar place at Archirondel or somewhere else on the Island?

**Mr. C. Ambler:**

One of the important things about our business is maintaining supply security and we already have 2 cables coming into Archirondel so it is going to be very important, I think, for us to have physical diversity for the next cable so that if a dragging anchor, for example, took out those 2 cables it would not necessarily impact supply to the Island. So we know it would be at a different landing point and we are going through an evaluation at the moment of what the appropriate landing point should be. It is based on a whole bunch of factors including environmental issues, technical and commercial.

**The Deputy of St. John:**

So in looking at that third interconnector are you looking at the same time of marrying it together with, shall we say, oil supply or gas supply in the same trunking or individual?

**Mr. C. Ambler:**

No, there are no plans at this moment to combine it with an oil or gas pipeline. David might be able to provide more colour on this, but frankly the technologies are very different. The method of laying a pipeline is a very different method, generally to a very different standard, than a cable and in reality they would probably be laid by 2 separate ships.

**The Deputy of St. John:**

You have not spoken to your counterparts in gas or oil in the event that there was some technology out there so that everybody could benefit?

**Mr. C. Ambler:**

No, we have not spoken to our counterparts. It is not something that we would see much benefit in for our business.

**The Deputy of St. John:**

You say for your business, I can understand that, but for the Island as such so that the Island would not totally be reliant on one type of energy.

**Mr. C. Ambler:**

I think if you are worried about the Island being too dependent on electricity we do not feel that there is a huge amount of exposure for the Island. We feel that there are separate ways of connecting the Island through electricity. Electricity is a technology that can access a number of different generation types. It is not wedded to one generation source. It is not wedded to, for example, nuclear. We could easily tap into electric supply from renewables or any other source if that was appropriate. So there is, if you like, a certain amount of diversity because of the technology. We have infrastructure diversity, we have physical diversity and frankly the costs of putting in a pipeline, whether that be gas or oil, we believe would be exorbitant and it is something that we have quickly discounted as not being in the best interests of the Island from the point of view of cost.

**Mr. D. Padfield:**

They would require different facilities to lay. If you lay a pipeline that is not exactly the same as laying a cable. When we plan these projects we try and effectively lay everything in one pass because that is where the economies are driven on a project like this and that is why on the second cable link we did lay on one pass not just the power cable, but also 2 fibre optic cables. If we had laid that on 2 passes that would have probably pushed the fibre optic cables into an uneconomic situation. We have also looked at the opportunity of bringing gas in and converting La Collette to gas a long time ago - we are talking about 10-15 years ago. It was considered to be uneconomic because of the distance between the coast and the nearest bulk supply point for gas in Normandy - it was quite excessive as well, excessive costs. Currently there is a reasonable electricity structure operated by the grid company R.T.E. close to the shores in France and that has been reinforced considerably by the Flamenville development which will benefit us on security of supply. So all that again points to an electrical development rather than a gas development.

**The Connétable of St. Peter:**

Just coming back to your figures about the third stream, or the third cable, I see you are looking at a cost in excess of £50 million.

**Mr. C. Ambler:**

Of that kind of order, yes.

**The Connétable of St. Peter:**

You have no idea what the global cost is going to be at the end of the contract? Are you talking more than £50 million here?

**Mr. C. Ambler:**

It is going to be of that order. It is going to be about £50 million. That is our initial estimate. We are continually improving these, of course.

**The Connétable of St. Peter:**

Is there an assumption then that it is unlikely that we will be going for renewable energy resources in the Island in the intervening years?

**Mr. C. Ambler:**

No, there is no assumption at all about renewables here. As a business we are very committed to renewables development. We are very supportive of that agenda, both potentially offshore wind and also tidal power. We would like to be involved in those sorts of projects. This project certainly would not have an adverse impact on the development of renewables to the Island as well.

**The Connétable of St. Peter:**

It just seems a rather large sum of money to be putting aside if you are thinking of renewables as a possible top-up to the electricity generation around the Island as well.

**Mr. C. Ambler:**

It is a lot of money and I think it demonstrates the commitment from the company. This is very much a long-term investment. You will see our first cable was built in 1985 and this is a 20 to 25-year, probably longer, investment in the future so it is very important. It is probably worth saying that renewables by their nature are not a guaranteed, stable power source and that is why we will always need a certain amount of import capacity. It is probably also worth saying that our first interconnector is coming to the end of its life as well, so this is not just about building capacity. It is about building security and resilience and about potentially replacing our first interconnector as and when that expires.

**The Connétable of St. Peter:**

It just seems somewhat strange to me. With the States of Jersey being a major shareholder in the J.E.C. one tends to wonder whether there is some thoughts in the minds of the J.E.C. board that the policy of the States of Jersey with regard to renewables is not robust enough they would be prepared to commit £50 million of company monies on a scheme that ...

**Mr. C. Ambler:**

I think it is probably also worth saying that the whole renewables agenda is not something that is going to be here today and gone in 5 years. That is going to be a 30, 40, 50-year horizon to develop renewables economically. Even if tomorrow I wanted to put an off-shore wind farm out off-shore from Jersey probably the costs of that electricity would be about double what we are paying from France and if it was tidal it would probably be 3 or 4 times that cost as well.

**The Connétable of St. Peter:**

I am just wondering in some respects whether in fact committing this sort of money upfront now for a third leg to your supply is going to slightly prejudice development

of renewables around the Island coast on behalf of the States of Jersey. That is really where my thinking is coming from.

**Mr. C. Ambler:**

I do not think so. The States have not had any influence on us. This is a purely J.E.C. board decision. It is really a commitment to security of our infrastructure as much as anything. It would not, in my mind at least, hamper the development of renewables locally. That is something we should go ahead and do. Over the long-term, of course, the chances are that a good portion of renewable electricity generated in and around these waters would probably have to be shipped back to France in order to get the benefit of subsidies. At the moment, of course, we do not have ... we are not part of the E.U. so we do not have the benefit of subsidies for renewable generation. So the only way we could at the moment access those subsidies would be to ship that power back to France.

**The Connétable of St. Peter:**

So yet another cable going back.

**Mr. C. Ambler:**

Sorry?

**The Connétable of St. Peter:**

Another cable going back?

**Mr. C. Ambler:**

It may well be that we use our infrastructure to maybe not ship back, but net off our requirement and we might be able to get access to very important renewable subsidies which we cannot access locally.

**Mr. D. Padfield:**

If you look at renewable projects there are 2 main factors which make a good project. One is obviously an abundant natural resource whether that be wind or marine currents or whatever. The second one is a good connection to a grid system to take that power away and therefore, an investment in the third cable will meet that second requirement. It will give us a strong grid system, close to the sea, which will I think be an enabler to renewable energy.

**Mr. C. Ambler:**

So we talked on slide 3 about the firm legal basis and its appropriateness given the long-term nature of our relationship with E.D.F. Over the page, number 3, the method is transparent and transferrable and this plays to your earlier question, I think, that if the contract was not renewed with E.D.F. then there are alternative suppliers. They, of course, are similarly required to publish their carbon intensities in exactly the same way as E.D.F. If there is a change in ownership then the output from the E.D.F. portfolio - nuclear, hydro, renewable, etc - will still be available to us. They just might have a different parent, but we are still accessing power from the same generation sources. As I said earlier, if in the worst case we could not find an appropriate supplier with the appropriate carbon levels that we need to support our business we could always procure carbon credits via the traded markets. The fourth point I think is also a very important one and that is a point around incentives. The

method that has been determined here by the E.U. and others encourages generators, suppliers and customers to take responsibility in many ways for the delivery of power via their supply chain. If we were to take a somewhat arbitrary proxy assumption like the European grid average, which if you think about all those countries and all those power plants on the grid, a single supplier could not really influence the European grid average because it is too huge. This would provide no incentives to power suppliers and market participants. So, for example, suppliers would not be incentivised to source low carbon electricity. Generators would not be incentivised to build, for example, renewable generation if there was no demand for it, and customers also would not be able to make informed choices about a supplier's carbon intensity because all suppliers would be declaring the European grid average. It would make a nonsense of it. Equally, we might reasonably choose to source power from arguably lower cost generators; coal plants in Lithuania which have a horrible carbon intensity, for example, because our declared emissions would be the European grid average. In a way that would make a bit of a nonsense of our carbon disclosures. That is one of the reasons why we do not propose to do that; nor do we think that it is right that we do that. So those are the 4 key reasons. I think in your letter you talked a bit about the building bylaws. We are, as I set out in the letter, very committed to helping the local economy reduce energy consumption; we think that is the right thing to do. It is a shared responsibility between the suppliers of energy and the consumers of energy. Efficiency of buildings is a cornerstone initiative to improve housing stock and commercial buildings. A lot of energy gets consumed in buildings; heating, cooling, that kind of thing. The new building bylaws for Jersey were intended to mimic, I believe, the U.K. part L regulations. The way they work is they typically use the lowest carbon content fuel as the benchmark so in the U.K. this is natural gas and that is because electricity in the U.K. tends to be fuelled, if you like, from high-carbon coal plants and oil plants, and dirtier plants than those in France. So in the U.K. natural gas is a benchmark; in Jersey, electricity would be a benchmark. Any new build or refurbished buildings will need to demonstrate a reduction in carbon emissions of at least 20 per cent versus that given benchmark. So that is, if you like, the original intention behind the building bylaws regulations, that we would have electricity as an established benchmark and that any developer would have to achieve an improvement of at least 20 per cent better than that electricity benchmark. I probably should just caveat the next bit because we do not know for sure what the States position on this is, that is emerging, so we are awaiting formal results of the consultation. However, we understand that building control are inclined to adapt the approach being consulted upon to one where the benchmark is based on the fuel proposed for the building. So if the fuel proposed is oil, the benchmark would be an oil benchmark and that building would have to achieve a 20 per cent reduction on that oil benchmark. If it was a gas building that was intended as the end use, then they would take a gas benchmark and they would need to achieve a 20 per cent reduction on that. Similarly if it was electricity, it would be 20 per cent on electricity. I understand why that would be more acceptable to some of the other fuels, but if you look at it from a purely environmental position and an emissions position, arguably these proposals would if anything unfairly force electricity customers to achieve a higher absolute standard of carbon efficiency than a gas customer or an oil customer. Yes, all fuels will be achieving the 20 per cent reduction to that which they are required to achieve under the building bylaws, but the end carbon emissions, the carbon intensity of that building, if that building was an electrical building, would be significantly lower in absolute terms than an oil or gas building. So you could argue

that what might be emerging here could disadvantage Jersey and in a way it is making the environmental credentials of what we are trying to achieve, diluted.

**The Connétable of St. Peter:**

I am not quite with you, Chris. I want to be very clear on this. Let us come back ... we are saying that the energy consumption ... an electrical household will be the benchmark? Are you then saying that even that house will need to be 20 per cent better than that benchmark even if it is electricity?

**Mr. C. Ambler:**

Yes.

**The Connétable of St. Peter:**

So the benchmark needs to be reduced by a further 20 per cent even with electricity and each other fuel has to reduce by the same amount?

**Mr. C. Ambler:**

What I am saying is that if the building bylaws here in Jersey were to mimic the U.K. part L bylaws, which they were intended to do, they would take the lowest carbon content fuel as a base line. Let us say it is 100 as an electricity base line, then all fuels would have to achieve 80 or less. Whereas what looks as if could be emerging is, let us say, electricity was 100 as a benchmark and oil was, say, 200 as a benchmark and both had to achieve a 20 per cent reduction then electricity customers would have to go from 100 to 80 and oil customers would have to go from 200 to 160. So what you have ended up with is a building a carbon intensity that in this case is twice the electrical building carbon intensity because all they have done is achieve a 20 per cent improvement on their respective base line and their base line was 200 and not 100 in the case of electricity. Do you see what I am saying?

**The Connétable of St. Peter:**

I see what you are saying. I am not sure how that is going to prejudice against you because to achieve that 20 per cent on a far higher carbon intensity fuel is going to cost a lot more with regard to installation or the building cost itself.

**Mr. C. Ambler:**

To achieve 20 per cent on the 200?

**The Connétable of St. Peter:**

On the 200 than to achieve 20 per cent on the 100.

**Mr. C. Ambler:**

I do not know. Some would say that if your base line is much lower then your ability to take 20 units off is even more demanding than taking 40 units off a 200 benchmark. Do you see what I am saying?

**The Connétable of St. Peter:**

Yes. I am not sure I agree with you, though.

**Mr. C. Ambler:**

You could take the view that each of the fuels have a demanding performance improvement measure to get to 20 per cent. All we are saying is that the outcome of this piece of legislation is that the carbon intensity of an electrical building would be significantly lower than the carbon intensity of a gas building. If the States want to achieve that, if that is the goal they are trying to achieve, then fine, we cannot do anything about that. It does mean that our electricity customers are, in effect, achieving that higher performance level and have to bear the cost of achieving that higher performance level than a gas customer would have to.

**The Connétable of St. Peter:**

I think there is room for further debate, but I do not think right now is the right time. Can we agree to disagree at the moment and talk further on that later on perhaps?

**Mr. D. Padfield:**

I think there is also a point to be made that the reason why we feel it could disadvantage what we call the electrical choices is a clear example at Clos de Roncier where in fact the States had oil and a little bit of gas. They were recently converted to electricity and that saved this Island 300 tonnes of CO<sub>2</sub> emissions a year by that conversion, and that was on the basis of trying to save carbon emissions which we can all congratulate, I think, a good decision. If you currently go along the proposed view of where the building regulations are going to end up would that still happen? Would we still be looking at saving significant levels of carbon? I think that is where we feel that electricity would be disadvantaged.

**The Connétable of St. Peter:**

So what you are saying is you are looking at this purely from the environmental benefit?

**Mr. D. Padfield:**

Absolutely.

**The Connétable of St. Peter:**

I understand your argument on that basis, yes.

**Mr. C. Ambler:**

I mentioned earlier the last slide, slide 6. This is an important part of our business; the whole sustainability agenda is the life blood of this business. I am relatively new to the company, but I have looked very hard at this. I see a lot of pride in the J.E.C. over what we have managed to achieve and what we have managed to help the Island achieve. We have not done it all by any means and there is still a lot that needs to be done, but if you look over the last 15 years, Jersey has reduced its total carbon emissions by one-third and that is despite a 50 per cent increase in the total energy consumption on the Island. A very important factor in driving that reduction has been a very clear strategy on behalf of the J.E.C., and as I say I have not been in the company that long, ...

**The Deputy of St. John:**

The strategy being?

**Mr. C. Ambler:**

The strategy being to displace locally generated power, which is high in carbon as we have discussed and agreed earlier, with imported power from E.D.F. in France. That shift, as you can see on the chart on the right-hand side, the total emissions there - the black line - has collapsed and that has largely been driven by the orange line which is electricity. You see non-electricity there in purple has remained unchanged, although it went up to close to 140, it backed off to where it was 15 years ago. So there is quite a clear linkage between the work that the company has done on displacing locally generated electricity, which is high in particulate emissions as well, with imported electricity. It is not just carbon intensity; it is the dust that is given off ...

**The Deputy of St. John:**

Flue gases?

**Mr. C. Ambler:**

Exactly.

**The Deputy of St. John:**

I noticed in 2007 you seem to have a bit of a hiccup. Is there a reason for that?

**Mr. D. Padfield:**

There are 2 reasons. The first reason is that 2007 was a particularly cold winter and therefore the system peak was proportionately a little bit higher than we would normally expect and all that system peak has to be met by local generation. The other reason was that we were commissioning a new primary substation in the east of the Island which required us to take down part of the 90,000 volt grid system in Jersey for a period of 6 weeks and therefore we had to generate in support of that outage while we reinforced the grid system to deliver more energy to the east of the Island, to satisfy the growth and the need for electricity in the east of the Island.

**The Deputy of St. John:**

So in 2008, in fact, we are back up to 2006 levels?

**Mr. D. Padfield:**

That is right, yes. In fact, the same thing is happening in 2009, again for the reason of commissioning a substation in the west of the Island which, of course, was recently reported and 2009 will mirror 2007, but 2008 will mirror 2006, 2005 and 2004.

**The Deputy of St. John:**

When I see these emissions, I am thinking of your flue emissions at La Collette. Every time I see you blow the tubes and see the plumes of black ash going up into the atmosphere and coming down on the Ramsar site and across the town and other places ...

**The Connétable of St. Peter:**

Poor Deputy Le Claire bringing his washing in.

**The Deputy of St. John:**

To help alleviate this have you added any additional filters into the flues at the J.E.C. power stations or are we still operating on the original permit?

**Mr. D. Padfield:**

What we have done are effectively 2 measures. One is we have invested in burner technology to try and burn more and therefore reduce the level of dust. The second thing is we have insulated the higher portions of the stack so we keep the flue gases hotter therefore and we take it away a lot cleaner. Unfortunately at start-up, which is what you are referring to, when we run an appliance cold from start-up, there will be inherently some soot, if I can call it that, within the flue that we will discharge for the first hour or so while we bring everything up to speed. We have and we continue to try and sweep the chimneys after major periods of production, after every winter, but we just cannot get everything out. There is a facility at the bottom of the chimneys to go in and effectively shovel this stuff away given the right protection and equipment and everything else, but it is always there on start-up and run-down.

**The Deputy of St. John:**

Could you give us the correct terminology of the emissions, please?

**Mr. D. Padfield:**

In what respect?

**The Deputy of St. John:**

It has obviously got a certain name within the technical term, the emissions itself, the oil burn off.

**Mr. D. Padfield:**

Do you mean S.O.x. (Sulphur Oxide) and N.O.x. (Oxides of Nitrogen)?

**The Deputy of St. John:**

Yes. What is the technical term, for the record, of those emissions?

**Mr. D. Padfield:**

I do not know what word you are trying to get at.

**The Deputy of St. John:**

I do not want a particular word. There must be a technical term, a scientific term, for that particular material that is going into the atmosphere.

**Mr. D. Padfield:**

The material is made up effectively of the by-products of combustion, obviously as you know. It is mainly made up of S.O.x. and N.O.x. which is obviously a technical term plus soot at the start which is a carbon-based product.

**Mr. C. Ambler:**

And carbon dioxide and probably a bit of water.

**Mr. D. Padfield:**

Yes, that is right. There is no ... it is just chimney emissions. There is no technical word. I am at a loss trying to figure the word that you are trying to get to. We just call them emissions and we call it soot when it is black and the rest of it is S.O.x. and N.O.x. and there is a bit of C.O.2 and water vapour.

**The Deputy of St. John:**

Yes, all right. I just had a little asterisk against that particular question.

**Mr. C. Ambler:**

We are happy to help you if you have other questions.

**The Deputy of St. John:**

There might be in another inquiry later on to do with the panel looking at Ramsar, but at this moment in time this is a different review.

**Mr. D. Padfield:**

We do look at the weather conditions when we do start up the plant and we do try and pick the best time, if you like, to start the plant up in order to reduce any inconvenience to our neighbours. As you know we have reduced the number of complaints considerably from the hundreds a year that we used to have, several hundred a year, to less than 50 on an annual basis, some of which are boats in the marina and some of which are the residents local to the area. We hope to continue to reduce emissions with the investment in the third cable.

**The Connétable of St. Peter:**

Just following on the Deputy's point about the exhaust emissions from the chimney, for which currently you do not have a discharge permit. It was not required at the time the power station was put in place, was it? If Jersey were to require a discharge permit on your exhaust emissions do you think you would conform with the European average?

**Mr. D. Padfield:**

We would conform with the current European directives under the third energy package which has a derogation for diesel engine plant. We would also conform with the oil fired plant on the fact of the number of hours that it is operated a year, which again comes under the level of derogation, under the current discussions under the third energy package which is referred to and specifically what I know as the I.P.P.C. (Integrated Pollution Prevention and Control) directive which is ... the last word is "combustion" it is about chimneys and emissions, we would comply. That is not to say that we would comply in 10 years time. There is discussion currently underway on the derogation applied to diesel engines and there is a view this will be amended once they have been able to take expert advice and that expert advice is returned to D.G. T.R.E.N. (the Director General of Transport and Energy) and they will come out with emission regulations for diesel engines. The derogation has been applied specifically because the island communities around Europe made representation to D.G. T.R.E.N. because if they applied the third energy package as originally proposed that would have shut down most of the generation across the island communities in Europe.

**The Connétable of St. Peter:**

So basically what you are saying is if we continue to run on La Collette only we would not conform with the E.U. regulations as a source of supply?

**Mr. D. Padfield:**

I believe, and this is a personal opinion because I do not know what the E.U. will do, but I have a good view that it is unlikely we would comply with possible emission regulations that will be applied in 10-12 years' time. In that respect the E.U. is aware of that and they are hoping to establish a mechanism allowing island communities to claim certain grant aid in order to make their generators, for want of a better word, compliant for future issues. That grant aid is likely to be available mid-decade for implementation around 2020.

**The Deputy of St. John:**

Would that be for islands within the E.U. but probably not for islands outside the E.U.?

**Mr. D. Padfield:**

That is a good question. Effectively, the emissions of Jersey are contained within the U.K. emissions so any improvement in the emissions in Jersey would end up in the U.K. Therefore, under the proposed third energy package which is going through the European parliament, provided the U.K. enshrines Jersey within their national legislation it will be possible to gain benefit and gain access to some of this grant aid we believe, but it needs to be tested. It is a question that if you ask people in Europe it is often avoided because of the technicalities of the legal arrangement of Jersey with the U.K. and the U.K. on to Europe. I am an optimistic person, therefore I would say there would be some possibility.

**The Deputy of St. John:**

It would come under protocol 3, possibly.

**Mr. D. Padfield:**

It is under that one, yes.

**The Connétable of St. Peter:**

I have an interesting question on the chimney, but I will save that until later. It does not really come under the terms of this afternoon's meeting so, thank you.

**Mr. C. Ambler:**

I have just passed around, for your information, an extract from the E.U. directive 2003/54/EC with the relevant highlighted text. I know I did show it to you, that text in the appendix, but I just thought in some ways it is nice for you to see the actual document. This is, by the way, a 20 or 30 page document so I have only given you 3 pages.

That was really all I was going to cover. I do have a couple of appendix slides. There are one or 2 other methods which you might cite and in that I have outlined why I do not think those are appropriate. I am very happy to explain that if that is helpful to you as well.

**The Deputy of St. John:**

If you would, please, if you can in as short a time as possible.

**Mr. C. Ambler:**

Page 9. These are just a couple of other examples of things that have been cited. There is the greenhouse gas national inventory methodology which is the

methodology used under the Kyoto Protocol. Under this methodology carbon emissions are accounted for by the origin of production and not consumption so under this methodology we would allocate zero emissions to our imported electricity because they are generated from outside our Island jurisdiction. We do not think that is appropriate. If we did it, of course we would report even lower emissions than we do now. We do not think that is appropriate because we think we have a responsibility to the Island to take the full value chain view and people have a right to know where their power comes from and they should have transparency to that. So we would not subscribe to that methodology although some have suggested it. The second bullet talks about the Carbon Trust, Defra, and this British Standard. Under this methodology national average emission factors have sometimes been suggested in their published material, but this is where 'more specific factors are not available'. In fact, the language they use is that we should use 'factors as specific to the product system as possible'. So in other words, if I am a corporation in the U.K. and I want to do some carbon foot-printing because I want to put in place some projects to reduce my carbon emissions, rather than having to go through a myriad of different suppliers that I might have and get the carbon emissions from each of those suppliers, sometimes they can take a U.K. grid average. After all, what they are trying to do is to base-line their carbon footprint and put in place projects to reduce it so the absolute level is not as important as a relative. That is why I say here these are typically used as guides to organisations for calculating carbon footprint and tracking improvements. If we did apply this though, then the J.E.C. would use the French national grid average which has a carbon emission of 90 grams of C.O.2 per kilowatt hour which, as you can see, is significantly lower than all other fossil fuels which are north of 200, especially in the case of oil. So in either case here we would be reporting a carbon intensity significantly lower than fossil fuels.

**The Deputy of St. John:**

There are one or 2 questions I would like to put to you; general questions. In the hypothetical event of one of your competitors, either gas or oil, pulling off Island - probably the gas company, the one that could happen - could the J.E.C. cope with the additional demand of, say, 10,000 households requiring heating through electricity and what would that mean to the J.E.C. and to the Island?

**Mr. C. Ambler:**

It is a very good question and I think the answer to that is we could cope. It will, of course, involve investment in transmission infrastructure ... in distribution infrastructure in particular. Transmission infrastructure we are well covered on with the projects that we have in place. It would require reinforcement of distribution infrastructure. Of course, as a consumer there would be a need for those consumers to switch from gas appliances to electricity appliances and of course there is the not insignificant matter of who covers the cost of that. I suppose it would not be a great surprise to you, but we believe that electricity is the fuel of the future. We are equipping ourselves so we can cope with this and so we can make a transition as smooth as possible. It could depend on when the gas company, if this is the example you want to use ... it could depend on what time of the year that company decide to exit. Obviously, if that was deep in the middle of winter then obviously we would have the winter energy requirement to deal with and you do not want to leave people cold over that winter period. If they decided to exit in the middle of December it would not be terribly helpful. I think typically we would want at least 12 months'

duration, 12 months' of planning window, to be able to transition across and of course it is going to be a function of how much it costs and what level of support the States might be willing to offer to do that.

**The Deputy of St. John:**

Given that we have looked at gas, the bulk of that is in St. Helier and a couple of the outlying areas, but generally St. Helier. For instance, if gas was shut off virtually at 6 months' notice would your power cables be able to take on the extra strain to put all those properties on electricity on your grid?

**Mr. D. Padfield:**

Could I answer that in 2 parts? First of all, I believe the law under which the Jersey Gas Company operate declares that they have to give the States 12 months' notice, not 6 months. The second question is, as you so rightly say, most of the customers are in that St. Helier region stretching east and west along the coastal boundary where in fact are the main urban areas of Jersey and here the Jersey electricity network is particularly strong. So we have done some investigations into this and we are still looking at some of these issues, on the impact on our distribution system, but we believe within a 12 month window we have the opportunity to do that. Currently, we do see people changing from gas to electricity by choice because of the cost of gas compared to electricity even at today's prices. As that continues obviously the task, should this scenario ever occur, will get easier for us as a number of people convert away from gas to other fuels.

**Mr. C. Ambler:**

Just to build on that, if I may, Deputy. It is probably also important to recognise that a good portion of gas customers also use cylinder gas rather than mains gas and, of course, it would probably be easier to maintain a level of continuity with cylinder gas operations than with mains. With mains if you turn the valve off eventually the gas runs out and so you have to transition people across and you have to have a properly defined programme of doing that, preferably not over the mid-winter.

**The Deputy of St. John:**

Do you agree that having 3 strings to our bow i.e. oil, gas and electricity, is the right way for the Island, and not for the Island to become totally reliant on one or 2 means of energy?

**Mr. C. Ambler:**

I think there are some benefits in having what you are describing which is having 3 fuels on the Island rather than just 2 fuels and that has to be a benefit of 'choice'. If the gas company were to leave the Island we have to recognise that a person who might like to cook with gas, if they did not want to go the cylinder route, would have a restricted choice. However, I think it is important to recognise there is a cost to the Island in having 3 fuels. We are a fairly small market, really, by energy standards. I think it is very easy to talk conceptually about: "We will put a pipeline in here and a pipeline in there and we will have oil here and oil there and we will have L.N.G. (liquefied natural gas) just off St. Helier and we are all going to be fat and happy." The reality is it is not going to happen like that because the costs of putting that infrastructure in are enormous and who is going to bear the costs of that and are people willing to pay those costs? I think the vast majority of people on this Island

are probably not willing to pay those costs. If we look at the number of gas customers, and again I am not going to use gas examples all the time, but there are not that many gas customers on the Island. So you are talking about the States potentially approving a proposition to put in place a pipeline which is going to cost many, many millions of pounds, I do not know how many but it is going to be a lot, for the benefit of a few thousand customers who are on mains gas.

**Mr. D. Padfield:**

It is not unusual for a market of this size, and I am saying “market” rather than physical size because this Island is quite small compared to some, as you know, to just have the 2 fuels of electricity and oil. Gas, to some extent, is a luxury for a market of this size. I think there is certainly interest in Europe about how islands will survive in the next 40 to 50 years. We are aware that D.G. T.R.E.N. are currently commissioning a research study on sustainability in islands, which is still concentrating on electricity and the production of that electricity by renewable means and also issues around reducing waste, energy efficiency, et cetera, but they are not necessarily looking at the encouragement of gas installations. L.N.G. is well beyond the capabilities of small islands. You could go then to C.N.G. (compressed natural gas). There are currently, I believe, 2 ships under manufacture in the North Atlantic for C.N.G. installations looking at Caribbean countries, taking it out of Trinidad, but you have still got larger sized communities than the community that we have, in the marketplace in some of those Caribbean communities. You need to understand what the market this size will support and as Chris so rightly says, if you want to introduce more competition what is the cost of that?

**Mr. C. Ambler:**

If I might just build on that as well, I think we should also remember that at the moment it might sound quite appealing. I mean, the oil price generally has been quite low over recent months and gas prices have also reflected that, to some extent. But that is looking like changing and there are no guarantees of low prices. In fact, the oil has breached 60 dollars a barrel now. It was significantly lower than that. Who knows what it is going to be in a few months’ time and gas tends to be priced in a similar way to oil. If the oil price goes up probably the gas price will go up as well.

**The Connétable of St. Peter:**

L.P.G. (liquefied petroleum gas) is an oil derivative, is it not?

**Mr. C. Ambler:**

Yes, exactly. So when one goes up the other usually goes up. It might have a certain amount of appeal, and I am not under any illusion, our electricity customers are challenged at the moment. This is a very difficult environment. As you know, we have just put our prices up earlier this year, it is not terribly helpful, but that is the current situation. Who knows what is going to happen to the oil price in 6 months, 12 months’ time and 2 years’ time.

**The Connétable of St. Peter:**

The one thing we must talk about, rather ironically, is this the end of the open fire, in carbon emission terms?

**Mr. C. Ambler:**

I do not know.

**The Connétable of St. Peter:**

My next question is an easier one, how do you see the building Bye Laws? Obviously we have a slight difference of opinion at the moment on that but there is a view that they unfairly favour the J.E.C. development of electricity against the other energies. How do you see that argument?

**Mr. C. Ambler:**

Yes. You can take that view or you can take another view which is that they advantage those fuels that have lower carbon emissions and that is the view we take. It is not a question of favouring electricity or favouring oil, it is a question of how do we achieve our States objectives and if the States has an objective to reduce carbon emissions then clearly the building bylaws need to favour those products that will help the States achieve that.

**The Connétable of St. Peter:**

Okay, so really you are echoing the concern of some of the competitors by that comment, are you not?

**Mr. C. Ambler:**

Well, no, I am just saying that I think that the building bylaws are there to help the States achieve the dual objective of reducing energy consumption and also reducing carbon emissions and we should try and make sure that whatever decisions are made the products that will help consumers achieve that need to be encouraged.

**The Connétable of St. Peter:**

Moving on from there then ...

**Mr. D. Padfield:**

Can I just say that we also ought to consider the fact that there are other technologies that may use gas or whatever, like micro C.H.P. (combined heat and power) plants, okay. Some fuel cell technology which is currently in development. All those will promote the sustainable economy. Effectively, you have to have the rules and regulations that allow people to use technology or harness new technology to create a low-carbon building. I do not think we are necessarily against the other fuels but they need to be innovative just as much as we are innovative in trying to use heat pump technology in order to power some large buildings and stuff like that.

**The Connétable of St. Peter:**

What role do you think the States should play in showing example? After all, if we are developing the building bylaws and making them more stringent in the amount C.O.2 that is emitted from them do you think the States should be showing some leadership in that?

**Mr. C. Ambler:**

Of course, yes. We would like to see some clarity around the energy policy and around goals and I think, assuming the States have those goals to improve the efficiency of energy usage and to reduce carbon emissions on the Island, they should be a role model for other businesses on the Island. I think it is very important that

they lead by example, for example, with some of their buildings, some of their assets, and work hard to make sure that they are efficient.

**The Connétable of St. Peter:**

Would the J.E.C. assist at all in that?

**Mr. C. Ambler:**

Of course.

**The Connétable of St. Peter:**

I see you have already succeeded on the energy programme, have you not?

**Mr. C. Ambler:**

The Energy Efficiency Service, yes.

**The Connétable of St. Peter:**

Would you see that as a possible extension to that or as an adjunct to that?

**Mr. C. Ambler:**

Of course. We would see that as an adjunct. We want people to get the benefits out of efficient energy usage. There are some out there who might be quite sceptical of the JEC's involvement in helping customers to reduce consumption. We take the view that, yes, it might reduce average energy consumption per customer but if it gives us the ability to win more connections and provide more benefits to more consumers, we think that that has value for our customers. So the short answer to your question is that we would be very interested in assisting the States, and we have assisted the States in recent years by providing information on their energy consumption and providing help and advice on how they might approach an energy efficiency programme for a States building.

**Mr. D. Padfield:**

I think the Clos de Roncier project I mentioned earlier was a good example of us helping the States department make the right decision and effectively reducing the emissions of that housing estate for the benefit of all and providing funding options in order to make that easier on people's purses.

**The Connétable of St. Peter:**

Do you see an opportunity arising in the near future where you could do another Clos de Roncier type partnership with the ...

**Mr. D. Padfield:**

Absolutely. We are currently talking to the States about Oak Tree Gardens, and also Les Cinq Chenes, to do exactly the same.

**The Connétable of St. Peter:**

Very good. How would you see yourself at J.E.C. working with renewables? Do you see that sponsoring renewables in any way in the future?

**Mr. C. Ambler:**

It is a good question. We are very committed to renewables. We think that the development of renewable technology is entirely compatible with electricity as a technology, with our infrastructure which is already there. That is a huge asset for renewables and we are willing to talk about how we can support a renewables programme for the Island, to benefit the States and for the Island community more broadly. We are very, very keen. I think there is a lot of hearsay, a lot of rumour and a lot of discussion on the street about renewables. There is a huge expectation that renewables is going to solve all our problems and it is going to happen within 5 years or so. It is not going to be like that, regrettably. It is going to take many, many more years and a lot of hard work and also there is not an insignificant amount of risk associated with putting wind turbines up offshore or putting tidal schemes out there.

**The Connétable of St. Peter:**

So do you think it is going to be a long time before we see wave generators connected up to your new link in from France, then?

**Mr. C. Ambler:**

To any meaningful and material way it will be many years, but that does not mean ...

**The Connétable of St. Peter:**

You mean in the time of our children.

**Mr. C. Ambler:**

But that does not mean we should not do it. I think we should be sowing some project 'seeds', some pilot plant maybe, getting some assets out there and trying it. We should be looking around what is going on elsewhere in the Channel Islands and outside the Channel Islands, what they are doing to encourage it; is it working, is it not working, how do we structure this? I think we need to get out of this view that renewable energy is free, therefore, it is just a case of connecting it up to the grid and we are all going to run off rich, because it is not going to happen.

**The Connétable of St. Peter:**

Have you considered at all geothermal energy and what part that could play in renewables?

**Mr. C. Ambler:**

Yes. As a business we are now investing quite some effort in heat pumps which is a similar sort of technology. How do we capture heat efficiently from the external environment and channel it into people's homes...

**The Connétable of St. Peter:**

That is an air-handling system, is it not?

**Mr. C. Ambler:**

Yes, it is an air source, but there are also ground source heat pumps using heat from the ground. So we are looking at that. They are incredibly efficient units and we are working with the Planning Department on how we accelerate these products, how do we create propositions that are attractive to consumers?

**The Deputy of St. John:**

Within those propositions to consumers are you allowing a reduced energy charge like you used to do, shall we say, with your, what was it called, Economy 7? Do you have a reduced charge to somebody, shall we say, who is investing in geothermal?

**Mr. C. Ambler:**

One of the challenges with some of these new technologies, if we look at heat pumps, for example, is that this kit is 400 or 500 per cent efficient, it is incredibly efficient. It uses very, very small amounts of electric power on average but it does cause quite a lot of strain on the grid at times and it requires, in certain cases, grid strengthening. There are a lot of other knock-on factors that come to play with this and we are looking at how we make it as easy as possible and as compelling as possible for consumers to implement these technologies.

**The Deputy of St. John:**

To encourage ...

**Mr. D. Padfield:**

We do have an E20 tariff which does offer a lower rate for 20 hours a day, which is ideal for many heat pump type technologies.

**The Deputy of St. John:**

That is 3-phase, is it not?

**Mr. D. Padfield:**

No, single phase.

**The Deputy of St. John:**

Is it single phase?

**Mr. D. Padfield:**

It is aimed at domestic customers.

**The Deputy of St. John:**

Here I will have to declare an interest because I have a geothermal plant at home.

**Mr. D. Padfield:**

I did say for most geothermal plants we need to understand - this is getting very technical - it depends on the compression technology and whether your compressor can shut down within that 20-hour window. A lot of the modern heat pump technologies which have been available for the last 2 years are quite happy to run this E20 tariff. What we are trying to do by E20 is to push load away from the system peak I mentioned earlier where we have to use local generation at high cost. So if we can move any energy away from that we do so and E20 encourages customers to do that and allows them to use technology that you just described, heat pump, at a discounted rate to the standard rate. Can I also just mention one thing that Chris did mention about the geothermal, there has been a couple of visits to the Island by U.K. people representing some German companies that have gone for deep hole geothermal devices. We are still in contact with these people and we are interested in some of the projects they are currently undertaking in sites similar to our "hot rock" situation here, which is well down deep in the earth, and we are keeping up with you on that. Now,

if that proves to be successful and a bankable technology then we will move in that direction without too much trouble.

**The Deputy of St. John:**

Yes, we have been approached by these Germans ourselves.

**Mr. D. Padfield:**

It looks very interesting. On paper it looks perfect for us as an island but it is all down to what can be achieved physically. So we will see if the theory is ...

**Mr. C. Ambler:**

It is also, I think, important with all these technologies to remember that there is a long payback time. There is a long lead time associated with recovering the money from this. I mean, you have to be looking at, in some cases, 10, 15, 20-year payback for this technology. Some people are not willing to make that kind of heavy up-front investment, particularly in the current environment if it is going to take 20 years to pay back and who knows where they are going to be in 5 years' time. In many ways I think this is as much a challenge for the States as it is for domestic and commercial consumers.

**The Connétable of St. Peter:**

It is also a cultural challenge as well.

**Mr. C. Ambler:**

It is a cultural challenge, absolutely, yes. But I know with the States there are particular challenges because some States offices will own the capital budgets and some will own the revenue budgets. So, of course, the guys that own the capital budgets will want to keep capex down and they will not be willing to invest in this; they will not be willing to invest the serious up-front money because they will not see the benefits in their budget, it will appear in somebody else's budget. In many ways that is one of the challenges, I think, that the States will find. How you think in a joined-up way on this kind of stuff.

**Mr. D. Padfield:**

You need to look at lifetime cost and obviously lifetime emissions.

**The Deputy of St. John:**

Yes.

**Mr. D. Padfield:**

I think strategically the J.E.C. can prove time and time again they have been looking at investments on a lifetime cost and also lifetime emissions. I mean, a £50 million investment in the third cable to France is all about lifetime cost and lifetime emissions.

**The Deputy of St. John:**

So we are talking lifetime of 25 years?

**Mr. D. Padfield:**

Absolutely.

**The Deputy of St. John:**

Can I just move slightly away from that, given our existing energy from waste plants, the old one was producing 3 to 6 per cent of electricity?

**Mr. D. Padfield:**

Yes.

**The Deputy of St. John:**

What do you envisage or new plant producing?

**Mr. D. Padfield:**

Typically on a good year P.S.D. (Public Services Department) have produced about 3 per cent; the new E.F.W. (energy from waste) plant will produce probably between 6 and 10 per cent. The reason why we do not know exactly is there is a considerable burden on the plant to keep the exhaust emissions hot in order to comply with the emissions licence. That is a burden on the plant, which is yet to be fully understood, and certainly the exercises that we have seen that have been conducted by T.T.S.D. (Transport and Technical Services Department) on the matter indicate that under current Island energy uses the new E.F.W. plant will contribute between 6 and 10 per cent.

**The Deputy of St. John:**

Annually?

**Mr. D. Padfield:**

Annually.

**The Deputy of St. John:**

So, if the other one honestly was producing 3 per cent we are probably looking close to 6 per cent rather than 10 per cent.

**Mr. D. Padfield:**

I think that is more pragmatic but who knows, everything may work well. A lot depends on the quality of the waste, unfortunately, as well, and all these sorts of things.

**The Deputy of St. John:**

I have not put this question in just to try and trip anyone up.

**Mr. D. Padfield:**

I think you might have indicated that perhaps we can then focus that energy towards the system peaks and reduce the other emissions. That is not necessarily the case because these plants run continuously at a set level and although there is an opportunity maybe what I would describe as “turn the wick up a little bit on the lamp”, which is the E.F.W. plant, during the system peak it is not really designed to do that and it may well not be capable of doing that once it starts operating. But we are in close discussion and co-operation with the Government, as you know, on that project and there is a contract between us in order to take that energy for at least 15

years and beyond, and we hope to make that project a success because that would be a success for this Island - it needs to be.

**The Deputy of St. John:**

Officer, have you got any questions that I may have missed, to put to the 2 gentlemen?

**Mr. M. Haden:**

Just one really, I suppose, on the draft energy policy still under development and taking a long time to appear to ... it talks about the establishment of the Jersey Energy Trust with support, specialist support, from the J.E.C. Can you tell me a little bit more about that?

**Mr. C. Ambler:**

The project has been kicked off. The J.E.C. have provided £500,000 worth of funding which essentially sits alongside States funding and will be directed to the most needy members of our community, helping them put in place simple measures to reduce consumption of energy; insulation measures, draught proofing, that kind of thing. We have provided that funding. The J.E.T. (Jersey Energy Trust) structure, I believe, has not quite been put in place yet, it is basically starting off as what they call the Energy Efficiency Service, which is essentially a sub-team within the Environment Department and will migrate across and become the Jersey Energy Trust. At that point we would hope that the States would provide ongoing funding to keep up the good work that has been established. But that project is very much in process, letters have gone out to consumers who are on income support and specialist benefits and that is all in process. So work is being done to put in place measures on that programme.

**Mr. M. Haden:**

That is fine, thank you.

**Mr. C. Ambler:**

Can I just raise one other thing, gentlemen, I know we have run out of time but there were a few other slides that we prepared for you on energy efficiency and electricity and renewables. I would be very happy to come back another time and share that with you if you think that might be useful.

**The Deputy of St. John:**

You can do it know.

**Mr. C. Ambler:**

Do you have time?

**The Deputy of St. John:**

Our next appointment has fallen by the wayside so we do have an extra 20 minutes if need be.

**Mr. C. Ambler:**

Okay, if that is useful.

**Mr. D. Padfield:**

This is the copy of the E.D.F. website for the last 12 months emissions on that basis, so you can get access to that and you can see all the reports on the monthly emissions as declared by E.D.F. to their customers in France. It is just one copy but it gives you the website where you connect, okay?

**The Deputy of St. John:**

Good.

**Mr. D. Padfield:**

That is where we go to look at it on a monthly basis.

**The Deputy of St. John:**

All right, that is useful, yes.

**Mr. D. Padfield:**

You will see the emissions varying from 20 grams to 60 grams across a 12-month period.

**Mr. C. Ambler:**

Deputy, this is in response to your request in your letter for an opportunity to talk about energy efficiency.

**The Deputy of St. John:**

Yes, right.

**Mr. C. Ambler:**

I was just going to ask Dave to take us through this. There are a few slides here, we might just jump around a bit, I guess.

**Mr. D. Padfield:**

I guess so. Just a quick summary of where we are - obviously it starts on page 12. We think that the energy policy is a good opportunity to set down good guidelines and good objectives for the Government on energy efficiency and reduction of waste and we look forward to that finally going through its stages. That is obviously supported by some strategic plans. Again, waste measures with objectives which you always think will be good for the Island and we look for clarity on that because we would like clarity on what we have to conform to and that can then drive through into our strategic plans. The energy plan has, to some extent, been a little bit of poor indications to date on some of the objectives of energy waste and energy efficiency and I think we are all disappointed in the lack of progress made in some of these directions to date. On the back of that we have also got European directives which I think we need to look at and one of them is the building energy labelling. This will give the A, B, C, D, E marks, you know, like the mark on when you buy a lamp bulb or a washing machine, which will be very helpful to people to identify whether they are buying a building that is good quality.

**The Deputy of St. John:**

These light bulbs that they have been selling as low energy, the disposal of them at the end of their life, we are told that if one of them bursts in a room you are supposed to evacuate the room for a period of time. Can you enlighten me on that, please?

**Mr. D. Padfield:**

The substances used within the arc are not necessarily that good and, therefore, you do need to clean up well after one has broken on you and very carefully. Obviously the odd breakage is not going to cause you a problem but if you break a light bulb every 5 minutes I would recommend taking extra precautions. Certainly we do have a disposal bin at our showrooms for you to drop off all these bulbs that have failed and, in fact, the States also offer a disposal facility at Bellozanne, which I would recommend everybody to use. You do not really want to put these in your normal waste, it is not recommended. Is that a good enough explanation for you?

**The Deputy of St. John:**

Yes, it is. I only put the question because of the fact I had one blow up on me at home and it burned a hole in the bathroom floor when it went off. I just wondered because since then I have taken note on how many of them fail and what happens to them.

**Mr. D. Padfield:**

The powder deposits that are often in the bulb are not good for health really and you ought to be very careful about that and certainly if you do touch it you ought to wipe it off with a semi moist towel and dispose of that like you dispose of a light bulb.

**The Deputy of St. John:**

Right. It reminds me of something like in the old days of asbestos powder, the white dust, yes.

**Mr. D. Padfield:**

Absolutely. Treat it with similar precautions and you will live a long, happy life.

**The Deputy of St. John:**

That is interesting, thank you.

**Mr. D. Padfield:**

Is that okay?

**The Deputy of St. John:**

Sorry about that.

**Mr. D. Padfield:**

That is all right, no problem. Obviously earlier we have just drawn out there, on page 13, a couple of issues that we think are important on the draft energy policy that we believe you will need to put into place in order to bring this Island into a sustainable future. You will notice there that the improvements are against 2005 levels; most of Europe is working on improvements from 1990 levels. The reason why we are 2005 is the States have often said they wish to discount our investment in the second cable link to France because that has proved of considerable benefit, although they do not necessarily want to bankroll it at this moment in time and they would like to start

from 2005, which we think is a very admirable decision and we support it wholeheartedly. Going on to page 14: just some of the trends there on Jersey's final energy consumption with electricity obviously playing a major part. The petroleum products, including transport, are a significant thing in those areas which need to be tackled. As you know, we have made some investment on bringing a smart car trial to this Island and we are currently looking at how we can encourage the use of low carbon transportation systems in this Island and we hope to invest in that in the future to try and reduce some of those at red level on that left-hand chart.

**The Deputy of St. John:**

On that point your smart cars, electrically operated, the disposal of the batteries and the like, what kind of disposal takes place with these units?

**Mr. D. Padfield:**

The disposal of the batteries will be part of the manufacturers' commitment to you and is very important to them because the metals that are used within the batteries they wish to recover at least 90 per cent, because the rare metals that currently go into some of the battery technology are becoming very rare and, therefore, the recycling of battery technology within these cars and vehicles is very important not just to the manufacturers but, if you like, the world community at large in order to keep this technology sustainable. Those will be in place when these things come into common sale, if you like, or commonly available in the market. Going on, more specifically, to the States energy use, you will notice there that the various departments with Harbours using quite a bit and Airport and you see a breakdown of where the States energy goes which we thought would be quite useful to you.

**The Deputy of St. John:**

That is very useful because I am looking at Education which takes a big lump, 16 per cent.

**Mr. D. Padfield:**

It does, yes.

**The Deputy of St. John:**

That is an area that is close to my heart given that one of the biggest complaints I receive, nearly on a weekly basis, is lighting up or up-lighting of certain school buildings and every time certain people say: "What are you doing about that?" I have raised it a number of times. I am thinking of Victoria College but not only that ...

**Mr. C. Ambler:**

So it is leaving lights on, is it?

**The Deputy of St. John:**

Yes, all night. What encouragement is there by the J.E.C. - probably very little, I would have thought, because your job is to sell electricity - to try and prevent people ...

**Mr. D. Padfield:**

Well, we have had discussions with a couple of your States employees, Caroline Hastings and Paul Garraghan, and we have given a considerable amount of

information to these people on all the premises that the States operate and the energy consumption of those premises. We do believe there are some what we call “low-hanging fruit” that you can grab hold of. Some may well be simple tariff changes; it may well be on the wrong tariff, the buildings change use a couple of times and currently they are on the wrong tariff. Some may well be so simple like fitting better controls on floodlighting or whatever. We have seen a reluctance to invest in technology, if you like, to reduce energy consumption; this is not just electrical energy but all energy within the States portfolio. We are still available to continue those discussions and are more than happy to help, which I think we summarise on slide 18, really. We will certainly help you there. We do think, as per 16, that the States of Jersey needs to look at an energy action plan which requires a corporate commitment and management, not just with energy but also the C.O.2 emissions, and we come back to maybe the energy policy a little bit there, and there is an issue around benchmarking buildings for energy usage in that plan.

**The Deputy of St. John:**

Coming on to the benchmarking of buildings, would you partake in a scheme whereby you would certify a building to have consumption of X in any one year and if the building was to burn more than that X you would give a certificate stating that you are up or down in any one year that could be publicly displayed in that States building?

**Mr. D. Padfield:**

I do not see any reason why we cannot assist in that way.

**The Connétable of St. Peter:**

Almost like a reward scheme.

**The Deputy of St. John:**

A reward scheme, then the public would know that the States employees and people who use that building are likely using it efficiently.

**Mr. D. Padfield:**

It is clarity of information and I think it was Connétable Refault who said earlier that people need to change as well as the policy. Provided we can come up with a reasonably simple method of recording this then we are happy to co-operate with it. We certainly do have that building’s record on file, energy consumption on that record. We can do a survey that would give us a view of what that building should consume if it was well managed and well occupied by the people within it and certainly you could then do, I suppose, a star scheme, or something that would give some benefit.

**The Connétable of St. Peter:**

When you think about it it is possibly quite a good way of going about it because when our energy bills come in the price has gone up: “Oh, electricity has gone up again”, but it may well not have, it may well be we are consuming more units and we do not compare the unit costs per quarter or per bill as much as we compare the pounds and pence cost.

**Mr. D. Padfield:**

We have done energy audits on other buildings, not States, I would say, and again we have come along with certain initiatives to change particular apparatus but also the way the people use that building is key. You can easily make savings between 10 and 15 per cent but it does come down to the people. We have seen those savings occur and within 6 or 7 months they are back to normal, if you like, and it is all down to the way the people use it.

**Mr. C. Ambler:**

A lot of it comes down to behaviours.

**The Deputy of St. John:**

So, therefore, if you had a certified system whereby you would certify that that building can be run of X number of units per annum and if the building use less the following year they would have, shall we say, a “plus” certificate. But if they were running in the opposite direction then you would name and shame that particular building.

**Mr. D. Padfield:**

No, I do not think we would like to name and shame but certainly if ...

**The Deputy of St. John:**

No, but the States would provide the information ...

**The Connétable of St. Peter:**

You could supply us the information, therefore, we could name and shame that particular building for the way it is operating.

**Mr. D. Padfield:**

I think that is an excellent initiative and we would like to discuss with somebody how we can move that forward.

**The Deputy of St. John:**

I am sure we could have the environmentally bad attitude award to energy consumption.

**Mr. D. Padfield:**

I think we could easily pick those out with an environmentally bad attitude. But going on to slide 17, we do see education awareness as a major issue on energy saving. There are simple things like tariff switching and power factor correction and we are aware, again, of a non-States body investing in some what I describe as voltage and power optimisation devices, in order to achieve 10 to 15 per cent savings and we are co-operating with these people, we take a higher level. If they want to invest in technology to reduce their energy savings, we think that is admirable and we do co-operate with people and we consider that ...

**The Deputy of St. John:**

When you deal with the States are you dealing with it piecemeal, i.e. department by department or have you got a particular person you deal with for the entire States?

**Mr. D. Padfield:**

I am talking now about non States companies because we have had difficulty, if you like, of ownership within the States at the operational level to get these in place.

**The Deputy of St. John:**

So you are dealing with individuals, you are not dealing with one person?

**Mr. D. Padfield:**

We are dealing with some individuals within the purchasing energy and energy management side of the States.

**The Deputy of St. John:**

It would be easier if you were dealing with one person?

**Mr. D. Padfield:**

I think the issue of ownership of this by somebody within the Government is important.

**The Connétable of St. Peter:**

Could it not have been done through procurements, you mentioned Caroline Hastings earlier?

**Mr. D. Padfield:**

I could not really ... you are asking me to comment on a States organisation which I know nothing about.

**The Deputy of St. John:**

We will have to pull a report together at the end of the day and make certain recommendations.

**Mr. C. Ambler:**

I think a lot of these are questions for various States departments. I mean, over the last 3 or 4 years we have responded to the States, to many different individuals, procurement, energy management, different departments and we respond to them, we provide a lot of information. We have provided ideas on quick wins, that kind of thing. At the end of the day it is very difficult for us in J.E.C. to be able to drive a programme forward within the States.

**The Deputy of St. John:**

Absolutely, that is why I am putting the question as I am that from you people being the suppliers how many, should we say, masters have you got within the States who are your purchasing ...

**Mr. C. Ambler:**

Quite a lot.

**The Deputy of St. John:**

That is why would it not be easier to have one officer dealing with it thereby you would know full well that whatever decision is made will be carried through instead of having, as you put it, quite a lot - in other words, dozens - of different people to deal with?

**Mr. C. Ambler:**

That would be helpful.

**Mr. D. Padfield:**

I think it would be beneficial.

**The Deputy of St. John:**

You being taxpayers, both of you, would want to see the best efficiency within the States buildings.

**Mr. D. Padfield:**

Absolutely right.

**Mr. C. Ambler:**

I think the other thing, just to build on that, if I may, and it just goes back to a point that I made earlier, and that is the importance of being able to look at the States in a sort of joined-up way, to look at who owns the capital budgets and who owns the revenue budget, the operating expenditure budget. Somehow I think the States needs to overcome that issue otherwise there will be a lot of tension in internal departments and they will not be able to get traction with some of these programmes.

**Mr. M. Haden:**

May I just say, Chairman, that we are expecting a report from the Environment Department later this week which will talk about the initiatives in terms of procurement and also the States energy management, which was mentioned.

**The Deputy of St. John:**

Good. Thank you. Sorry, if you would like to continue.

**Mr. D. Padfield:**

That is all right, not a problem. I think the other issue that we are investing with energy savings techniques is we hope to roll out across the Island within the next 10 years a smart metering programme which would give ordinary people good quality, real time information on energy use of their properties. That would be obviously reflected in all States buildings, it would be all our customers. That could feed back into this scheme that you just suggested as well on a daily basis. You could have red letter days and green letter days, maybe, I do not know, but it is all do-able once we get this smart technology in place because effectively customers will, subject to protocol and security, have direct access to their meters. Often a graph is worth a thousand words really and they could easily display this information graphically through some small interface that you plug into a 13 amp socket outlet or you plug into your home laptop or PC.

**The Deputy of St. John:**

The purpose of putting the question really is a lot of that technology, as we see it now, the Water Board use it. When we have times of drought in the summer all the hotels are displaying how many million gallons of water or litres of water are used on the Island per day. Something to that effect going round each and every one of our

buildings on a daily or weekly basis, in fact, is not an impossibility to achieve once we have got all the correct technology in place.

**Mr. D. Padfield:**

In fact, some of the States buildings already have such a meter in place, all we have got to do is hook it up, subject to security. Because our larger customers already have what we call smart metering systems but we have got to get the customer interface correct.

**The Deputy of St. John:**

Right.

**Mr. D. Padfield:**

Finally, on graph 18, again, what I said earlier, we are more happy to work with the Government and we see the benefits as 2-way, if you like, in managing energy. I always say that the only thing is that it is going up is energy; it is going to get more and more expensive as the future goes on, so if we can work together to make sure we use it wisely then everyone benefits.

**Mr. C. Ambler:**

Probably also worth just reinforcing there are a lot of very simple low tech solutions out there. I mean, you mentioned the point about lighting in schooling; there are light sensors that are pretty established off-the-shelf commodity technology, really, that is no-brainer stuff. You should just do it and move on. You know, basic insulation, basic draught proofing, that kind of stuff is low tech, paid back in 2, 3 or 4 years, maybe even less, and you should just get on with it. That is what we are targeting with the Energy Efficiency Service, the £500,000 worth of funding we have provided is really centred around those low tech solutions for domestic consumers.

**The Deputy of St. John:**

Anything else?

**The Connétable of St. Peter:**

No, I am fine, thank you.

**The Deputy of St. John:**

Gentlemen, if that is the end of your presentation I would like to thank you very much for attending and call the meeting to a close at 3.44 p.m. Thank you.