Appendix 1

Economy Committee – 23 October 2014
Transcript of Item 5: Climate Change Risks to the London Economy

Jenny Jones AM (Chair): That brings us to today's main item, climate change risk to the London economy. Can I welcome our panellists, Dr Outi Korkeala [Senior Environmental Policy Economist, Ricardo-AEA], Simon Howard [Chief Executive, UK Sustainable Investment and Finance Association (UKSIF)], Mark Jenkinson [City Director for London, Siemens] and Tom Burke [Chair, E3G]. Thank you so much for coming.

What do you expect will be the main impacts of climate change related trends on London businesses in the next 10 to 20 years?

Tom Burke (Chair, E3G): If you look at any of the analysis of future growth for energy demand, they all see fossil fuels producing about 60% [of our energy needs] out to 2050. That would make the achievement of the goal of governments to keep the rise in temperature below 2°C impossible. If you look at those models, none of them allow for any impact for growth from a change in climate. I talked with the head of the modeller for the International Energy Agency a couple of weeks ago and they do not really know how to do that.

If you think about where the growth in which London's exports will come from, the London companies, Unilever, all of those companies that are based here, it is all dependent upon growth and real income essentially in the bottom two quartiles of population in the emerging economies around the world. Those are exactly the incomes that will be hit by food price spikes, water price spikes, extreme weather events in exactly those places, which are a consequence of climate change. The direct impacts of climate change on most of London's business will not come through the climate, they will come through the economy, and they will come through the reduction of their space for growth in the time period you are thinking about.

Now, we are seeing some of those consequences in smaller industries like the wine industry or the winter sports industry already and we have not yet reached a 1°C rise in global average temperatures. In the period between 1°C and 2°C rise in temperature, we are going to see much bigger industries having a big impact, the property industry, and the construction industry through that, the tourism industry, the agriculture industry, forestry, therefore the supply chains of things into London will start to get impacted as well as the incomes from people to buy goods coming out of London. I am sure we will hear from elsewhere, from investment, the impacts of that on the city will be very considerable because it will change the opportunity space and the risk space in which the City of London makes its living quite dramatically in ways that are not yet well understood.

The really important piece when these impacts start to really bite on London through the economy is in that period you were referring to, the next 10 to 20 years. As the economic impacts precede some of the more direct climate-related impacts, rising sea level, some of those other effects, which will affect London directly, and affect London businesses directly, however in a rather longer timescale. The one exception to that may be if we get more flooding events of the kind we had last year. I have not been able to source the number I read, however about 40% of the small businesses that are affected by flooding do not return, because they have not had insurance, they do not have business resilience options, and the threat therefore is to a lot of small businesses in London, in that timeframe you talk about, is from an increasing frequency of events, which it is difficult for them, unlike bigger businesses, to manage the risks of. I suspect that we are going to find it increasingly difficult for businesses to get insurance if they are in high-risk areas for floods in particular, and also other weather-related events. That again will have an impact on the viability particularly of small businesses in London.

Jenny Jones AM (Chair): Thank you. That is a very good opening.

Mark Jenkinson (City Director for London, Siemens): Without repeating Tom, the key thing is, probably within the next 10 to 20 years you will not really see the main impacts of things like flooding or overheating or the snow and ice. I think the case is that we need to start investing within the next 10 to 20 years to avoid these issues, which may hit us in 2050 and beyond. With overheating we saw that in 2003 about 600 people died in the UK and because of air quality, we say around 4,000 people are affected or die prematurely in London, however I think the case is that we need to start investing sooner for the issues that are going to hit us further down the line. In the next 10 to 20 years probably we will not really see the impact of rising sea levels and flooding, especially in the London area. I was at the Thames Barrier the other week and obviously they feel confident up to 2070, however that is kind of the drop-dead date, we really need to look at investing sooner for these long-term projects, especially when you see the timescales for certain projects to come to fruition.

Jenny Jones AM (Chair): As a company, what sort of temperature rise are you working to? Are you working on the 2ºC?

Mark Jenkinson (City Director for London, Siemens): We are working to 2ºC and beyond. We did a lot of work post Hurricane Sandy. We are talking about adaptation, however also mitigation, lots of things that New York can do, and also other cities. We talk about subsidence and obviously London is sitting on a bed of clay, well you have a city in the north of Sweden, Kiruna, which they have to actually move because they have been mining underneath the city and it is going to collapse, and they have to do that now. I think we [in London] have a little bit more time to implement these things, however with regard to our planning, it is best we include these things quite soon.

Jenny Jones AM (Chair): Thank you very much.

Simon Howard (Chief Executive, USKIF): If we start with the negatives. When I was discussing this with some members, one made the point --

Jenny Jones AM (Chair): Members of what?

Simon Howard (Chief Executive, USKIF): Members of UK Sustainable Investment and Finance Association (UKSIF), my membership association for financial services companies with an interest in responsible and sustainable investment, big banks, big fund managers.

He thought there had been a relatively near miss with the water infrastructure in London already. His fear is that the water pipes are being kept expanded by the water pressure and that if the water pressure drops as a result of drought, the Victorian pipes may rupture. While I accept that most serious physical impacts are 10 to 20 years away, the London authorities cannot ignore them even on the short term. This risk is being flagged to me just in conversations with my members.

If we look in the shorter timeframe, I do not think there can be any doubt that hotter weather, which I think we are likely to see, will make working in a city and travelling in to a city less attractive, so at the margin London's relative attractions will diminish as the climate changes, even in the near term.

My members are very worried about their reputational risk, and the perception that their big office in London is not sufficiently green or sustainable is also a threat and a pressure to them and it will have to drive refurbishment and adaptation. These are relatively near-term pressures. I think we can expect these to occur before the greatest physical manifestations. However these should be on forward-looking agendas for any company now.

I am not sure what word to use to describe the other side of the coin. I do not want to be quoted --

Jenny Jones AM (Chair): Opportunities?

Simon Howard (Chief Executive, USKIF): Yes, there is another side to the coin. The UK is Europe's leading market for sustainable and responsible investment. We get it; we get it a lot. My members and their specialist teams are already looking for how the mitigation measures will be funded, how we will build a national green infrastructure, the pension plans are instinctively keen to invest in things like that, we just need the mechanisms and the legislation to drop into place to let that money begin to flow.

Insurance has been mentioned, a key industry to London, insurers are becoming aware of these risks. I think it is fair to say they are struggling to incorporate them in existing financial models, however I have no doubt they will succeed in doing that in due course. As I said to the Chair just before the meeting, the Royal Society of Arts report yesterday[1] suggesting devolution of powers to cities in metropolitan areas raises the possibility of what one might call a 'London bond'; London goes out itself to raise money directly. The City is clearly well positioned to structure and raise the monies for things like that. While overwhelmingly the outlook is negative; there are a few things that will help London business in that.

Jenny Jones AM (Chair): Thank you.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Yes, I would like to add a few comments. The urban heat island effect was mentioned and I think it is also important to emphasise that is not only a cost to lives, which is important, but also a loss of labour productivity across economic sectors. There is quite robust evidence that that will translate to economic losses and job losses, if buildings, hospitals, are not resistant or adapted to increasing temperatures. It is an effect across all businesses and economic sectors.

I would like to finish what you started about cities and the opportunities for them, because as part of our project we reviewed all the available national adaptation strategies of Europe and then also some city-level strategies. I think there is a clear signal there that the cities are a more appropriate entity for adaptation. It is easier to define the impacts and also mobilise finance at city level. There are very many championing cities who are taking this very seriously and London could be one of them to address this risk, but also use the opportunities. It can be not only the domestic market, but the international market, for adaptation and the technologies that are needed to adapt. Accordingly, London could have an important role to play there.

Jenny Jones AM (Chair): That is an interesting idea. Of course all those cities possibly can maximise their opportunities in this area but they also have bigger infrastructure that could be put under pressure and, particularly in a city like London, old buildings that need a lot of changes. So the challenges are huge.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Yes, the challenges are. You mentioned London infrastructure, and flooding is another one that is not particularly targeted to any specific sector, it is across sectors. If transport disruptions become more common that affects business, so there is the domestic risk or the risk in London, but then also the supply chain risk, so altogether it is a significant risk to manage and for the policymakers to make the right decisions about making the transport infrastructure resilient; buildings, hospitals --

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[1] *Unleashing Metro Growth*, City Growth Commission, 22 October 2014.

Jenny Jones AM (Chair): It could have an impact on employment, for example?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Yes.

Jenny Jones AM (Chair): In a good way or a bad way?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): With climate change impacts generally, there are various sectors affected. It could be contained in sectors such as agriculture in northern Europe, however to London that is probably not a significant benefit, but the UK as a whole could benefit from that.

However if you look at London specifically then you can model those disruptions in transport, first of all they lead to economic losses, which translates to job losses because there are days when people will not be able to get to work, children will not get to school, parents will need to stay home, and this will have an impact on employment.

Tom Burke (Chair, E3G): There is a very important point that is being made there, which I do not think is always well understood. The impacts on infrastructure -- people tend to think of them in terms of the catastrophic moment, however you need to think much more in terms of the frictional cost of doing business as infrastructure is impeded. We would survive, however everything just slows down. You already know what happens in London when things get slowed down, so you have a cumulative consequence, as these different frictional effects occur, none of which are captured by current accounting methods, so you cannot count the cost of those. When you start judging then, what is it worth to spend to avoid those things, you do not have a very good idea of where the value lies and whether the investment you need to make to avoid those consequences is actually generating the money, simply because you have no idea of what the avoiding costs are in a serious way. That is a methodological problem.

As we go through this we will find there are other areas where there are problems where our methodologies for assessing the value of these issues is quite poor. The problem with that is then you arrive at points where you have a catastrophic event of the kind described and then you are having to do your thinking between the 'flash' and the 'bang' and on the whole we are not good at doing our thinking between the flash and the bang and we tend to make panicked responses, which are often not cost-effective and sometimes make the problem worse rather than better.

The real value is in thinking long term about a problem for which there is no baseline. Precisely the point of climate change is the baseline is changing, and the change in the baseline is a function of national and international policy, not of things that Londoners can do themselves. You have to then be thinking about what is London's exposure to policy failure elsewhere and how do you think that through and how do you then value what efforts you need to make to cope with the risk of policy failure.

Jenny Jones AM (Chair): Thank you. You have all opened up a lot of areas there and we are going to go through a few of them in our questions, and if you think at the end that we have not covered anything in enough detail do please say. I would just like to point out that all the guests are nodding at each other.

Fiona Twycross AM (Deputy Chair): We would like to explore a little bit more about what kind of business adaptations are needed to address the issues, so it would be helpful to know what panellists think the specific steps are that a business needs to take in order to ensure that they are able to adapt to potential impacts of climate change. So what is it that businesses can do in terms of adaptation?

Mark Jenkinson (City Director for London, Siemens): I think, to qualify my previous statement about the risk is not now -- often there are big weather events and clearly we need to invest, and businesses need to invest, in making their buildings more energy efficient. That is something we needed to start doing years ago.

It is harder for small businesses to do that, but that is something that we need to do, and I think something that was touched upon was that this is an opportunity for businesses, for more green jobs, so that the UK can become the leader in certain areas, whether it is in energy-efficient buildings, wind power or finance. We have the finance expertise, and it would also be good if we also had the skills expertise which we could expand around the world. For example, Copenhagen are going out to the rest of the world saying, "We know we are a world leader in sustainability", and taking all their businesses with them, going to different countries and saying, "We can help you to become more resistant and resilient to climate change".

Fiona Twycross AM (Deputy Chair): They are using examples of businesses in their cities that are already doing that?

Mark Jenkinson (City Director for London, Siemens): They are.

Fiona Twycross AM (Deputy Chair): Do we have strong examples of businesses in London that are doing that? The example of Denmark is useful however it would be quite interesting to know if there are similar examples here already.

Mark Jenkinson (City Director for London, Siemens): I think organisations like the Future Cities Catapult -- obviously their purpose is to help innovation in the UK. They provide a platform for small businesses to engage with various cities to help them become smart and resilient cities. Future Cities Catapult are acting as a kind of broker to bridge the gap between the cities abroad and all the stakeholders, whether it is public sector or whether it is small and medium sized businesses (SMEs). I think of all of our tech businesses around Shoreditch, obviously there is a possibility there to export. However, I am not aware of any major examples that we have from the UK, which are benefiting from business elsewhere on the back of the green agenda.

Simon Howard (Chief Executive, USKIF): This is not my specialist area, however what I could do is perhaps just point out to the Committee, that the Financial Conduct Authority (FCA) is worried about the resilience of financial companies, and if I just read a brief extract from their Handbook, it says:

> *"A firm should have in place appropriate arrangements, having regard to the nature, scale and complexity of its business* (in other words, business-specific)*, to ensure that it can continue to function and meet its regulatory obligations in the event of an unforeseen interruption. These arrangements should be regularly updated and tested to ensure their effectiveness."*

The financial services regulator is saying you need to be thinking about these things. Certainly, my big members do have contingency plans in place, many of them have off-site backup facilities and when I was active in fund management I went through a rehearsal where we moved from our base in Waterloo to a site in north London and we were up and running again within three hours. However that is essentially tactical and we were sharing this backup place, so if somebody else who also had the right to share it had been affected by the same event, I am not sure who would have got the screens, however there is tactical resilience in place.

What I think the Committee needs to focus on, if I can suggest, is the need to make sure long-term infrastructural resilience is there. I take the point that once it is there London could look to export it, so there is some upside in doing it, however to continue the analogy of the flash and the bang, I think financial services businesses are ready to cope with the flash/bang short term, however it would be a lot better if the long-term work could be done to avoid that risk crystallising.

Tony Arbour AM: That quotation from the FCA, presumably asking people to be prepared for some sort of crisis would always have been there and any responsible business would have had that, so it is not related to climate change at all, is it?

Simon Howard (Chief Executive, USKIF): What I am saying is, it is not just common sense and good business sense looking ahead, but that the regulator is active in this area, so I think we can have perhaps a higher level of comfort as to the short-term resilience of financial services than perhaps in other sectors, in retail, in manufacturing, and so forth. However I am certainly not suggesting that we should be complacent about it.

Tony Arbour AM: No, I was not suggesting you were complacent, I thought that you were reading out something which is obviously common sense, every organisation will put that in and it has no relationship whatever to climate change - it could be any kind of unforeseen event.

Tom Burke (Chair, E3G): Perhaps I could help you on that, although it is currently a discussion between the Bank of England and the FCA and others. If you take the insurance industry, the insurance industry has paid a lot of attention to climate change because, if you cannot price the risk, it makes it difficult to write business, so it has become rather good at doing that. What it has not done is look at what climate change might do to its asset base and therefore its liquidity and its ability to meet its obligations and that is potentially a very serious exposure. That applies to all the asset managers in the City, however the insurance companies are the ones who are having that problem and I think that is what was bring referred to really, those are the discussions that are now ongoing between the Bank of England and all of the regulatory authorities as to what is the exposure of the asset bases.

Jenny Jones AM (Chair): There might be more questions on that.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): If you just talk about adaptation and resilience, the jobs in London, there is a study at the moment being finalised by kMatrix for the Greater London Authority (GLA) about the scope of adaptation economy in London. I am not referring to any numbers because I do not have the latest figures, however definitely there are businesses who are involved in the business of climate change adaptation across sectors in London, however perhaps they have not profiled themselves in the same way as Copenhagen or Rotterdam.

Fiona Twycross AM (Deputy Chair): Yes, because I mean it would be quite interesting to know how you think it would be easier to share good practice in London. Sometimes it is quite easy to say, "Well that is how they do things over there", however if people are doing it on the doorstep of other businesses then it starts feeling a little bit less like something that the quaint Scandinavians do and more like something that businesses in London are doing because they are planning effectively for the future. How would we share best practice most effectively, do you think?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): I think there is probably opportunity to. When cities have been developing their adaptation strategies, there have been twin projects, and cities have worked jointly together so there are forums, there is the World Mayors Council on Climate Change where adaptation is being discussed across cities in Europe, so those forums are definitely worth exploring.

Tom Burke (Chair, E3G): If you bring that closer to home, people who do not have business resilience of any kind are the small businesses, the small and the very small end of SMEs, who do not have the capacity to do that. One of the things that will be quite important to do is to try to do some research in terms of the exposure of London's small business. However, you are asking about who could help them. The people who share that risk with the businesses are the banks that are lending them their operating capital. All of the businesses go to the banks, and it seems to me the retail banks could play a much more positive role in helping their business customers understand these risks and prepare contingencies for handling those risks. I think there is quite an interesting challenge that could be taken to London's retail banks, which, given the way bankers are thought of these days, might be quite a positive piece for them to be doing. That would help to restore public confidence in the banks. Building some relationship between the retail banks and those small business customers to help with resilience and to take advantage of the kind of opportunities that are opening up, which small businesses cannot reach for themselves.

Fiona Twycross AM (Deputy Chair): There are some tools available already. I wondered if people could comment on how useful they are. For example there is the Environment Agency's Business Resilience Health Check. Do people feel that is useful or well used or even known about?

Tom Burke (Chair, E3G): It is probably not known about. Where it is known about, the people who know about it are rather too busy to take advantage of a sort of self-help. You need to go with the flow of business when you are doing this and the flow of business takes people to the banks and the banks are there to help them think about risk. That is why I was isolating that.

Now, is the tool useful if you then encase it in something like that? Yes, it is. Just to drop it on to the web and hope that makes a difference is probably a bit optimistic, given the kind of pressures that small businesses are under.

Mark Jenkinson (City Director for London, Siemens): I think the question is, what is the cost of doing nothing, so if you cannot see it, what is the impact? Climate change unfortunately is a bit too abstract for some people, however to try to reduce the impact of climate change can also save money and has the positive effect of also slowing climate change. I think for a small business, if you can say "there is also a cost saving, oh, and by the way, it is also really good because you will save some carbon dioxide, and therefore save the environment", that is a positive. It is promoting that there is also a cost saving, so by doing something it helps you to save money and also helps to make the business more sustainable going forward.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Regarding the tools, there are plenty of tools available, for example the Environment Agency climate-ready website. Whether those tools are useful, particularly for small businesses, it must be considered that sometimes when you talk about climate change, the risks may be in 10 to 20 years' time, and a small business is normally operated on a much shorter horizon.

Another problem or issue is that sometimes resilience adaptation is the job of the environmental officer and it is not really mainstreamed into the business planning across the organisation, and so it might be difficult for the officer to make the business case.

Fiona Twycross AM (Deputy Chair): Is there more that the Mayor could be doing on this?

Tom Burke (Chair, E3G): He is good at banging heads together, so banging the banks to get them to work with the Federation of Small Businesses in order to help. I think that problem, to a small business, looks like a long way off however the way it comes towards you is not easy to see, and you need somebody that you have a long-term relationship with to help. That is again why I come to the banks, because businesses have long-term relationships with the banks and it needs to be a partnership in managing the risk, so the Mayor could certainly take a lead in challenging the banks to play a part in helping London's businesses to cope with a problem that is not easy for the smaller businesses to deal with.

Jenny Jones AM (Chair): Unfortunately the person who was going to talk to us about small businesses is not here at the moment.

Mark Jenkinson (City Director for London, Siemens): We could all do more, it is not just the Mayor, it is not just the Government, it is not just the general public – although obviously the general public have a large part to play. Clearly we need to again make it clear and transparent what are the impacts, positive and negative, of not doing anything or doing things to mitigate climate change. We can all do more.

Stephen Knight AM: I understand why some small business have not really looked into adaptation, because a lot of small businesses are wondering whether they are going to survive the next 12 months, let alone the next 12 years. However what worries me is the figures in our brief show that, even among companies that employ large numbers of people, 250-plus employees, more than a quarter have not even talked about adaptation. Those businesses ought to be in business of staying around for a long time, and therefore thinking ahead. Indeed, London's economy is characterised by the majority of employment in London, unlike the rest of the UK, being in large private sector firms, not small ones. Is it worrying to you, and it looks worrying to me, that so many of the big firms are not doing anything about adaptation, let alone the small ones?

Mark Jenkinson (City Director for London, Siemens): I can only talk about Siemens, and we can also do more. However, if you think that London's CO_2 output is either, depending on which figures you use, 44 megatonnes, based on 2010 figures, or 114 megatonnes based on the new measurements, we at Siemens, we save about 300 megatonnes of CO_2 for our customers worldwide every year. For us we feel that we are also benefiting or we are contributing to the overall impact. Obviously, in private companies, big or small, normally it is the job of the corporate social responsibility (CSR) person or the environment officer; they are the person responsible for making sure that we are energy efficient or we are reducing CO_2, however the culture in there should be for the whole organisation to follow, whether it is a small business or whether it is a large business.

Simon Howard (Chief Executive, USKIF): The process whereby what is currently a tail risk, something that can be modelled and anticipated but is unlikely to crystallise this year, over the next decade or so becomes part of the business-as-usual environment. We can expect to see responsibility and interest moving from the CSR specialist into the operations team, to the finance director, to the chief executive. Speaking for the finance sector, that process is definitely now beginning. Most of the large investment banks have people who are looking at the implications of climate change and how it impacts on businesses, and how it will translate into the attractiveness or otherwise of those businesses as investments. Whether the survey to which you refer was addressed to the right people and they knew that there was a team considering the impact; that would be my slight caveat. In financial services most companies with 250 or more people will have it somewhere on their agenda, thinking, "How do we operate? How do we make money out of this change? How do we mitigate the risk?" The large companies are there; the smaller ones have the problem.

Stephen Knight AM: That data is perhaps a few years old now, so hopefully things have moved on a bit.

Tom Burke (Chair, E3G): However, it is worrying and because the dominant mode in those large businesses is still a responsibility mode of thinking about it rather than a risk mode of thinking about it. They are not looking at the risk to their growth potential and they are not looking at the risk to their supply chain, and those are much more, in a sense, pressing risks to them than the reputational risk of not being seen to behave responsibly. I think they are discounting. That risk landscape is going to vary enormously depending on what your business is, however, as a generality I would be very surprised, on the basis of my own experience in the corporate sector, if there is much awareness yet of the way in which the risk landscape is changing.

That is the downside if you are not aware of the risk landscape changing, because every risk comes with an opportunity. There are businesses which are then not seeing opportunities that are approaching that are positive. Again, is this something that London can do collectively to make their businesses in that sector aware of it? There are things that can be done and it is a consciousness-raising thing. There are a lot of opportunity-seekers as well as risk-avoiders and one wants to mobilise both, especially when you get into, that category of the businesses that are 250-people or larger where there is some capacity to take a longer view of the future.

Andrew Dismore AM: That brings us on to the issue of supply chains, which is probably a more immediate problem with immediate weather events, which tend to happen more frequently and more severely I think. How are London businesses identifying and addressing the issue of disruption from severe weather incidents?

Tom Burke (Chair, E3G): Very big businesses, the Tescos, the Unilevers, have begun to get a sharp focus on the supply chain risk and to start to do things to mitigate that risk and they tend to have options. They can spread their sourcing around, they can build optionality into it. You are seeing, among the very large businesses quite a shift over the last two or three years of alertness on the supply chain.

Andrew Dismore AM: That is food business, is it not? I mean, as they have said, 95% of their fresh produce is potentially at risk.

Tom Burke (Chair, E3G): That is exactly right.

Andrew Dismore AM: Moving out of the food sector?

Tom Burke (Chair, E3G): I do not think there is much awareness in the supply chains. When the floods in Bangkok a few years ago disrupted the whole supply chain for silicon chips - which would have a greater effect now, because we have many more businesses that use chips, not just information technology businesses - that had a massive knock-on effect all the way through the system. I do not think we understand collectively what the vulnerabilities are, so I do not think there is any understanding of where there are vulnerabilities to London's economy in those supply chain risks, and I think we are a long way from most companies understanding. I doubt very much whether companies in London have an understanding of what the increased likelihood of flooding events in Bangkok might mean to their cost of their components. I think we are quite a long way away from that. That is not going to affect a lot of the businesses in London that are sort of national focused or locally focused, however it is going to be a big problem for others, and floods are only one of the possible weather events. There are hurricanes, and quite a lot of others, that can create these interruptions in supply chains, which you can deal with if you are aware of.

Andrew Dismore AM: Businesses seem to be much more aware of their supply chains overseas from the point of view of making sure there is no child exploitation and health and safety in factories and all that sort of thing.

Tom Burke (Chair, E3G): I think that is true.

Andrew Dismore AM: Because of the reputational risk as much as trying to do the decent thing.

Tom Burke (Chair, E3G): That is exactly right.

Andrew Dismore AM: Is this not part of the other side of the same coin?

Tom Burke (Chair, E3G): They should consider that, and they should look at the consequence of climate change for political stability and not just for the extreme weather events. Food and water price spikes in urban areas are a potential source of very big destabilisation and the loss of political stability and that, as we have seen in Libya, can have a big effect if you are dependent on things coming out of that country for your components, for your supplies. So again, I think our awareness of those sorts of interactions in business is really patchy, it depends very much on whether or not there are individuals who thought this through, rather than there is an institutional response.

Andrew Dismore AM: Is one of the solutions to shorten the supply chain, bring production back to the UK or the EU from the Far East, for example.

Tom Burke (Chair, E3G): I think that is a very -- certainly the balance of value in the equations will change a lot in these things, you are exactly right, people will start to wonder how they get more control over their supply chain. However, part of the consequence of interdependence and globalisation on the opportunity side is you have to take more responsibility of it, not just for reputational reasons, but also in order to retain your ability to deliver value to shareholders.

Andrew Dismore AM: Therefore you would not see these supply chain issues as part of CSR; you see it as the business side?

Tom Burke (Chair, E3G): I mean of course the balance will vary from company to company, however, for most of the business is in London it is a risk factor, not a responsibility factor. If you have a strong consumer face the two things go together, however if you do not have a strong consumer face then you have to make a bigger effort to think through how these issues will impact on your business.

Andrew Dismore AM: What should the Mayor and the Government be doing to make people more aware of identifying the risks and possible solutions?

Tom Burke (Chair, E3G): One of the things that would be very good for the Mayor to do would be to convene a conference in London of its businesses in order to say, "What is our exposure and how can we work together as London businesses to address both the risk side and the opportunity side of that exposure?"

Andrew Dismore AM: Tell me if this sounds bizarre to you, however it seems to me the business adaptation is a strategic approach and the supply chain is the tactical approach, and people ought to be more aware of the tactical immediate threat to the supply chain and acting more quickly in relation to that compared to the business adaptation, which is a more long-term strategic approach. Are you effectively saying the Mayor should do that too because it is more practical, more immediate, more, I know "sexy" is the wrong word -- the supply chain side?

Tom Burke (Chair, E3G): Adaptation, we have heard from others, is about infrastructure and that takes a very long time. You cannot do quick fixes on the big infrastructure problems, so it is right to focus on adaptation, however it is not the most urgent of the problems, not the most immediate. You will have to deal with it but the supply chain problems I think are much more urgent because I do not think we have begun to think yet about them in the way we are discussing.

Andrew Dismore AM: So you think there might be more added value in the Mayor doing that than the longer-term thing in terms of it engaging people?

Tom Burke (Chair, E3G): I think he has to do both.

Andrew Dismore AM: It is not necessarily an either/or?

Tom Burke (Chair, E3G): I think he has to believe there is a problem firstly.

Andrew Dismore AM: That is the problem because he seems to be somewhat sceptical about the whole issue of climate change. Unless he is convinced there is a problem he is not going to do anything about it.

Tom Burke (Chair, E3G): I think it is very hard to argue that you should do something about a problem you do not think exists and, if he does not think the problem exists, he should be straightforward and let Londoners know that.

Andrew Dismore AM: Yes, well he has been somewhat ambivalent in his pronouncements.

Tom Burke (Chair, E3G): However, if he does think it exists -- well, being ambivalent is a recipe for doing nothing, whether you are in politics or business or anything else. I think you have to be clear-cut in whether you think this is a problem or not and you behave appropriately. However, you should let people know what you think, if you are the Mayor you obviously have to let people know what you think.

Andrew Dismore AM: Does anyone else want to add anything about this point about supply chain?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Just to acknowledge that this is challenging. When you mentioned the child labour, only since that became an issue have we found out that some companies just do not know where their components come from or who is producing them. It would be a good opportunity to know when companies need to know more. They have the responsibility to use that information and intelligence also to understand that there are -- it is not all about the responsibility, however you can use the information to make your supply chains more resilient.

Tom Burke (Chair, E3G): A political point: If the Mayor gives the lead and the stronger the lead the Mayor gives, the less Government will have to do. The stronger the lead is the more people will start to do things themselves, whether it is as individuals or as companies. If there is no lead, and it is not personal to this Mayor, it is true for leaders anywhere, if there is no lead then at the end of the day you have to intervene and that compels you to rely on Government to do things that people could have done for themselves. So it is not necessarily a good idea to avoid giving a lead.

Simon Howard (Chief Executive, USKIF): It seems to me that in the finance sector the companies have two kinds of supply chains, there is what you might call their internal supply chain, which is making sure the IT comes into the building and that data is consistent and reliable, and it is making sure that people can get into the building, and that is small scale and local and doable.

However, for pension funds, fund managers, and for the banks, they are exposed to the supply chain of every company they are invested in. If you have a London bank who is doing deals with Thai mid-sized companies, that investment bank's revenues are affected by all the Thai sustainability challenges, be it sea-level rise, be it change in disease, be it change in agricultural practices, be it the urban problems and political stability, all of those at the margin will impinge on businesses in London. If value is lost there due to those overseas supply chains, at the margin, businesses here suffer.

Andrew Dismore AM: That would be the second point I wanted to raise, and that is the value of UK, in particular London, financial assets held overseas and their vulnerability. I think UK firms own £10 trillion worth of assets abroad. I do not know how many noughts that is, however it sounds like an awful lot. What should companies do to respond to risk of them losing value in their assets?

Simon Howard (Chief Executive, USKIF): We have touched on this for instance in the insurance thing. What each company needs to do is work out just what the risks are. Therefore, in the case of an insurer it is the claims that may arise because there are more storms overseas or because the pattern of disease, even in this country, changes.

Imagine you are an asset owner with assets overseas. Again, you just need to understand what the risks are linked to those assets and those risks will be an enormously wide range. It may be the fossil fuel, we need to burn less carbon, therefore it is simply that it is an unattractive sector. That has ramifications for transport. That has ramifications for food, which we were touching on a few minutes ago. All the other threats we are aware of and the new threats, which are emerging. Drought in the United States affecting the supply of grain coming from the States, this has to be considered by London-based bankers and investment managers. Threat of disease around the world, all of these things need to be considered.

What businesses need is to be very lateral in their thinking and very open to their thinking and willing to talk to the experts. There are plenty of experts in London who can advise on this. We need to get the business mindset that this is a realistic and a relevant threat and they need to respond.

Andrew Dismore AM: Earlier we were talking about the opportunities out of this as well, and I would just like to explore that briefly. Nobody has spoken from the point of view of green technology, wind farms and all that, and thinking about what other opportunities there might be. I mean you were talking about, for example, the threat to the water pipes, I mean should I be investing in companies that make plastic water pipes, for example, which you would not normally identify as a green technology? I think somebody mentioned the wine industry. Well, if the temperature improves, presumably Sussex and Surrey will be doing quite well out of it from the wine industry point of view. Is tourism going to benefit from a warmer climate? Who are the winners and where are the opportunities, because we are painting all the black pictures, presumably there is a positive side as well?

Simon Howard (Chief Executive, USKIF): At this stage, if we consider the large investors, the things that are going to suffer are large listed companies - BP, British Gas, Exxon. The people who we might expect to benefit are at this stage small and unlisted and therefore not easy for regulated asset owners to invest in. Therefore one cannot simply say to a pension fund, "Sell transport, sell oil, sell mining, and invest in wind turbines", because there is far too much money there, compared to that opportunity, and this opportunity is frequently in the venture capital/private equity space, and regulators treat assets held in those in a different way. Therefore there are some regulatory ramifications. However, yes, I think it is very important that London does talk up the innovation coming in the UK and the fact it is possible to invest to make money and protect your clients' interests in areas affected by these changes. However, it is not a simple "Sell A and invest in B", there are frictions along the way.

Andrew Dismore AM: Therefore it is not about just investment *per se*.

Simon Howard (Chief Executive, USKIF): It is about reallocating investment and assessing the risk of what you currently have.

Andrew Dismore AM: Is it at least looking beyond green technology into those sort of other things I was talking about?

Simon Howard (Chief Executive, USKIF): Yes, I mean this is going to affect every sector and technologies will emerge and business techniques will emerge and become operational, there will be firms who are good at it and firms who are bad at it. What the financial sector needs to do is have more analysts who can recognise good firms as opposed to lagging firms.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Not from the point of companies, but the sectors, and definitely you mentioned tourism and for example cultivators of wine could be winners in the UK, however do we have the skills, do we have the technology to exploit that? That is another question. Therefore there has to be some strategic thinking to build those skills and, in terms of tourism for example, there are models that the UK could be benefiting from increase in temperature in terms of tourism. Are our hotels are built so that if there is a heat wave, what happens to the tourism there, is our infrastructure resilient? It is still not that we will benefit from this; that is if there still has to be those investments to make sure that we are going to benefit from those.

Mark Jenkinson (City Director for London, Siemens): So your first supply chain issue is the skills gap, and that is a big focus for Siemens in the UK, really pushing that we need more engineers and people who understand this and can help us to build new infrastructure, which will help us to resist, offer resilience for the future change, therefore for us it is skills.

Andrew Dismore AM: The skills gap is in what, engineering, or other things? Or is that mainly it, and where do we find people to do it?

Mark Jenkinson (City Director for London, Siemens): For Siemens it is the main focus is obviously engineering, however I am sure there is a plethora of finance analysts coming through, or legal. Back to the original question, I guess finance, legal, insurance, are top of this world.

Simon Howard (Chief Executive, USKIF): I would say the intellectual property exists in London and in the UK generally. What we need to do is disseminate it. I have seen a statistic, which says there is something like 1,000 university courses, which use the word "sustainability". However I do not think we are yet at "Applied Sustainability". I do not think engineers are necessarily yet being taught about it and then how you design a better widget. I do not think we can be very far away from that happening; however it needs more work I suspect.

Tom Burke (Chair, E3G): The impacts of climate change on urban life are going to be very wide-ranging and they are going to require systemic responses in order to cope with constraints on public financing. You are not simply going to be able to deal with each problem separately. There is a whole issue about data management and systems integration, which we are rather good at, which are about software rather than just -- not just thinking about clean tech, but how do you build the systems that can manage change, and particularly change in urban areas? That is an area of opportunity for us in particular because I think we have quite good skills in this area. The data and the sensors and the instrumentation you need to use in order to help cities cope with these changes and cope with them in a cost-effective way are all going to be part of that opportunity part in the frontier of change, and that is the sort of things we need to be looking at. You are right, because I think people tend to think just clean technology or green energy, and that is a limited way of thinking about the opportunity side.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): It could be that the Mayor could be mainstreaming adaptation needs in the education curriculum to make sure that London has the skills. In this report[2], when we modelled the employment implications of adaptation, we also looked at skills, we looked at the occupations, the skills needs up to 2050, and exactly those skills, for example statisticians, research and development, building and civil engineering, technicians, those are the skills that are needed in terms of adaptation and mainstreaming adaptation.

Mark Jenkinson (City Director for London, Siemens): Obviously we have some of the best universities in the world. Obviously they are commercialising the ideas that we have. It is an issue.

Andrew Dismore AM: Are the vice-chancellors onboard? Are they sceptical about all this?

Simon Howard (Chief Executive, USKIF): The universities are very keen on this kind of thinking and are beginning to divest. I do not think it is the universities lagging; it is the financing of bright idea commercialisation that still seems to be clogged.

Andrew Dismore AM: Tying the theoretical perception to practical applications.

Simon Howard (Chief Executive, USKIF): Yes.

Mark Jenkinson (City Director for London, Siemens): I work closely with the University of East London and they are really keen to engage, they are engaging with Thames Water, they are engaging with other businesses, to try to give some focus and some direction for the students, and some support, but also trying to realise some of the ideas that are coming through. I think the Mayor's Low Carbon Entrepreneur prize is obviously another impact.

Tom Burke (Chair, E3G): Water management for London, sitting in the middle of the driest area of Britain, is likely to become drier, is going to be an area where there is a lot of opportunity as well as risk.

Andrew Dismore AM: I need to buy water pipes then.

Tom Burke (Chair, E3G): I would be buying water meters or sensors that allow you to get a good idea of what is happening on a real-time basis during water flows so that you can manage them effectively.

Jenny Jones AM (Chair): Tom mentioned this idea of the Mayor putting on a conference with businesses to talk about what risks there could be from climate change. Has any work been done on what individual businesses are doing this sort of risk analysis and work, anything on London as a whole and anything like the work we are doing, but somebody else doing it?

Tom Burke (Chair, E3G): That is why I thought of something the Mayor could do that is not being done by anybody else, and I would not phrase it simply negatively. I mean it is a landscape of risk and opportunity. What you want to see is you want to put London's businesses in a place where they are aware of the risks, however they are able to take the opportunities, and that is the kind of lead the Mayor can give by just simply convening a bringing together of what we know. We know a lot about these issues in London, however it is disaggregated; it is in all kinds of places. We have a lot of it in the universities, there is a lot of it in companies,

[2] *Assessing the Implications of Climate Change Adaptation on Employment in the EU*, European Commission, 23 October 2014

there is a lot of it in all kinds of other places in London, however we are not bringing that together to give you exactly that view of what does this mean for Londoners, rather than all these isolated facts, which leave people a bit disengaged.

Andrew Dismore AM: Is the risk of trying to do that not that it is such an enormous subject, you end up with an unfocused uncoordinated --

Tom Burke (Chair, E3G): Yes, it is, however you have to start somewhere.

Andrew Dismore AM: What things do you think the Mayor should particularly focus on, if the Mayor had to focus on something to make it an effective operational day, what should he focus on most?

Tom Burke (Chair, E3G): Yes, that is a good question, and you are right about the need to create a focus. I think the inevitable first focus is on the City, because the City is such an important part of London's identity as well as its operability. If you look at it all the way through, what we have talked about this morning is about the risks to the City that go from literally the frictional risk of trying to get people in to work on time and arrive in a comfortable and affordable way, right the way through to the liquidity of major asset holders. Therefore one focus you could use is the risk and opportunity to London as the leading financial centre of the world and the point of that would be to identify the City as the place that understands these risks and opportunities better than anywhere else. Therefore, if you were thinking, top of my head, how would I achieve that point? My immediate reaction is to focus first on the City.

However, I would also want to, and maybe you do not want to just do one, I would also want to focus on what it means for London's smaller businesses, because they are the people who in a sense are least well prepared, both to cope with the risks and to take advantage of the opportunities. Your point was quite correct, you might, if you try to wrap those all up in the same piece, you would get something very unfocused. It is just the thought that there needs to be a lead so that you liberate people's own creative energies, both in responding to the risks and taking the opportunities. That is what is missing from not having a narrative about climate change in London as a whole.

Simon Howard (Chief Executive, USKIF): Something I found very useful, talking to generalists who were first dealing with this topic, is you have a scenario. If the Mayor could convene people and have a scenario whereby the Thames Barrier was only dodged by 6 inches last month, there has been political instability driven by food shortage in Egypt, you know, come up with a scenario, ten bullet points, which are believable in the context of the work you know is going on, and then ask industry leaders to give their reaction and that will make it real.

Andrew Dismore AM: Like the tide floods, that sort of thing?

Simon Howard (Chief Executive, USKIF): Yes, exactly.

Fiona Twycross AM (Deputy Chair): This is work his GLA Economics team ought to be doing probably and the statisticians. What you are saying is we need to have images that people can relate to rather than statistics that just sound a little bit abstract.

Simon Howard (Chief Executive, USKIF): Yes, and use the Mayor's clout to make sure the chief executives come and you make it a very real threat, the flooding has happened, the riots are happening. Do not talk about theory; this is the context, about what you would do.

Andrew Dismore AM: That is a good idea. That makes a lot more sense.

Jenny Jones AM (Chair): Yes, certainly by making the City the focus, we might engage the Mayor a bit more than if we make, say, people the focus.

Simon Howard (Chief Executive, USKIF): You will have to take that up with the Mayor.

Tony Arbour AM: What new risks are there, which become insurable risks, that climate change uncovered? All the things that you have talked about previously have all happened before, even, the point that was made about there being 1,000 courses in universities that mention sustainability. Thirty years ago there were probably 1,000 courses in university that mentioned sociology. It does not necessarily follow that is the reason that something will happen. However, all the incidents that you have talked about relating to flood or a disaster of one kind of another, it has all happened in the past. I can only think of one new insurable risk in recent years, which everybody said was going to happen, it made a lot of money for lots of people, and it did not happen, and that was the Millennium Bug, if you remember that. The world was going to come to an end in 2000, every computer in the land was going to stop, and it did not happen. That is why I ask the question, what new insurable risk has climate change produced? I am sure Mr Burke is the man to answer that one.

Tom Burke (Chair, E3G): Yes, the answer is none; there is nothing new under the sun. However I am not sure whether that matters. What is new is that there is no actuarial basis in a lot of areas for the people trying to price insurance risk to do so, and they are becoming increasingly reluctant to price some risks. One risk in particular, which if you know the market, you will know very well. There is a debate going on right now between the insurance industry and the Government about how to provide some sort of collective backup so that the insurance companies will take the risk of insuring properties in flood-prone areas.

Is there a new risk? I cannot think of any more than you can, but in a sense that is not the problem. The problem is that the fat tail has become fatter. That is the first bit of the problem. The bit that you cannot price has become bigger and that restricts the size of the market. It is a serious threat to the insurance industry that it will find a growing number of uninsurable risks. If you cannot insure the risk, you cannot make money out of it.

The second risk, which is the second new thing, is the threat to the value of their asset base. I do not think - indeed, I know - that the insurance industry would be very reluctant to engage in a discussion about the difference in the value of their assets in a 2ºC world and a 4ºC world. Their assets will have a very different value. In a sense, the 30- or 40-year promises that insurance companies make and that they make in good faith are dependent upon not only the value of their assets being what they say it is but also liquidisable when they need to liquidise them in order to meet their obligations.

There are new risks to the asset base and there are not new areas of business but areas of business that might drop out of the market because of this. However, you are quite correct in your assumption that there is nothing new under the sun. Insurance companies have been coping with that for a long time.

Tony Arbour AM: Does anybody else have a view on that? I assume that there are some syndicates that are offering to insure --

Tom Burke (Chair, E3G): Yes, there will always be risk-takers. As long as the people who make the money out of taking that risk pay the price too, I do not think we should worry about that. Let them do it. That is exactly what you have markets for.

However, the Millennium Bug often comes up in this sort of conversation. One of the reasons why none of the disasters happened is because people paid attention to the fact that they could do what was necessary in order to avoid those consequences. Of course, that made a lot of money for the insurance industry, quite rightly. What more people were doing was taking it in case they did not do what they should have done.

Tony Arbour AM: Is that actually true?

Tom Burke (Chair, E3G): As far as I know, yes.

Tony Arbour AM: You are saying the Millennium Bug proved to be a non-event because people took action against the Millennium Bug.

Tom Burke (Chair, E3G): Yes.

Tony Arbour AM: Was there ever a demonstrable situation where the Millennium Bug actually existed and was going to bring the world to a halt?

Tom Burke (Chair, E3G): You would have to ask somebody who is expert in that field. I do not know. That is the straight answer.

Tony Arbour AM: It is very important in the context of what we are talking about. I am sorry the man from the small businesses is not here. All of these things --

Jenny Jones AM (Chair): He sends his apologies.

Tony Arbour AM: -- produce extra burdens on small businesses, perhaps insurance rates going up because this thing might happen or because of other precautions about alleged risks occurring.

If I can take you up on something else you talked about, the frictional events, which are knock-on, and I think you mentioned getting to work. Ever since the days of [Isambard Kingdom] Brunel and indeed [George] Stephenson, people who run railways know that there is an effect on the rail with extremes of weather. The railways companies always factored that in and they were always able to take that into account when estimating profits and costs and so on. I cannot honestly see that as really being an integral problem.

Tom Burke (Chair, E3G): I think you misunderstood the thrust of what I was saying, in that case. You are quite right. Of course, if you present reasonable people and practical people with a practical problem, they can find a solution. If you change the frequency of the events that they need to find a solution for, you place extra burdens on them. That is the only point I was making. If the frequency of the events that they have are beyond the norm - outside the bell curve if you are at the top of the bell curve - and if the frequency changes, it creates problems for them.

Andrew Dismore AM: That is why Toronto is well prepared for the snow every year and we always have a crisis when it happens every so often.

Tom Burke (Chair, E3G): We do not capture those frictional costs which are incremental. We do not capture those in our accountancy systems and we do not know how much damage they do. Therefore, we cannot make the judgement you correctly want us to make of what it is worth us to spend to avoid having these consequences.

Simon Howard (Chief Executive, USKIF): Your observation is probably right, Mr Arbour, that the claims will be for the same things. The comment has been made that there will be more of them and across a wider range.

Yesterday was a good day for reports, neither of which I have read. In addition to the Royal Society of Arts one, there was a report from America by a non-governmental organisation called Ceres on the American insurance industry reaction to the threats[3]. One interesting point I have gleaned is that the variety of diseases to which life insurers are exposed will probably grow. Diseases we have considered to be subtropical may begin to appear. New kinds of disease claims in life insurance may fit into your category.

Tony Arbour AM: That is interesting.

Simon Howard (Chief Executive, USKIF): The points have been made already: a wider variety of claims, albeit in well-known areas, the difficulty of pricing those risks and this important point that the balance sheet and the assets the insurer has to fund the claims are themselves exposed to the supply chains risk we have already talked about and the liquidity risk.

I will make one point, an observation I made 12 months ago in an article. The insurance industry is driven by a model and talks confidence levels. It then takes those confidence levels to its pension fund clients and so forth and it would be a foolish pension fund trustee who, when told there is a 95% probability of something happening, did not adjust their investment strategy accordingly. Why, if confidence levels of that bite and have an impact on asset-owners, do we ignore 95% confidence limits which are the stated confidence limits on climate change? Exactly the same kind of statistical modelling works for the allocation of billions of pounds in finance because it is the best there is. The same logic does not seem to apply more widely to climate change data. These models are the best we have. The confidence limits are high. It is ignored in some quarters. It is an interesting contrast.

Jenny Jones AM (Chair): Yes, it is.

Tony Arbour AM: Certainly I am one of those for whom the jury is out. The jury in my case has not even left the court because it has not heard the evidence.

To come to your point about insurable risk, manifestly, if people who wanted insurance believed that there was a likelihood that something was going to happen, they would buy the insurance, which would increase the amount of premiums and which would allow the insurance companies to pay out if the risk should occur. Manifestly, those people are not buying insurance related to climate change because they do not actually believe it is going to happen. I am not entirely sure --

Tom Burke (Chair, E3G): Which is when the taxpayer picks up the cost.

Tony Arbour AM: Only if it happens.

Tom Burke (Chair, E3G): Yes, but we have seen it --

Andrew Dismore AM: The insurer of last resort is the Government, as we saw with the banking crisis.

Tom Burke (Chair, E3G): Yes, exactly.

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[3] *Insurer Climate Risk Disclosure Survey Report*, Ceres, October 2014

Simon Howard (Chief Executive, USKIF): I understand the logic of your question, Mr Arbour.

What is happening is that insurers price the risk using historic outturns. The minute the feeling is something has changed and they have to price it on a prospective basis, the premium goes through the roof and the customer is unsure, "Is that a good deal? Is that not a good deal?" No business is done, the insurer retreats from the market and the public sector is left to pick up.

The market is evolving. I would not even call it a market failure at this stage. People just do not have enough data. It depends on their view of the world as to how they will price. It is a real problem. I think the insurers are beginning to look at it, rather late, perhaps.

Mark Jenkinson (City Director for London, Siemens): Obviously I would say I am more for investing in the infrastructure rather than insuring against something which is likely to happen. Talking about reports, we did a report after Hurricane Sandy with Arup and a few others[4]. The findings were that between 2000 and 2012 there was $1.7 trillion of costs due to natural disasters and we see that cost is increasing. The cost of doing nothing is that you grind to a halt for a day or two, which could cost billions. However, there is a payback if you invest to mitigate or adapt to these disasters.

On the back of the point about whether climate change is there or not, I think the media has a role to play in this as well, "Scientists say that climate change does not exist", when they have one or two scientists out of 3,000 saying it does not exist, but the overall majority says it does.

Tony Arbour AM: It is OK if you believe in the wisdom of crowds, is it not?

Jenny Jones AM (Chair): Really? That is the most ridiculous comment you have ever made and there are quite a few competing comments.

Tony Arbour AM: No, it is not. I have made quite a lot of ridiculous comments and that is probably one of the more sensible ones.

However, on a related one to insurance, which is my brief here, we are always hearing --

Jenny Jones AM (Chair): I had lost sight of the fact that you actually have some questions to ask.

Tony Arbour AM: In effect, I have dealt with the principal question. We have heard this morning that there are some countries and there are some places which take climate change rather more seriously than us and I think Mr Jenkinson produced something about Denmark. I wonder if the insurance people are able to tell me if there is any nation in the world where there is a substantial take-up of insurance against climate change. That would be a test of whether the Danes really think it is going to happen.

Tom Burke (Chair, E3G): No, it will be a test of whether the insurance market thinks it is really going to happen and can put a price on it. We are not laggards in doing something about climate change. We are amongst the leading countries in the world in addressing climate change.

Andrew Dismore AM: You cannot insure against certainty.

Tom Burke (Chair, E3G): It is not. It is a very simple point. It has been made. If you no longer have an actuarial base, an insurer cannot responsibly put a price on something. By the way, the insurer who puts a

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[4] *Toolkit for Resilient Cities*, Siemens et al, April 2013

price on something for which he cannot produce a sound analytical base runs the risk of being personally responsible for losses that his partners make as a consequence of the business he wrote.

Andrew Dismore AM: Will the regulators get involved then?

Tom Burke (Chair, E3G): Of course they will. Of course the regulators will get involved. You cannot have people writing a price for a tradable commodity for which you have no sound basis for the price.

Andrew Dismore AM: The regulatory authorities would intervene to stop someone writing that policy?

Tom Burke (Chair, E3G): There are now these discussions with all of the financial regulators and the Bank of England has just started a series of discussions about what this really means for our probity and for how we grow in the sense of remaining prudential advisers, if you like. Those discussions are ongoing. They have only just started. They will attempt to resolve some of these issues.

Tony Arbour AM: If we are the leaders in this - and you have said we are - surely insurance works like any other business. If somebody wants to buy insurance, they would look to see if there is somebody who is willing to provide it, the same with any other service.

Tom Burke (Chair, E3G): That is true.

Tony Arbour AM: If we are the leaders in this, are there lots and lots of people coming to the insurance industry and saying, "Will you insure me against X?"

Tom Burke (Chair, E3G): Yes.

Tony Arbour AM: Are there lots of people?

Tom Burke (Chair, E3G): There are a few people.

Tony Arbour AM: Can you give me an example?

Tom Burke (Chair, E3G): There are people trying to get flood insurance all over the southwest of England who cannot get flood insurance.

Tony Arbour AM: I am afraid that goes back to the point where something has already happened and where there is a certainty.

Tom Burke (Chair, E3G): No, quite a lot of those claims - not all of them - were insured claims. The probability that there will be a repeat of those floods has changed. There is therefore reluctance on the part of insurers to insure those claims.

That is why there is a debate now going on between the Government and the insurance industry about how to do that because the insurers are effectively saying, "We cannot household-by-household and we will not price this risk". The Government is saying, "You as an industry must price this risk". Therefore, now there is a discussion about creating some kind of, as it were, shared fund to cover the bit that they cannot price. That is going on now. That is not a future discussion. That is a discussion about the future going on between the Government and the insurance industry at this moment.

Tony Arbour AM: My question is related to that. To what extent can the insurance industry press business to prepare for climate change and what steps should insurance firms be taking?

On the example of floods, I am willing to bet - and that is a kind of insurance-type word - that people who take out insurance out against floods do not take out insurance against climate change and they do not take out insurance against the temperature increasing by 4ºC by the end of the century or whatever is the latest central prediction. They are saying, "Will you insure me against my business being flooded", or something else, in other words something specific and not nebulous.

Tom Burke (Chair, E3G): You are quite right and I would agree with you on that point. There are no new risks. The insurance industry will insure against the risks as effects happen to people. It is not going to insure against the cause of the effects.

Mark Jenkinson (City Director for London, Siemens): The probability of these risks happens to be increasing.

Tom Burke (Chair, E3G): Yes, it is increasing and the insurance is --

Andrew Dismore AM: That is a bookie's job, is it not?

Tom Burke (Chair, E3G): Exactly.

Andrew Dismore AM: They bet on what the temperature is going to be in ten years' time and you go and see what odds they will give you.

Tony Arbour AM: That's a substitute for insurance!

Tom Burke (Chair, E3G): The fact is the bookies would not give you odds at a very good price.

Andrew Dismore AM: They will give odds on everything else.

Tom Burke (Chair, E3G): Exactly. If they will not give you odds -- I do not know that anybody has tested it, but it would be a very interesting thing to do.

Andrew Dismore AM: It would be a very interesting thing to do, would it not, and see what odds the bookies would give you on climate change that occurs in 20 years' time.

Tom Burke (Chair, E3G): That is something the Mayor can do. He can go to Ladbrokes and say, "What odds would you give me that the temperature will not rise?"

Jenny Jones AM (Chair): Very good. We are going to move on now. Assembly Member Knight is going to talk about stranded assets, which is a concept that even the Bank of England seems to struggle with.

Stephen Knight AM: This is driven partly by the work that the House of Commons Environmental Audit Committee has been looking at in terms of whether carbon is overpriced, particularly taking evidence they have heard that suggests that about two-thirds of remaining fossil fuel reserves need to be written off to maintain a sustainable environment. We have legal obligations to cut our fossil fuel usage by 80% by 2050.

If the world is going to achieve these kinds of levels - and there are big question marks about actually whether we do achieve these reductions in fossil fuel usage - then presumably an awful lot of existing fossil fuel reserves are overpriced. Is that right and could that lead to a bubble and a crash financially in terms of the amount of investment there is that relies on these reserves?

Simon Howard (Chief Executive, USKIF): I have read the carbon bubble analysis by Carbon Tracker which underpins this concept and I think it is robust and there is a risk.

What my fund manager members are doing is tending now to look at the business mix of each hydrocarbon company. It is clear that carbon is the most exposed. Even China is beginning to attend to its coal-related carbon emissions. What people are beginning to do is mark down the likely value of coal-based assets. Oil is caught in the middle and the perception is that gas assets are probably the least exposed to this threat because gas has the least carbon emissions per unit of heat and so forth.

The analysis is robust and it is getting talked about, however it is fair to say it is not yet priced in. People say, "What is it which will crystallise the risk?" It will be things like carbon reduction targets at government level with teeth and in particular carbon taxes. Those are not yet happening and therefore the price risk is not yet crystallised, however it is very real.

Stephen Knight AM: Are they not happening because investors and industry do not take seriously the commitments - legal or otherwise - that governments have made?

Simon Howard (Chief Executive, USKIF): That is one interpretation of what is going on, yes. It is not yet linked.

Stephen Knight AM: Is that a yes?

Simon Howard (Chief Executive, USKIF): It is a yes. I am not seeking to hide it. Yes, it is the case that it is probably not yet priced in, but the risk is real.

Stephen Knight AM: If we do take seriously political commitments around carbon change, presumably investors are sitting on assets which could --

Simon Howard (Chief Executive, USKIF): Yes.

Stephen Knight AM: I suppose it really depends upon the way in which carbon taxes or regulations hit the value of these assets in terms of whether or not any fall in values that does happen will happen suddenly or gradually.

Simon Howard (Chief Executive, USKIF): It is very likely that these assets will lose value over time, however the process whereby that happens is unknowable at this stage.

What is interesting is that the fund manager members of UKSIF are having conversations with the oil companies along the lines of, "OK, you are running your business and you are throwing off cash. We think what is advisable is that you start returning that cash to shareholders rather than buying more hydrocarbon assets that you may never be able to burn". It is beginning to influence business models with more cash coming back and what we might see is the hydrocarbon sectors, which already yield more than the general market, becoming cash cows as they run down what they have built and they do not explore much more. That, of course, will change the nature of those financial assets and their attraction to different kinds of investors.

Andrew Dismore AM: Just another point, though. It is a supply-and-demand issue. We have allegedly passed the point of peak oil. Therefore, the amount of supply will inevitably decrease, even if people do not invest.

Simon Howard (Chief Executive, USKIF): Yes.

Andrew Dismore AM: Does that not balance out the value of what is left?

Simon Howard (Chief Executive, USKIF): I am not competent to say, Mr Dismore, but essentially what we are talking about with a carbon tax is an intervention in the supply-and-demand curves. There is an *ex machina* intervention that happens.

Stephen Knight AM: What we are talking about are interventions that reduce demand and therefore the price and value. Should regulators - and the Bank of England in particular - be taking the risk of a carbon bubble seriously?

Tom Burke (Chair, E3G): Yes and they are. The interventions do not necessarily have to be by governments.

Half of the cars bought every year in Britain are fleet vehicles. The same is true in Germany. It is not true everywhere. The difference between the cost of running a car on molecules and running it on electrons is very considerable. It is much cheaper to run your car on electrons. At some point - and it is not clear where that point is, but sometime - the operating expense/capital expense curves cross. For the fleet owners, it is going to become very attractive to buy electric vehicles rather than internal combustion engines. At that point, the barrier to citizens as a whole buying them starts to fall because you will start to get a step-down collapse of the capital cost. My guess is the infrastructure opportunities will follow that, not precede it. The infrastructure is not really the critical part or the most critical step on the pathway. At that point, the demand disappears for the highest value product from the oil and gas industry.

It is quite important that the dynamics that apply to the listed companies and the international companies do not apply to the national oil companies, which are the biggest global suppliers of oil and gas. Therefore, there are some quite interesting dynamics that will develop as this goes on. However, the oil industry is already in serious trouble simply being able to find reserves to keep its reserve ratio up at a cost it can afford and that is with money about as low as it can go. The cost of capital is about as low as it can go and that is simply because finding accessible reserves is just getting so expensive, which is why you have seen Shell and Exxon and BP all cut back their capital expenditure in the last two years quite considerably.

Stephen Knight AM: You mentioned that it is much cheaper to run vehicles on electricity than on fossil fuels. I guess part of that is because of the Government interventions around things like fuel tax and so on.

Tom Burke (Chair, E3G): It is part of it, yes.

Stephen Knight AM: If we see a big reduction in the amount of oil being used, there is going to be a big reduction in the amount of revenue that governments get from oil taxes. As part of that, they will seek to offset by increasing the amount of taxes on oil, but that will drive the transition, presumably, even faster. Eventually, governments will presumably lose a large part of their revenues from oil taxation and will seek to gain that from somewhere else.

Tom Burke (Chair, E3G): You are putting your finger on a really unexplored dynamic. The EU plus Norway generates about €480 billion a year in revenues from taxation in one form or another, not just vehicle or fuel taxation. In effect, your prospect is that that goes and, therefore, there will be a huge issue, which we have not begun to think about.

Also, there are dividends. When BP messed up in the Gulf of Mexico, there was not very much attention paid to it by the British Government until BP put its hand up and said, "We have to pay for this", at which point there was a bit of horror when we discovered that 7% of all the pension fund revenues in Britain come from one company. Where do you think the next 12% comes from?

Stephen Knight AM: Just one other company?

Tom Burke (Chair, E3G): Shell. A fifth of all the pension fund revenues come from two companies in Britain, both of which are oil-and-gas companies. It is not only in the hands of the Government whether you make the transition to a low-carbon economy. There is now a very vast tide of opportunity-seeking capital that is seeking to drive in that direction.

Stephen Knight AM: With the increased financialisation of the pension industry - and in particular, public sector pensions now are increasingly in the hands of the financial markets - actually, we are driving big risk into the system.

Tom Burke (Chair, E3G): I was going to say that it is somewhat riskier. If you like, the downstream political risk is maybe a little bit more complicated than people who think the future is going to resemble the past. These are serious questions which have not been discussed.

Stephen Knight AM: They need to be.

Tom Burke (Chair, E3G): You are absolutely right.

Stephen Knight AM: We are talking about the not-too-distant future.

Tom Burke (Chair, E3G): However, you cannot discuss them if you do not think you have a problem.

Stephen Knight AM: Indeed.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Just to keep the discussion balanced, for sure, there are revenues that will be lost. However, these companies get also lots of subsidies globally. It is a balancing out. Governments do pay quite a significant amount of subsidies as well.

Simon Howard (Chief Executive, USKIF): The concept of stranded assets is focused currently on hydrocarbons but, as the world changes and as people recognise the wider sustainability problems, we will see stranding in other sectors. The case has been made, for instance, that food brands may become stranded assets. A lot of the large global food companies package sugar and sell it into what is already an obesity crisis in the developed world. If we are talking about Government revenue, the University of York has done a forecast that the cost of treating diabetes will reach 19% of the National Health Service budget by 2030. How long can the food companies keep on selling Mars bars and Kit Kats and stuff full of sugar before somebody notices?

Stephen Knight AM: Mars's shares will be on the floor --

Simon Howard (Chief Executive, USKIF): The business-as-usual world is going to change quite markedly over the next 10 to 20 years. It is not just fossil fuel. It is how social and human rights cannot be ignored.

Andrew Dismore AM: They are not just climate change issues, though.

Simon Howard (Chief Executive, USKIF): No, they are not climate change –

Fiona Twycross AM (Deputy Chair): They are partly. The human rights aspect is.

Simon Howard (Chief Executive, USKIF): I would urge the Mayor to look more widely at what the world will be like in 10 to 15 years' time.

Jenny Jones AM (Chair): We have challenged him on his obsession with supporting companies that have rather poor reputations in health aspects, but he is ignoring it at the moment. He is actually using Coca-Cola and companies like that to sponsor various programmes.

Simon Howard (Chief Executive, USKIF): I understand Coca-Cola is trying to improve things, but clearly packaged sugar is doomed anyway.

Jenny Jones AM (Chair): We do not have a section on political instability, which I think is a very exciting one and perhaps we should have had that, especially in Britain, of course.

Dr Onkar Sahota AM: How can London help businesses explore the opportunities to sell climate change adaptation services and technology and why has Great Britain been falling behind the rest of Europe on this?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): What is the argument behind the claim that the UK is falling behind?

Jenny Jones AM (Chair): We were told that in a previous Committee meeting. You do not think it is right?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Maybe if you look at, for example, investment in adaptation across the years to 2050, maybe we will not expect the UK to be the frontrunner just because the climate risks are not as high as in some other countries.

Dr Onkar Sahota AM: Is there anything we can do to improve our chances or improve our competitiveness in selling this technology? Is there anything we can do in this country or do we need to accept that it is not a big problem to us and let Europe carry on with it?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): In relative terms it might be a little bit of a smaller problem for the UK than for other countries.

However, I would just emphasise again the global opportunities and there could be various options for the Mayor to promote. It could be peer-to-peer learning from what other cities are doing, providing the networks for businesses, or funding research and development to make sure that the companies are the frontrunners in providing adaptation technologies and investments.

Simon Howard (Chief Executive, USKIF): If we look at the big picture and look for a sound-bite, what London and the UK do is we import these climate change risks and sustainability risks. What we should be looking to do is export our expertise. A lot of that expertise, because it is an emerging sector, is still in universities, still in small companies and still being talked about.

The Mayor could give his support to that new kind of thinking, trying to make sure it is not labelled as 'green nonsense', and he can say, "Yes, this is sensible. There is a real risk to London and the UK of these risks crystallising and I want to support them", and perhaps do the conference we discussed earlier or find some way of showcasing what I have no doubt is innovative thinking coming from the large number of further education institutions in London and things like that and put his prestige and the prestige of his office behind it.

Dr Onkar Sahota AM: You see this as a sector and a market which is going to growing and doing this?

Simon Howard (Chief Executive, USKIF): Yes.

Dr Onkar Sahota AM: We accept that adaptation is a growing sector. How can we increase the our available piece of that cake? You are saying the only thing that will move it is the Mayor holding this conference?

Simon Howard (Chief Executive, USKIF): No, I am thinking of something which is relevant to this body.

Dr Onkar Sahota AM: He has made up his mind up on this matter. He does not accept this whole argument.

Jenny Jones AM (Chair): We might have to wait for a Labour Mayor.

Tom Burke (Chair, E3G): He is responsible for a lot of planning in London and one of the things to make sure of is that planning decisions fully incorporate resilience actions. There are a variety of resilience actions. Insulation is one. The ability to self-generate is another and the ability to cope with floods. There are a lot of pieces you can incorporate into the conditions for planning.

Tony Arbour AM: He pretty much does that. To think that it does not happen is --

Jenny Jones AM (Chair): It is for his officers to understand about climate change, though the Mayor does not.

Tom Burke (Chair, E3G): That is fine. If he is doing that, then what you need to do that piece that Simon [Howard] was saying about exporting that knowledge.

Dr Onkar Sahota AM: Perhaps you will help me understand this. Here is a market out there that is going to be growing in the years to come. We think it is an important market. Why is the market not responding itself? Why does it need the Mayor or any other political leadership to say something? There are a lot of other markets growing and the companies out there are responding to that.

Tom Burke (Chair, E3G): It is a bit like saying, "Why do you need advertising? If there is a market for goods out there, people will buy them. Why are we spending all this money on advertising?" You need people to draw attention to you. You need to market ideas. The Mayor needs to market the idea that London has skills to offer and that is just --

Dr Onkar Sahota AM: We are marketing the idea that sugar is bad for you, but sales of Coca-Cola have not come down. We do marketing saying, "This sector is bad for you", and yet the sales are not being impacted. Human behaviour works in a different way rather than the health properties are acting.

Tom Burke (Chair, E3G): You are raising a general question about why you market anything.

Dr Onkar Sahota AM: I raised a general question because you raised the idea of advertising it to me and I am saying that the importance of advertising was not there.

Tom Burke (Chair, E3G): What I am saying is that there is a lot of evidence - experiential as well as empirical and analytical evidence - that supports the view that if you have something to sell, you need to market it.

Dr Onkar Sahota AM: You do not think that the community leadership is so important. All this other evidence in the market saying that a calamity is coming and that climate change adaptation is important, is not as important as political leadership? Is that the point you are making?

Tom Burke (Chair, E3G): Political leadership is a very important part, as I was saying to you earlier, of liberating lots of creative responses by individuals on their own.

Dr Onkar Sahota AM: All the scientists and all this evidence out there is not strong enough on its own?

Tom Burke (Chair, E3G): That is true on an enormous number of issues. That is why we have politicians to provide the heat.

Dr Onkar Sahota AM: Thank you.

Mark Jenkinson (City Director for London, Siemens): It is obviously a huge area and I guess I had the same kind of reaction to the question of whether we have fallen behind. In some areas, we have and in some areas we have not.

You mentioned C40 [Cities Climate Leadership Group]. Obviously, London had the C40 Awards a month-and-a-half ago and, out of ten awards, London won two. One of them was on our greenhouse gas emission inventory, which is something that was seen by the C40 as something that London could export around the world and it could become the standard. Rather than just focusing on energy and transport, it is looking at all aspects of greenhouse gas emissions.

You could argue that in that respect we are a leader. We are a leader in our universities with our 1,000 courses on sustainability. Through the Mayor's Low Carbon Entrepreneur prize, there are things like - I do not know if you are aware of it - the SolarBox, which is quite a small thing, using solar panels on a telephone kiosk to charge a phone. We have had people from CNN and from all over the world really interested in this kind of idea. For these kinds of pockets of ideas, obviously, we could do more by, making these things transparent and obviously pushing these things. Whether it is through the Mayor or whether it is through the Assembly or whether it is through the Future Cities Catapult or whether it is through UK Trade & Investment, we need to do more in that respect.

We do need to learn more from other cities. Copenhagen is seen as a world-leader on climate change, partly because obviously Conference of the Parties [to assess progress in dealing with climate change] was based in Copenhagen, but we did a Green City Index back in 2009, working with partners. London at the time came eleventh and the Scandinavians were top. You could argue that we are soon to become a 10-million city and, compared with Copenhagen and others that are a lot smaller, it is more difficult for London to be seen as 'green'. There are things which we are doing which are positive.

Think about wind. For a long time, we have been saying that one of the biggest markets in the world is the UK. Especially when Round 3 [wind farm proposals] suddenly starts, it will be huge. However, up until now, we have had no production for wind and the skills that have been developed in wind energy and other renewables actually has to come in from other parts of the world. A bit of a plug: obviously, we are investing in Hull where we will start to produce wind turbines or blades and we will start to develop skills. It is that kind of thing where we need to pick on areas we are really good at, whether it is the financial sector or insurance --

Dr Onkar Sahota AM: Wind farms are going up, are they?

Mark Jenkinson (City Director for London, Siemens): We are still waiting for the latest round of subsidies and Round 3 to start in earnest, but that is where we can start to develop skills.

There are a lot of areas where we could compete and be the leaders in the world from a London perspective. It is not a manufacturing city as it is. It is more financial. However, with the tech build-up and more and more people creating businesses, we need to support them to actually open the markets. The Future Cities Catapult and lots of organisations are prepared to try to promote them and maybe that is something we can do better at the Mayor's Office.

Dr Onkar Sahota AM: The Mayor is against wind farms anyway and I do not think you will get much help from there.

Mark Jenkinson (City Director for London, Siemens): Perhaps the next one will not be.

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): I just wanted to make a point when you asked about why intervention is needed. Adaptation or resilience is a specific case because it is not an economic sector. It is very difficult to measure and understand what it covers. It is not about growing our adaptation sector. It is about ensuring that technologies will enable other sectors to grow. Therefore, it is quite difficult to understand what kinds of technologies or measures are needed and, in terms of packaging that, understanding, for example, what it means to make an urban environment resilient is a complicated task. Therefore, public support is needed for that.

Dr Onkar Sahota AM: Thank you.

Jenny Jones AM (Chair): We have come to the end of our formal questions. Is there anything else you would like to say that you think we have missed?

Dr Outi Korkeala (Senior Environmental Policy Economist, Ricardo-AEA): Some questions were about the employment impacts on society. I am going to leave our report. It is in terms of adaptations. It is not only about the direct jobs there are in terms of increasing demand for goods and services, but it is also to understand the jobs that can be saved in terms of avoiding extreme weather events and climate disasters.

Simon Howard (Chief Executive, USKIF): My point would be that what your Committee is dealing with is currently a fat tail risk that is forecastable but not yet crystallising. It is moving to becoming business-as-usual and everybody should do what they can to help businesses make that transition. We should stress the opportunities which are out there and obviously I have focused on investment, like Mr Dismore's example of plastic pipes, how will the cast-iron pipe manufacturer - if there is still one - recognise the need to move to plastic? We have to set an atmosphere in which that kind of lateral thinking and innovation becomes normal for entrepreneurs and for those who are running businesses.

I, too, challenge the premise of the last question that the UK has fallen behind. We are the second-largest responsible and sustainable finance market in the world after the United States. We are Europe's largest. We have strengths in it. We should be looking to export them.

I do think the Mayor - whoever he or she will be - has a role to play in this because kick-starting is needed and pump-priming is needed. Money may not be available. It may not be appropriate for public money to do all of it. However, what the Mayor can do is provide a platform and put the status of his office behind the promotion and discussion of these issues.

Mark Jenkinson (City Director for London, Siemens): It is all about raising awareness. It is the Mayor, it is the GLA, MPs. Also, we need to recognise there is a risk, which obviously helps.

Jenny Jones AM (Chair): Indeed.

Mark Jenkinson (City Director for London, Siemens): If there is not a consensus, then, you know, but maybe it is the crowd that pushes it along. It is also a case of having projects that are successful in London and using those to actually sell to the rest of the world and supporting those and, again, making them transparent.

Obviously, we need to do things now and also plan for the long term. There are things like the Thames Barrier, which will prevent floods until 2070, but we still need to plan for these things. Given that our planning regimes take so long, we need to plan for the risks going forward.

Back to the point, it is all our responsibility. It is just not one or two people. We all need to take some ownership.

Tom Burke (Chair, E3G): Just one really important point. What has come out of this conversation is that there is an enormous amount Londoners can do, both to manage the risks and to take advantage of the opportunities and the different things that could be done to help with this. However, this is a problem that the world has, not just London has. Therefore, what matters to London is not just what it does itself but also what the world does. The bounds of opportunity and risk for London are determined way beyond London.

As I look at the political landscape nationally and globally, the risk of policy failure is quite high and that will bear right down on the prosperity and security of Londoners. One of the things is that in an era when there is a considerable lack of confidence and trust in politicians, city politicians have a higher level of trust. People have more confidence in local politicians than they do in national politicians.

There is a real challenge to the political leadership of London to work with other cities to get more guarantee of policy success at a national and then global level. Most of the bad effects will take place in cities. That is where it will be hardest to cope with the adaptive changes and where the risks are highest. The consequences of policy failure will fall to the cities. I do not think the voice of the cities has really been heard in the debate yet at a political level. That is the piece I would stress. You need to get cities speaking as London as one of the cities that leads the world. People pay attention to what happens in London and that gives a particular role to the political leadership of London to fulfil that sort of opportunity and responsibility.

Mark Jenkinson (City Director for London, Siemens): One more plug: if you have a conference, you can hold it at the Crystal, which is one of the world's most sustainable buildings. Obviously, it is here in inner London at the Royal Docks.

Jenny Jones AM (Chair): That is very kind.

Mark Jenkinson (City Director for London, Siemens): If you have not been to the Crystal, please come along because we have a great exhibition and it is all about inspiring the youth of today. We need young people to actually drive the agenda through the parents and so forth.

Jenny Jones AM (Chair): Thank you so much, everybody. We will write up this report by April. It is quite a way off, but that is how long it takes us. We will send you all a copy.