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Jobs, Skills and the Low Carbon Economy

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Summary of expert workshop held on

4 December 2012

Centre for Climate Change Economics and Policy

**Expert Workshop on Jobs, Skills and the Low Carbon Economy**

The workshop was held on Tuesday 4th December and involved about 30 participants from Government, Industry, Skills Bodies, Local Authorities, NGOs, Energy Service Companies, Low Carbon Certification Bodies and Academia. These notes reflect a wide ranging discussion and have been anonymised in line with the Chatham House rules that were applied to the meeting. They are intended to provide a concise summary of the contributions and discussions, rather than a verbatim record. Where relevant, references provided at the meeting have been identified and are contained in a bibliography. The workshop was organised by Nick Jagger, Tim Foxon and Andy Gouldson from the ESRC Centre for Climate Change Economics and Policy at the University of Leeds.

## Government Policy

The workshop began a summary of the UK Government’s Energy Efficiency Strategy, launched in November 2012 (DECC, 2012). The development of this Strategy was led by DECC (Department of Energy and Climate Change) but involved BIS (Department for Business Innovation and Skills) and DCLG (Department for Communities and Local Government), and it aims to set out the direction of energy efficiency policy for the coming decades. It was designed to help the UK to meet its carbon budgets and carbon reduction targets, whilst delivering affordable and secure energy to consumers. The Strategy aimed to produce more certainty and to ensure that stakeholders understand the benefits of energy efficiency.

This is clearly an interdepartmental issue and DECC will take forward skills issues together with BIS, and educational issues such as including energy awareness into the syllabus with DfE (Department for Education).

In terms of the four barriers identified in the Strategy, two relate to skills. The first barrier identifies the energy efficiency market as an embryonic market. This means that at least in the UK the market is not well developed. The second barrier is an information barrier. This suggests that people do not trust the limited information that is available, for instance whether or not solid wall insulation is cost effective. Both of these relate to skills. If there is a lack of a market for energy efficiency, then there is little incentive for employers to train employees to address the issues. To address information barriers, suppliers need to be adequately trained, as is planned with the Green Deal.

Other barriers to energy efficiency relate to the long-term nature of consumers benefits, compared to other short term concerns, and a lack of trust in the performance of energy efficiency measures.

There are a number of UK policies in place that aim to encourage the take-up of energy efficiency measures and technologies, including the Green Deal, Renewable Heat Incentive, Smart Meters and Electric vehicles. However, the above barriers could limit the success of these policies unless they are adequately addressed, along with the need to communicate potential benefits to users. In particular, there is a lack of clarity of the benefits of these policies over the next 20 to 30 years. For example, the policies should create an opportunity for job creation, but this is not being clearly communicated. This is what the Energy Efficiency Strategy aims to lay out.

One area that is currently not being addressed is the training of facilities and production managers to be able to identify the small, but significant, energy efficiency gains from replacing inefficient pumps and motors.

One participant suggested “it needs a long term bet by SMEs that the policy will be in place in the future”, and so this limits the willingness of SMEs to invest in energy efficiency skills, especially given the experience of the changes to the feed-in tariffs (FITs) for small-scale renewables. This problem was acknowledged, but there was a need to recognise that we live in a democratic and political world. This reality means that, “unfortunately, with policy there will always be uncertainty”. This often results in the need politically to say something quickly about the benefits of a policy before that policy can be properly worked up. Increasingly policies are coming with inbuilt review clauses, that mean that they will not necessarily be fixed in stone, but which should mean that policies can adjust to changing circumstances. However, there are issues over the time periods over which policies will be fixed and the drivers of any reviews of policies.

The Energy Efficiency Strategy was preceded by a call for evidence by the Energy Efficiency Deployment Office (EDDO) in February 2012, so the industry had opportunities to contribute and they made important contributions to the process. Given that “energy efficiency market is still embryonic”, it was argued that there is a case for both supply and demand side market interventions as the “market still needs help”.

There were a range of comments about the potential role for Energy Service Companies (ESCos). In particular, it was argued that ESCos could provide local level growth in jobs. Similarly, there is a role for Local Authorities in this area, possibly in co-operation with an ESCo. A case study for this pattern of energy efficiency development is the Manchester Low Carbon Hub which provides a one-stop-shop for liaison around low carbon issues for the Government and the eleven Local Authorities that make up the Greater Manchester Combined Authority. The Hub has a Low Carbon Skills agenda led by Oldham College which currently involves a Skills Capacity Assessment and the Green Deal Skills Exemplar.

Another local case study is Liverpool, in which the Local Enterprise Partnership (LEP) is developing a low carbon skills plan. Various other authorities are also working in the area, but the relatively limited funding is contested so this does not represent a national solution. Similarly the 1,000 Green Deal Apprentices that were funded by Government are not a total solution - an NGO representative argued they could simply be symbolic. The intention was to provide a push behind policy and make it look like the Government has thought about skills behind the policy. It also makes sense to do things to make an existing policy more of a success than to invent something new. It is a natural thing to do to “make it appear that it’s out there”. An NGO representative argued that there was a need to frame energy efficiency in terms of economic growth and job creation, especially in the current economic environment. If energy efficiency is portrayed as a win-win policy, it would be easier to get the message over and easier to encourage employers to provide the training.

The construction industry faces huge frustration surrounding the raising of standards for new build and retrofit as this offers major efficiency gains but also requires significant training of the workforce. It was argued by a social landlord that the DCLG need to raise the bar on social housing as much work can and needs to be done in that sector.

The Energy Efficiency Strategy involved DCLG and BIS, but there is still a greater need for joining up Government policy across these and other departments. It is also realised that more needs to be done with working out how to work with sub-regional organisations such as local authorities. The energy efficiency strategy does not go into details, but it is recognised that these sub-regional bodies are a key part to delivering the strategy. It was suggested that more emphasis could be put on local authorities as they could develop local infrastructures, encourage and enable local training, as well as stimulating interest from private property owners. It was admitted that the Government needs to do more work in this area. Industry representatives, drawing on the experience of the Manchester low carbon hub, emphasised the benefits of local solutions. Here there was an early emphasis on training both of assessors and installers allowing Manchester and Liverpool amongst others to ’Go-Early’ with the Green Deal. In many ways these were local initiatives funded with LEAF (Local Energy Assessment Fund) funding. Given the bidding process this meant that often the smaller, more fragmented, and less experienced Local Authorities missed out on this funding. It was recognised by Government that more needs to be done for areas which do not have the necessary resources to apply for this sort of funding, especially deprived areas.

A social landlord argued that there was great frustration that they were being pushed back from developing housing energy standards. They accepted that the development of strategy has to be top down but argued that leading on delivery needs to be bottom up to be effective.

## Low Carbon Skills Policy and Interventions

The main current low carbon skills intervention have been around the Green Deal and involved the Green Deal Skills Alliance. This alliance of three Sector Skills Councils grew out of an earlier, and now defunct, Low Carbon Skills Alliance that involved a much broader mix of Sector Skills Bodies and other agencies. When the Green Deal Skills Alliance looked at the skills required for the Green Deal they realised that there needed to be a balance between technical skills and soft skills amongst installers. This meant an emphasis on integrating project management and customer awareness in the new qualifications developed in response to the skills requirements of the Green Deal. The skills shortages were not just technical but the technical skills needed to be applied in a social environment. This was partly because retrofit work meant operating where customers were living and partly because it was critical to be able to communicate to the customers the technical characteristics of the work proposed. Historically the existing construction qualifications were orientated to the new-build sector where these customer concerns were less important. Installers used to walking wherever they want on a new build site need to know not to walk through across the customer’s garden. Equally, a common problem is with the hand-over of consumer low carbon technologies where the installers often are not able to explain the most effective operation of the new technologies.

The technical National Occupational Standards (NOS) underlying the new qualifications were existing NOS, apart from the new soft skill elements. There has been an increase from 500 to 2,500 registrations for building treatments qualifications which include the qualifications developed for the Green Deal. Despite the logic of including soft skills in with the technical aspects of the qualifications there has been some opposition from employers – one participant commented, “sometimes you need to drag employers along”. The major achievement of the Green Deal Skills Alliance has been getting the expert working group to steer the project involving employers and DECC.

Asset Skills, CITB-ConstructionSkills and SummitSkills have been involved in seven Green Deal Skills Exemplar Projects some of these have involved companies such as Carillion and Kingfisher, but others have involved localities, such as Manchester, as well as South Gloucestershire Council and Wiltshire Council. The remaining exemplar projects involved Scottish and Southern Electricity, Seven Wye Energy Agency and Yorkshire Energy Services.

Contestable short term funding for skills issues, plus short-term funding from DECC, means that it is hard to get funding to allow a long term view of low carbon skills issues and this leads to short-term thinking. This has led to a short-term approach to low carbon issues amongst the skills bodies.

The Royal Academy of Engineering (RAE) maintains that there is a lack of well qualified building engineering physicists.

## Policy Design and Delivery

There were concerns about the Green Deal - stakeholders “worried about whether it will deliver, given that it is consumer driven”. If there is not sufficient take up, then there might need to be some form of regulation to enforce take-up of energy efficiency.

There were widespread concerns that skills issues had been relegated to delivery, but need to be central to the policy process. There is also a concern that Government was not engaged in joined up thinking on skills across various phases of policy. For instance the cuts in the photovoltaic Feed in Tariffs were made at a pace that ignored the impact on efforts to develop a skilled workforce in the area.

Another participant commented, “The one man band trade don’t trust the Government which means that the Green Deal could potentially become a free for all area”. If the Green Deal is looked at from the consumer perspective, there are potential problems in the context of the dominant idea of a home owning democracy, in that people won’t take up the Green Deal because of concept of putting a loan on the electricity bill that would be passed on to the new owners if the house is sold. The interest rate that is likely to be applied to the Green Deal is higher than most mortgage rates, so people are more likely to finance energy efficiency measures that way. The core market will be householders in the £25-40,000 per annum income bracket. This means that many in the industry are not talking much about the Green Deal, it will be only one of many options. In terms of success of the policy, there will be a need to kick-start demand - if not, skills will not be an issue, as there if no demand there will be no need for skills.

Overall the Green Deal will see a change from grants for specific groups to loans as a way of encouraging energy efficiency. It took 2 to 3 years to build the current levels of take up with the grant scheme, and so it is likely that a similar timespan will be needed before the Green Deal takes off. People are likely to accept the Green Deal as one of a range of options but not as the only option. This means that the initial levels of uptake will be minimal. The ECO (Energy Company Obligation) scheme will address much of the low income and social housing market.

Some of the interventions are intrusive and can take as much as a week to implement, experience has shown that it has been difficult to give these types of intervention away. Therefore, it is to be expected that it will be much more difficult to sell these types of intervention. This means that many large building supply companies, such as Kingfisher and Wolseley, plan to sell and install a range of Green Measures with the Green Deal as a funding option, but not central to the plans.

The rented sector could be important; there has been a long term issue with energy costs in tenanted properties. RSLs (Registered Social Landlords) need to address energy efficiency as part of more general property retrofits. However, this is more likely to be linked to the ECO scheme. There is also a need to educate the tenants how to use the technologies. If you buy a new house you should get a manual – akin to buying something and being given a pack to tell you how it runs, making sure these papers are handed on when sold or rented. There are various institutional barriers to the educational input as this is not necessarily funded as often only the technical aspects to the interventions are funded. A possible exemplar could be the training programme that Castro Homes has for its tenants.

Yorkshire Energy Services (YES) is a Green Deal Exemplar project and a Green Deal Pioneer.

Another issue is the structure of the industry where in practice SMEs have less than ten employees. In this context the cost of becoming Green Deal qualified can be, even using the cheapest options, as much as £24,000 to become Gas Safe qualified, MCS qualified and Green Deal qualified. This takes into account the duplication between the qualifications and does not repeat unnecessary training or certification. This means that there is “very little fat” in the industry and employers are prone to poaching other apprentices or the apprentices set up on their own. These factors make it difficult for many employers to justify taking apprentices and the associated costs on.

A representative of a training body called for Government leadership on the issue as there are many deep-seated competing interests in the skills and training environment. This means that even if everyone is in the same room, they will still compete. Indeed it was also argued that there is a need for an European wide strategy, as historically various countries in Europe have depended upon construction skills from other European countries. However, virtually all European countries are now facing the same demographic issues combined with a need to put in place low carbon infrastructures and low carbon buildings as well as retro-fitting exiting buildings. This issue was flagged up in an ILO (International Labour Organisation) report a couple of years ago (REF) which found that there would be insufficient construction workers for the low carbon transition.

Government and employers are victims of short-term thinking – they haven’t committed to long term programme. There is a need for them to take skills training and CPD professionally. There is a need to look at the EU and wider markets to even out the boom bust cycle. The problem is that by the time that you invest sufficiently is skills you are into the next recession of the boom bust cycle. This means that you are constantly trying to chase the cycle. This is the same debate as in the 1950s with the Carr Committee of 1958 on Apprenticeships (NJAC, 1958).

On the hopeful side the ECITB (Engineering Construction Industry Training Board) can demonstrate growing support for their levy with in 2011 just over 50% of employers covered by the levy voted in support while in 2012 70% voted in favour. This shows that where there is a statutory basis for training and where this training is delivered and is seen to be meeting a clear need, then employers are willing to pay for it. The levy gives an opportunity to spread the burden of training. It also provides a pool of trained people available regardless of the business cycle. Therefore the levy can also provide an export opportunity by encouraging employers to look to other markets. Given this level of acceptance and acknowledged benefits the question becomes, why did the similar ITB system end? Although, the levy system could be an “old solution for old problems” it is difficult to see what alternatives exist.

One participant argued that the problem is that there is no incentive under existing policies to have workers trained really well – no control over standards e.g. oversized solar thermal or poorly orientated solar PV., no consequences for developer of heating systems that would never work, no talk between architects, plumber, electricians – we need people with awareness of other skills.

There is a growing need for multi-skilling and greater awareness of other trades - “There is a need for electricians and plumbers to talk to each other in order to install heat pumps.” Equally, there is a knowledge gap covering the reasons for the performance gap whereby buildings do not perform as well as they should or as predicted by building physics. There is a widespread belief that a large part of the performance gap, beyond some comfort taking by residents, is due to skills deficits.

Potentially there is a role for those using public procurement at the local level to demand local training as part of the contract. Contract compliance can also be used to ensure that appropriate skills have been used.

In the past Direct Labour Organisations were significant providers of apprenticeships, but there was a problem once they moved apprenticeships from the benefit to the cost side of their balance sheets.

The Low Carbon Skills Council, set up in 2010 has fallen prey to funding cuts. However, the problem with the council was that different representatives had different agendas - they can work to a common goal but with specific interests. This means that they were all going to be fishing from the same pool and their competing agendas pull against each other. The issue needs a common independent vision. The Green Economy Council established in February 2011 consists of Government Departments (BIS, DECC, and DEFRA) and large employers does not focus on skills.

How do we change people’s career path – how far back are the issues? The Low carbon transition will rely on an educational pipeline. This pipeline needs to promote STEM skills for women – everyone needs a basic carbon/energy literacy which means that teachers need that too.

Growing use of local solutions for instance in the North East FE colleges are working with offshore wind developers to ensure that the required skills are in place and possibly more importantly the developers and the colleges are working with schools to promote the industry as the basis of a good career. There is a need to identify who has power at local level then get them to use public procurement to improve energy efficiency. The contractual arrangements and commitments to training need to reach down the SME construction supply chain. This can be done using KPI (Key Performance Indicators) within contract management. There is a lot of power in good public procurement. The OJEU (Official Journal of the European Union) where larger contracts have to be advertised is an issue. However, you can do it but the adverts need to be worded very carefully. There needs to be an increase in energy and skills awareness from purchasers and planners at the local level, there are examples of people doing it well but more still needs to be done. However, “national and global players will not dance to a regional tune”, they need national and international response to their skills needs.

Other comments included, “Is there a greater role for Trade Unions? Will they help drive longer term investment as they do elsewhere in Europe?”

“There needs to be more planning and stability covering these issues in order to create an environment within which employers will train.”

## Green Deal Case Study

The next part of the workshop focussed on the skills challenges related to the UK Government’s Green Deal scheme for financing household energy efficiency measures. This requires Green Deal assessors to make assessments of a household’s potential for energy efficiency improvements and Green Deal Providers to provide the financing and installation of these improvements.

It is generally agreed that finding stand-alone assessors should not be a problem and that their skill levels was not a problem.

There remains a concern about softer skills and customer focus of most of those who will be involved with the Green Deal. The Green Deal is a complex and often poorly understood proposition and getting this over to customers in a way that sells, but does not oversell, the deal is tricky. It is unclear if assessors and installers have the ability to put this across, especially the behavioural change that will often be central to achieving the necessary energy savings. Providing Carbon Monoxide monitors is not the same as providing proper education on the issues. Currently otherwise there are sufficient people to do most of the installations. One area where there could be a shortage is plasterers for external wall insulation. Finally most of the small operators do not have mechanisms in place to use customer feedback positively to reinforce good behaviours and skills.

Another area of concern is how do installers’ provide training to the customers. There needs to be an evening course for installers to raise their skills to Level 3 in this area. This need is currently being met by the ETNSA (Environmental Technology National Skills Academy) that provides via its network at 100 locations a Level 3 Environmental Technologies qualification.

“The Green Deal assessor needs to be impartial but not necessarily independent.”

Asssessors are essentially “DEAs (Domestic Energy Assessors) with some up-skilling”. It is not necessary for them to have a real in depth understanding of all the technologies involved.

Unfortunately most Green Deal providers will not issue a quote solely on the back of an assessor’s report. The potential disconnect between assessors, providers and installers “could be the next big miss-selling problem.” As the Green Deal provider has to ensure that the Golden Rule is met they will insist that Green Deal assessors that work for them are more rigorous. This in turn could lead to Green Deal assessor’s falling into two camps, the independent assessors operating in a cost constrained market and the ‘tied’ assessors working in a savings constrained market.

There is a possible role for Local Authority as a Green Deal provider, but it is not clear that they have the necessary skills in-house.

The required complaints processes will be a problem for many small installers who will not have the structured systems in place. The role of the Green Deal Ombudsman Service could be critical, but very little has emerged covering how this will operate.

The problem for Green Deal Providers is if the Green Deal Plan is considered invalid then the debt is transferred to the provider. This provides a further incentive to the Green Deal Providers to get things right. In practice this means that a Green Deal financed installation has far greater protection than an installation without the Green Deal. The use of external certification, such as Gas Safety or MCS certification, is essentially a means of guaranteeing work. The Green Deal Code of Pratice, the implied 25 year warranties and guarantees means that the Green Deal is the safest way to buy construction. It would be better to take the security from the Green Deal and pay £1 for the loan, with the rest paid up front.

ECO can be delivered by anyone not just energy utilities or their agents and this has implications for the linkage to the Green Deal and potentially for Local Authorities who take up the Green Deal.

## Renewable Heat Incentive Case Study

The second case study focussed on the Renewable Heat Incentive (RHI). The RHI was launched in November 2011 with a scheme for the non-domestic sector that provides payments to industry, businesses and the public sector for renewable heating measures. Following on from the current Renewable Heat Premium Payment scheme, the full RHI will be launched for domestic customers in spring 2014.

It is believed that the Renewable Heat incentive (RHI) will be mainly delivered by one-man bands or small SMEs. A key issue is that the Microgeneration Certification Scheme (MCS) does not look at skills or competencies of individuals. It certifies the company installing and requires, but does not check, that there are adequate skills. Historically most of the qualifications in the area have been provided by product and technology providers. However there is a gap between knowing how to install a specific piece of kit and knowing where heat pumps will or will not work and importantly how big the heat pumps should be. As the MCS does not necessarily deliver competent installers, competence with the RHI will become an issue. It is not clear yet how this will be resolved either as a result of a crisis of poor installations or as a result of industry being proactive.

Currently ETNSA has the qualifications within the QCF (Qualifications and Credit Framework) and a network of 120 approved providers. It could rapidly put a certification scheme into place, but it needs that MCS to move in the direction of implementing competencies. But currently the problem is that with no competency threshold there is no need for employers to send their employees on courses. Then even if there is a commitment to training “why would you train for five days when you could train for 15 minutes?” The current situation, with parallels to the experience with DEAs (Domestic Energy Assessors), becomes a race to the bottom in order to survive in a cost driven competitive market.

Ultimately, it needs to be recognised who the customers are and they will want quality, but will they be willing to pay for it? This will mean that the main take-up of the RHI will probably come from the commercial sector

The Renewable Energy Assurance Ltd (REAL) consumer code is still dealing with the backlog from FITs. The relationship between OFT (Office of Fair Trading) and the Green Deal Ombudsman Service will be important. It took over four years for the REAL consumer code to become an OFT approved consumer code. The Green Deal consumer code will have to undergo a similar process, hopefully not as long, but still lengthy. Consumers could have a real problem with heat pumps as they do not know how to use them and the consumer education material is not there. This is turn could generate many consumer complaints especially combined with failures to specify correctly.

Heat metering could be an issue with the RHI although for many types of technology there is the option of the renewable heat output being deemed from the setting and the technology installed. Installing heat meters will therefore become a key bottleneck skill, this is not something that we do that much in the UK (more in EU). Depending on what happens with RHI, if there is a greater emphasis on deemed output then there will be less of a need for heat metering. However, a lack of heat meters could lead to abuse of the system which in turn could lead to problems for the RHI. There is also a problem with heat distribution – size of pipes, welding of pipe, insulation of pipes. In Austria there are quality assurance systems covering heat distribution, but none in the UK. Whatever the technology the distribution will be critical.

The MCS scheme is set-up for large companies as there are charges, system set-up costs and certification costs that act as large fixed overheads. Importantly apart from requiring appropriate skills the MCS scheme does not look at skills or competencies. The MCS scheme should require that you can demonstrate your competence. It is understood that DECC will launch a consultation over the MCS in May or June 2013. Hopefully this will lead the MCS to move into qualifications.

The key supply chains for RH technologies – biomass boilers, solar thermal, heat pumps, district heating – are all embryonic – this will have skills implications. There are also issues surrounding fuel sourcing, infrastructural issues, biofuel distribution, anaerobic digestion, geo-thermal – this is all much further behind than the technologies associated with the Green Deal. So the question remains if RHI skills are less developed than Green Deal skills, how long will it take to improve them?

There will need refinement of policy, in order to produce a coherent outcome. It also means that the RHI will be taken up more in commercial sector, where there is the ability to understand the technologies and to pay for the limited skills available.

Biomass has a number of skills issues; there is the black art around boiler sizing. Additionally, a range of problems have emerged around biomass fuel deliveries that need to be addressed and better considered at the design and installation stage. There are the existing CEN standards for Biomass fuel quality. These were developed on the Continent and are not widely used in the UK. They need to be more widely understood and used in the UK in order for a proper wood-to-warmth supply chain to develop.

The RHI policies will need to be tweaked. We need to recognise that they won’t necessarily be right first time. The Renewable Heat Premium payments are currently underspent and RHI take up in the domestic sector is likely to be slow.

## Panel session

The workshop concluded with a final expert panel session.

A question was asked, if we were going to have RHI Skills Alliance how would we go forward? It was agreed that there was a case for such a body based on the positive experience from Green Deal Skills Alliance. The alliance should involve SSCs (although there was debate over how many should be involved), the Energy Institute, REA, facilities managers from the commercial sector, the NFU, the forestry commission, LGA(Local Government Association). This would produce a large mix of people, so maybe it should have core memberships, who understand the interfaces between the different areas and agendas. It would need to have a clear purpose and deliverables. Although, there was a danger of focusing too narrowly with a RHI Skills Alliance. Currently there is a silo-based sector and issue by issue approach where a wider Low Carbon Skills Alliance may be more appropriate.

Key messages from the day from three panellists and others were:

1. Leadership – government needs to provide clear leadership over low carbon skills.
2. Consumer confidence – there needs to be clear communication of the Green Deal.
3. Implementation – everything needs to be in place and needs to be joined up between Government Departments, Agencies and Policies e.g. BIS, SSCs, DECC and MCS.
4. Long-term thinking – industry still needs to be convinced that it is worth the investment in skills.
5. Using trusted SMEs at local-level – e.g. linking with people putting in new bathroom etc..
6. Need for certification – consistent qualifications within the Green Deal and MCS.
7. Government, industry, skills bodies and individuals need to be on board.
8. Focus on lessons already learned.
9. Need to take things forward in collaborative way – Industry and Government working together.
10. Competence assurance – mechanisms to ensure that competence levels can be certified.
11. Use of communities as the basis for energy efficiency – with a role for DECC as a messenger.
12. Challenges for credibility of whole Low Carbon transition- if policies fail to work, this could potentially undermine credibility of whole transition – more role for government to have a positive message and sell benefits, need to build up reservoir of trust.
13. Strategic direction – Clear Low Carbon agenda from government is missing.

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