Part I: Green Deal in the UK

Takase: First of all, I would like to invite Mr. Alan Clifford, Senior Policy Advisor, Green Deal Supply Team, Department of Energy and Climate Change. His CV and biography are available in the hand-outs. He has been a specialist in energy policy. He is a professional government official and he has been dealing with the Green Deal policies from the initial phase and the ECO Energy Company Obligation that obliges companies to promote energy saving as a part of their businesses. This is also the area where he is in charge. Without further ado the floor is yours.

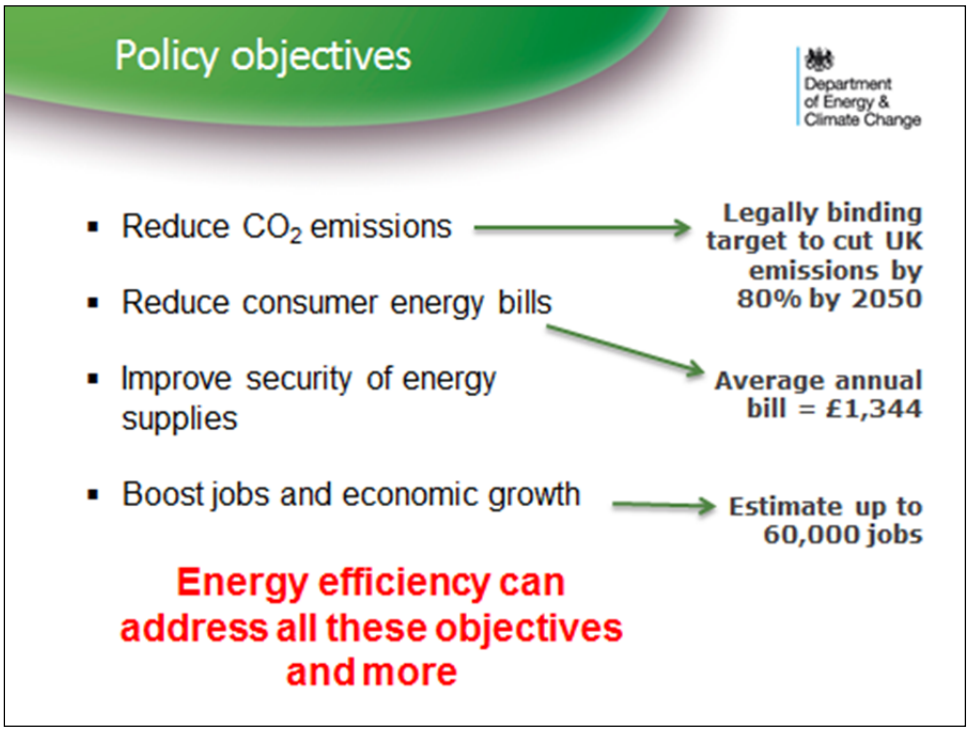
Green Deal: the story so far

Presentation by Mr. Alan Clifford (Senior Policy Advisor, Green Deal Supply Chain Team, Department of Energy and Climate Change)

Alan Clifford: Thank you very much for inviting Jonathan and myself here today to speak to you. It's a real pleasure and a real privilege to have this opportunity and talk about the UK's Green Deal policy and I hope that we can provide some useful insight for you today.

So my talk, over the next half an hour, will cover a bit about the context of the policy, why we want to do it, what our objectives are, and some of the background about the UK housing stock and what we are trying to do with it. I'll then go on to talk about the Green Deal itself and how it works, the steps involved for the customer, before talking about how we built the green deal in the first place, how we went about setting it up, and some of the lessons we learned along the way and some of the problems we encountered. I will then cover a little bit about

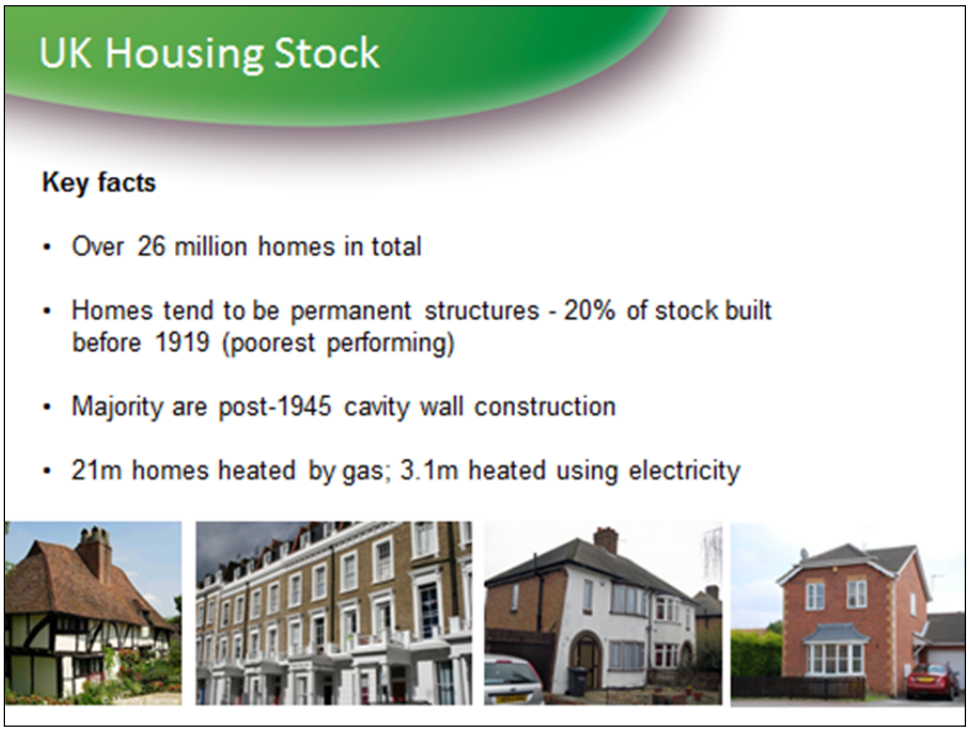
some of the policies we have in the UK that complement the Green Deal and a bit alongside it before wrapping up with some statistics on what we've delivered with the Green Deal and other policies so far.



In the UK we have, I suppose, 4 top level objectives which will probably be familiar here as well. Reducing CO_2 emissions is a big priority for the UK government. We were the first nation to set up legally binding targets to cut emissions by 80% by 2050. I know Japan has an 80% target for 2050 as well. It's an incredibly challenging

target. We believe we can achieve it. Two other really pressing issues, especially over the last few years, have been rising energy prices in the UK for the consumer. People are beginning to find it harder and harder to afford and to keep their homes to a healthy level of warmth and are struggling to pay their bills, so the UK government is very keen and working really hard finding ways to try to reduce the energy costs for households. Improving energy security, we want to make sure we have enough energy supply to meet demand. One of the ways of doing that is of course to reduce demand. We want to be able to keep the lights on and with nuclear power stations being decommissioned over the next 10 years that is going to be increasingly challenging.

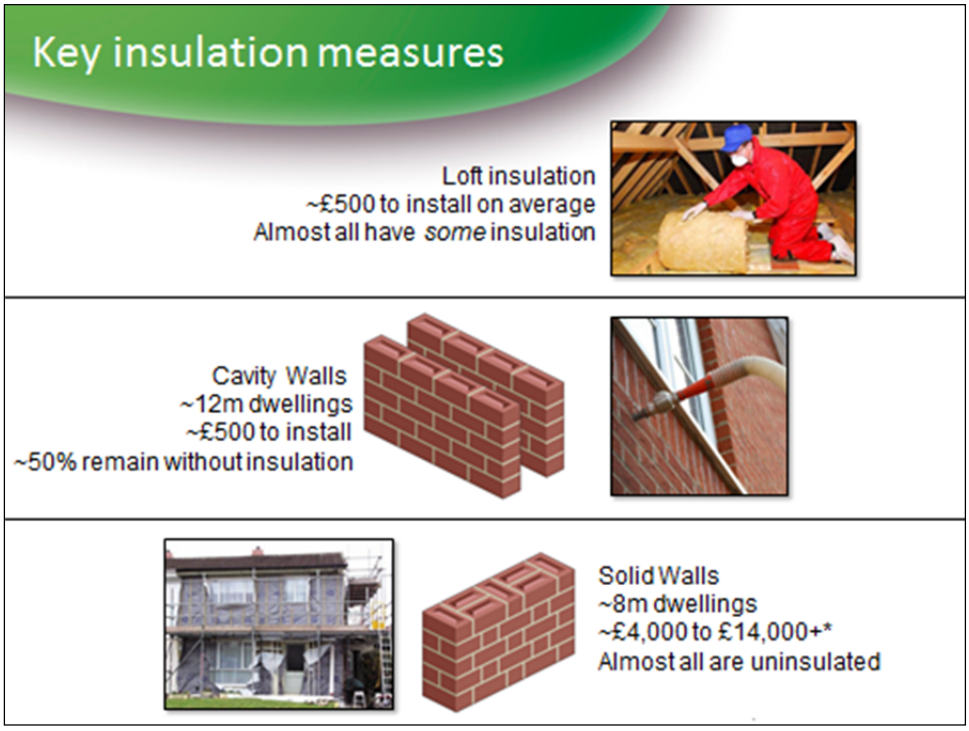
So the good news is that all these objectives can be achieved simultaneously, we believe, through improving energy efficiency to reduce demand. The more we can do this the less new generation we need and the less pressure there will be on fuels which should bring prices down. There are other benefits to energy efficiency as well, which go beyond just energy prices and carbon emissions. It can have health benefits. A lot of properties of the UK have unusually cold conditions, which adds costs to the health service, etc., so improving energy efficiency can tackle that. It can also have other ancillary benefits.



I will give a little bit of background on what our housing stock in the UK looks like, because the housing stock itself can actually have quite a strong bearing on the way we actually design policies to tackle it. There are about 26 million homes in the UK, mostly houses and cottages but with a few million flats and apartment blocks as well. The key difference I think between the UK and Japan is that houses in the UK tend to be permanent structures. Once they are built, the intention is that they will last forever. As a result we have a lot of houses in the UK that are hundreds of years old but in fact there are houses of all age ranges. Unfortunately most of them are very poor in terms of energy performance. They are very leaky and expensive to heat. It's only really in the last maybe 15 to 20 years that the standard for new homes has been uplifted to a level that I would consider to be satisfactory in terms of energy performance, so a lot of the UK's policies for energy efficiency and demand has not

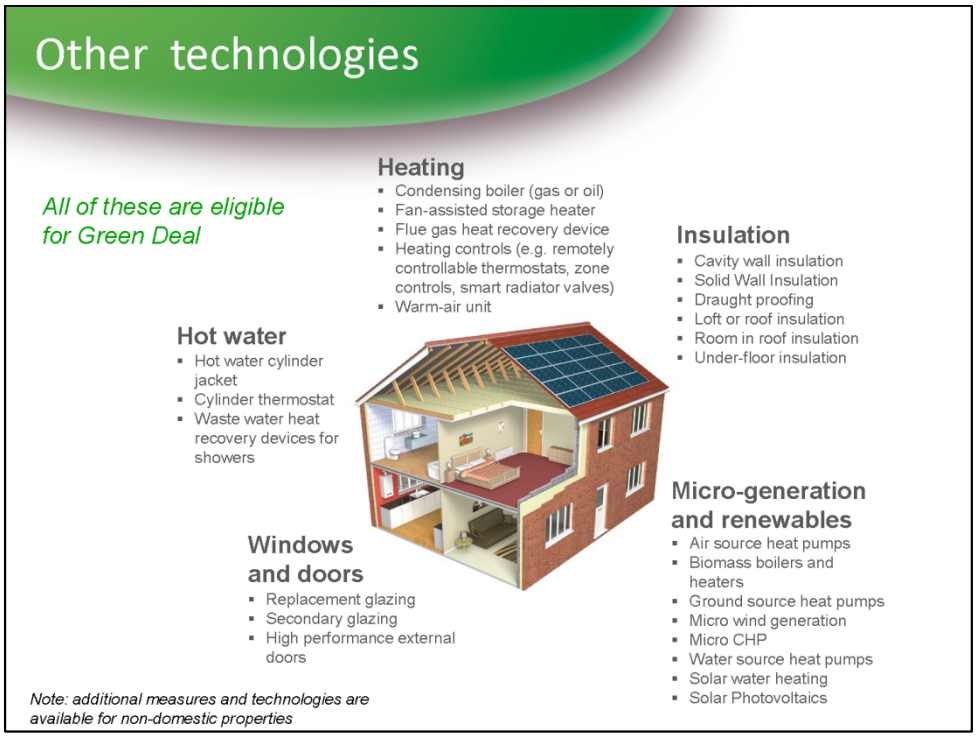
been so much about new properties now in the last 10 years, it's been more about retrofitting and upgrading the energy performance of existing buildings which may be somewhat different to how things have been in Japan to date.

Also just on fuel, most homes in the UK are heated by mains gas – natural gas – but there are also oil, coal and 3.1 million electrically heated homes.



In terms of what this means in terms of measures, if you want to improve energy efficiency, the first thing you want to do is stop heat leaking. The policy we have is that we want to make homes keep the heat in and by doing that you insulate them: you insulate the lofts to stop heat from going out the roof, you insulate the walls and there are really two types of wall insulation in the UK. We have about 8 million homes that were built in the pre-war period so before 1940/1945, and they all tend to have what we call solid walls or single skin. After the war, properties started to be built with what we call cavity wall which is a double skin with an air gap between. Now, unfortunately, as I said, up until about the late 80s or maybe even the early 90s, none of those walls were insulated. They were very poor in terms of performance, so our policies have been about retrofitting those sorts of walls with insulation. Cavity walls are much easier to do than solid walls. You just drill a hole in the wall, pump some insulation in and it's basically done. You can do that for a whole house for about 500 pounds, depending on how big the house is. We have had a lot of success so far in treating those sorts of homes.

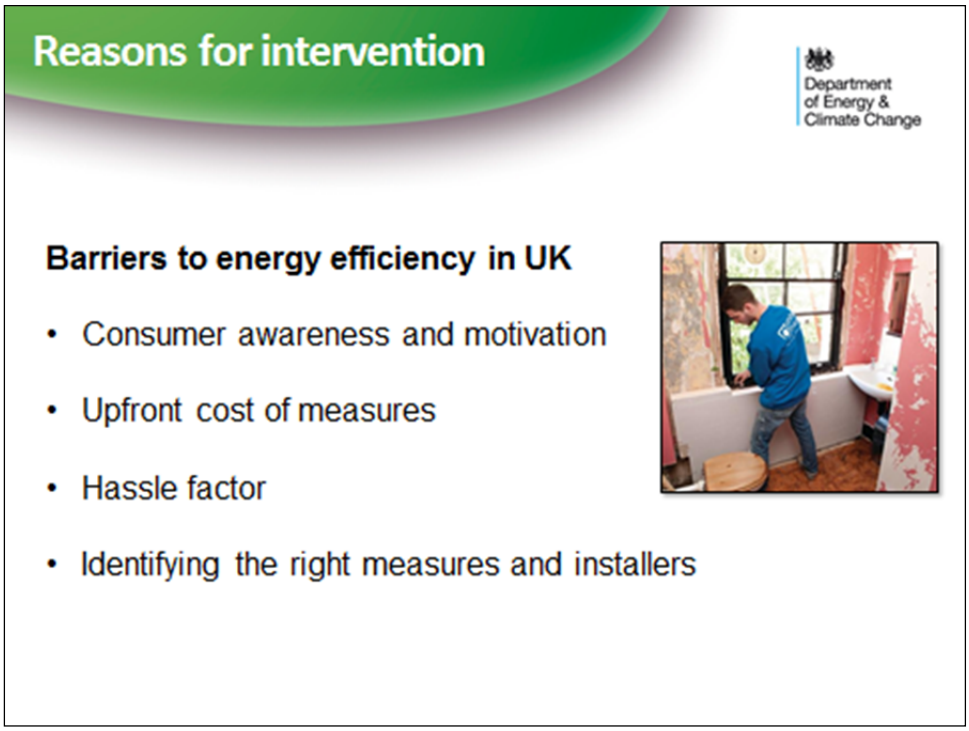
Solid walls unfortunately are a little bit harder. They involve lots of external cladding. As you can see from the picture on the bottom left, you've got a house with scaffolding around it. It can take a week or two. Labor is expensive and it can cost anything from 4 to 14,000 pounds, depending on how complicated and intricate the building is. So that is a challenge we've got coming.



There are lots of other measures you can do to a house, or at least a UK house that range from heating, insulation, windows and doors, hot water and also of course micro-generation, and there are about 30 or so measures listed here on this slide. All of these sorts of measures are ones you can get Green Deal support for.

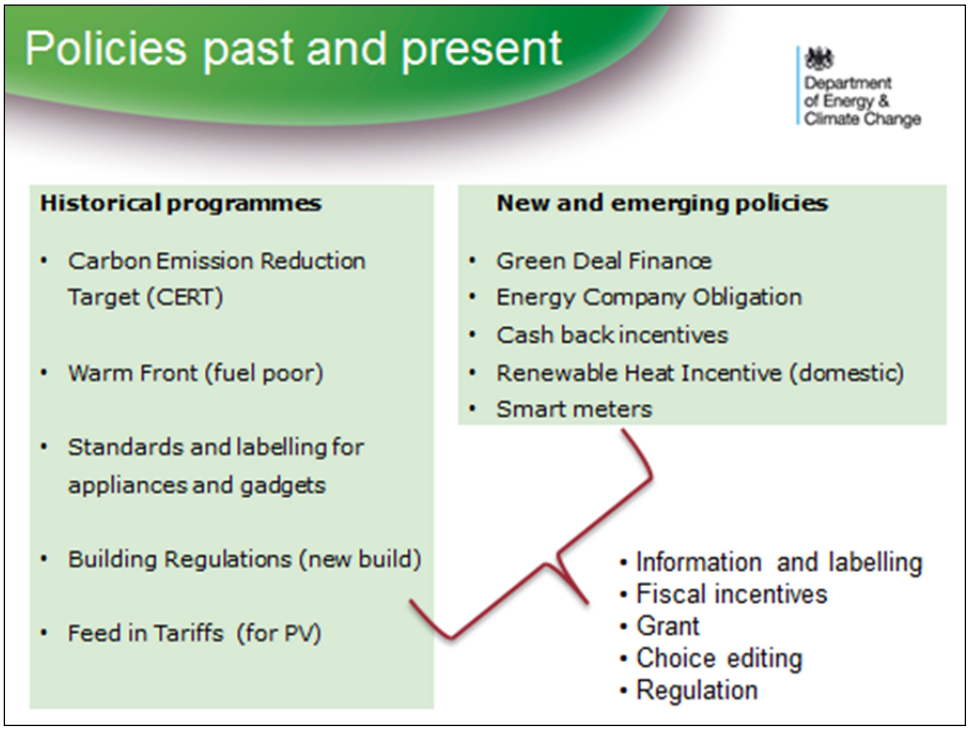
Before I move on to the next section I'll just quickly talk about what we call Park Homes in the UK and this is probably the only sort of home in the UK that is maybe comparable to the sort of construction in Japan in the

sense that it is a structure that is not supposed to last maybe more than 30 years. Ordinarily they are supposed to be for holiday accommodation, but in fact about 250,000 of them are occupied all year round and they get incredibly cold in the winter, so we've been trying to find ways to help insulate and help those sorts of households. In terms of the sorts of technologies and other factors they are comparable to the sorts of challenges you'll have for the Japanese housing stock.



So why doesn't energy efficiency happen anyway? Why do we need to have government intervention? It's a wholly sensible thing to do, it saves money, it makes your house more comfortable, it should be something that just happens but unfortunately it doesn't. We find that there are 4 main barriers in the UK which are probably going to translate into most societies.

People just don't know about energy efficiency. They don't know they can improve it, they don't even know they are wasting money on energy, so you need to try and overcome that. A major factor really as well is upfront costs. A lot of people can't afford to pay for even cheap insulation measures or do have the money for it but maybe they want to spend it on a holiday or something instead because it's a much more interesting thing for them to do. There's the hassle factor. It can be inconvenient and time consuming and annoying to have people working when you are home, especially if it's a more complicated measure, and there's also knowing exactly what sort of measure you need to do. All those measures I showed you on the previous slide, such as different types of walls, as a consumer it can be very confusing to know what actually is the best approach for your house so we're finding ways for customers to do that.



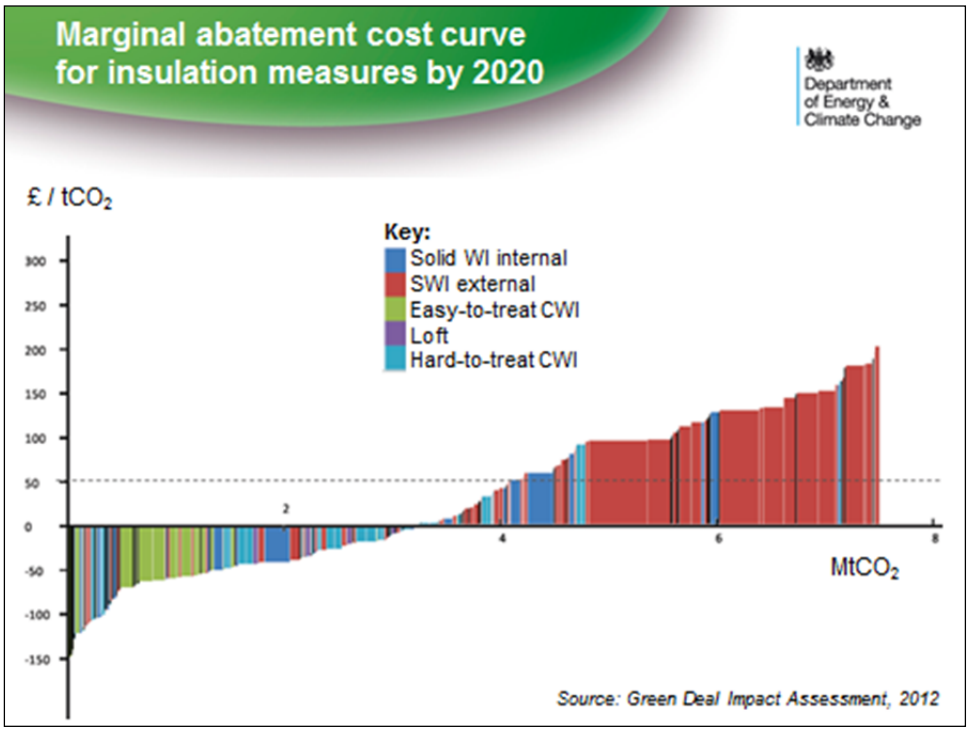
All of the policies we've had to date historically, and this is a summary of some of the main ones, have been about overcoming those barriers really. Really just in general terms, it's about giving people cash at the end of the day. Whatever policies have been out there, it's about giving people money to do something, or making them do it through regulation. There have been very few kinds of innovations around those two concepts really.

With the Green Deal we've been trying to come up with an innovative concept that gets away from that subsidy culture and helps the customer to cover the upfront costs at least partially themselves and also to tackle some of those other barriers I mentioned.

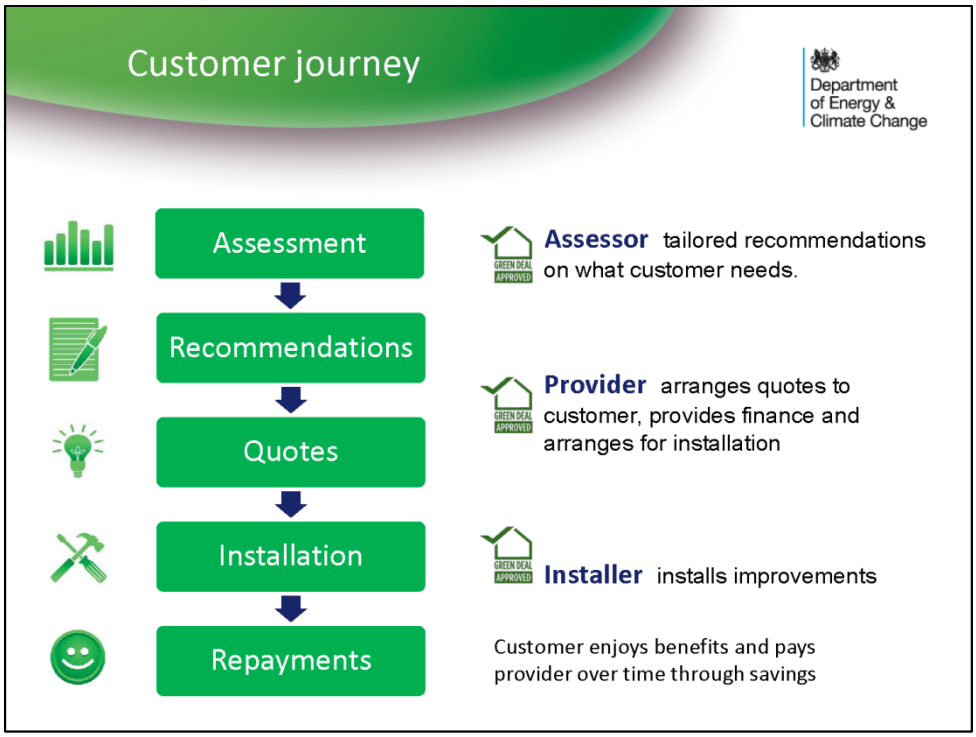
So this slide here is just to illustrate why we think we need to make this transition away from subsidies. What this shows you is along the vertical axis you have the cost of doing a measure in terms of pounds per ton of carbon, so below the horizontal axis they pay for themselves. It's negative cost. Above the horizontal axis they don't necessarily pay for themselves and further across on the right hand side, the less cost effective the measures become in terms of the installation and payback times and social costs as well. This just focuses on the key insulation measures. So on the left you'll see that you've got the green and maybe a little bit of purple in there, a bit of green there which is the most cost effective side which is the cavity wall insulation and we've done a lot of that already. About half of the cavity walls in the country have now been insulated through previous policies which is very good but there's a lot more to do.

But as you move across to the right hand side you start to see more blues and reds. They're the solid wall homes, the ones that cost more, about a few thousand pounds a piece. Very few of those have actually been tackled yet and if we want to start doing those, just throwing subsidies at them is going to be far too expensive for the government. We'll need to find ways for the customer to contribute some of the costs for it to be a reasonable

expense and this is where the Green Deal comes in.



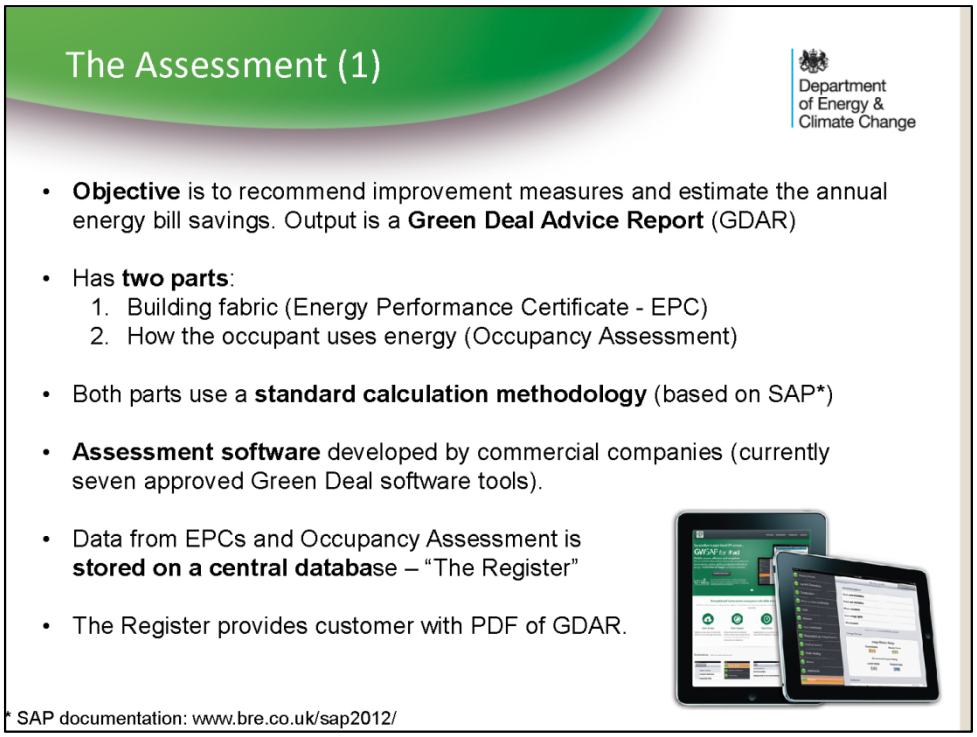
The Green Deal is about trying to help the customer pay for some of the savings and pay for them through using the savings they've made on their energy bill.



So I thought maybe the simplest way to try and explain this is to talk about the customer journey for the Green Deal, the steps the customer goes through in order to take advantage of the scheme and I guess there are three key steps. First of all it's about identifying what you want to do, finding out what measures you want to install, how much they're going to save so that you know how much Green Deal finance you want to get. Then once you've had those recommendations from an assessor, you'll then want to get quotes back for the work and that is where the Green Deal provider comes in. This is a new type of organization which is able to take the recommendation the customer receives and the energy-saving estimates and then offer the customer a quote for installing those measures, project-managing all of the work and arranging all the different installers to be booked and also they're the company that actually provides the Green Deal finance to the customer. Once that is all good and the customer and provider have signed an agreement, the installation work can begin with the accredited green installers. Once the measures have been installed the customer can start re-paying those measures. Here is another innovative aspect of the Green Deal finance side of things where the repayments, unlike an ordinary loan, get attached to the electricity bill via the electricity meter. So the customer will start receiving their electricity bills afterwards which will have a separate item on the electricity bill which sets out how much green deal finance they are paying at that particular period.

That has two key advantages. One it means that you have a lot of confidence that that loan is going to be repaid because electricity being part of the electricity bill means that people are much less likely to default on their loan. In the UK very few people ever do not pay their electricity bills. There's a very low default rate on electricity bills so attaching the green finance to that enabled us to give the financial institutions and investors enough confidence to be able to get into the market and possibly offer lower interest rates than they would have done if it was an ordinary unsecured loan.

The other advantage of having it on the electricity bill is that it gives you a more convenient mechanism for the loan to stay behind with the property when the person moves to a new home, because if you've invested money into the energy efficiency of your home and then you leave that home, somebody else is benefitting from those energy efficiency measures that you paid for so by allowing people to leave the home and for the new people who have moved into the home to carry on paying, makes that more attractive for somebody who might want to make that sort of investment in their home.

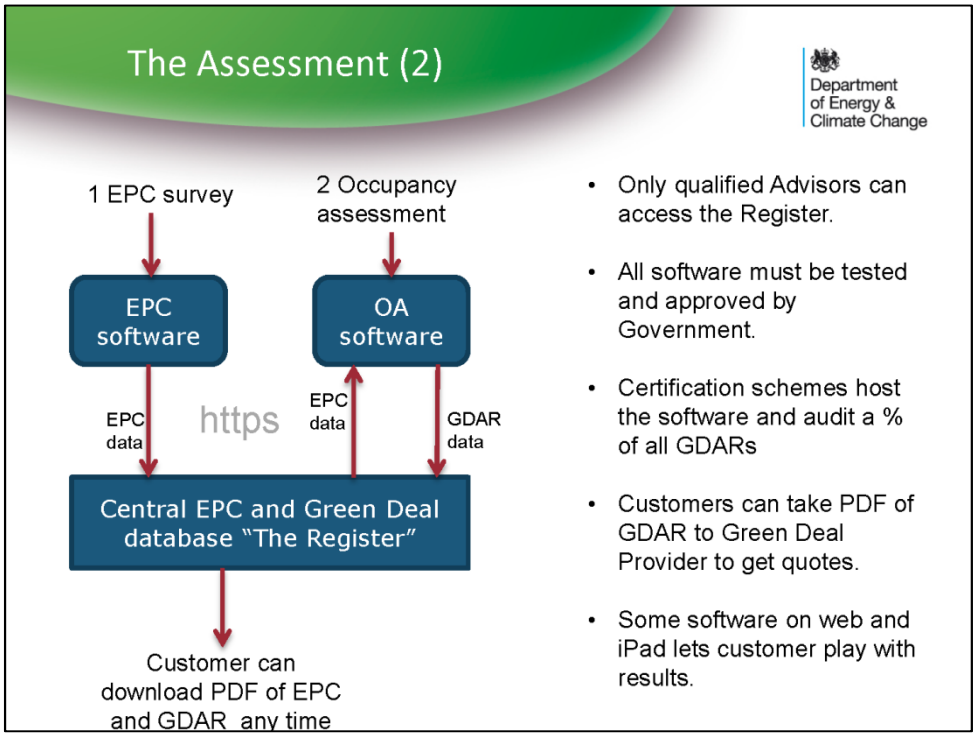


So just to focus a little bit on some of these components of the Green Deal journey, as I said, the first stage is the Green Deal assessment and the objective here is to provide the customer with the recommendations with the improvements, what they need to install and then at the end output a physical report for the customer to take away with them to go and talk to providers to get quotes.

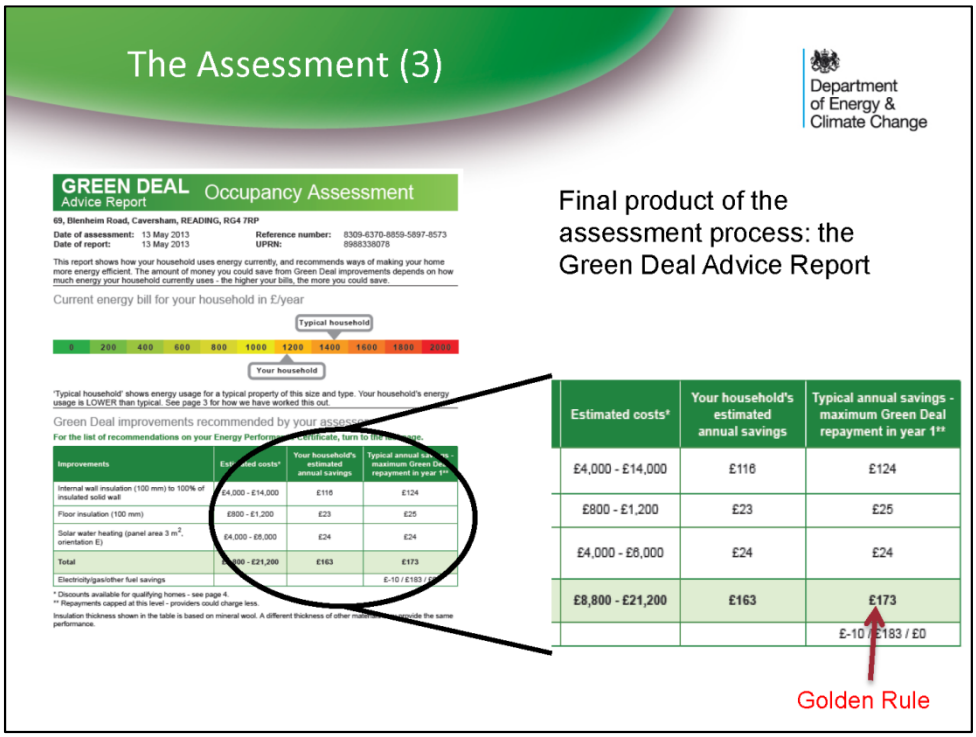
Now the assessment has two parts. The first part is about the building itself so the assessor will go to the home, they'll measure up. They'll take the geometry of the building, the fuel types and what installation measures are already there and use standard methodology to calculate the building physics, basically, about how the energy behaves in the building. The second part of the assessment is the occupancy assessment and this is all about the people in the home, how they actually behave, how they use energy, how many hours they're at home, how many showers they have, what their actual energy tariff is. All these sorts of things will have a direct impact on how much they consume and how much they will save through the measures.

So all of these assessment stages are actually based on central methodology that we've developed with BRE, the Buildings Research Establishment. It's based on SAP that some of you may be familiar with, and it's all implemented and approved software tools that we test and approve and you tend to see the assessors actually using iPad apps and laptops in the customers' home to do this. At the end, all the data is stored on the central

government database which we call the register.



So I won't talk too much about this in detail. This is really just how the data and the assessments flow through the system onto the register but the key points here are the fact that only a qualified certified assessor can actually physically use a software that's been approved and create a Green Deal Advice Report. They have to go through the training, pass the qualifications as a Green Deal assessor and then become members of a certification body who will audit their work which is one of the key customer protection measures.

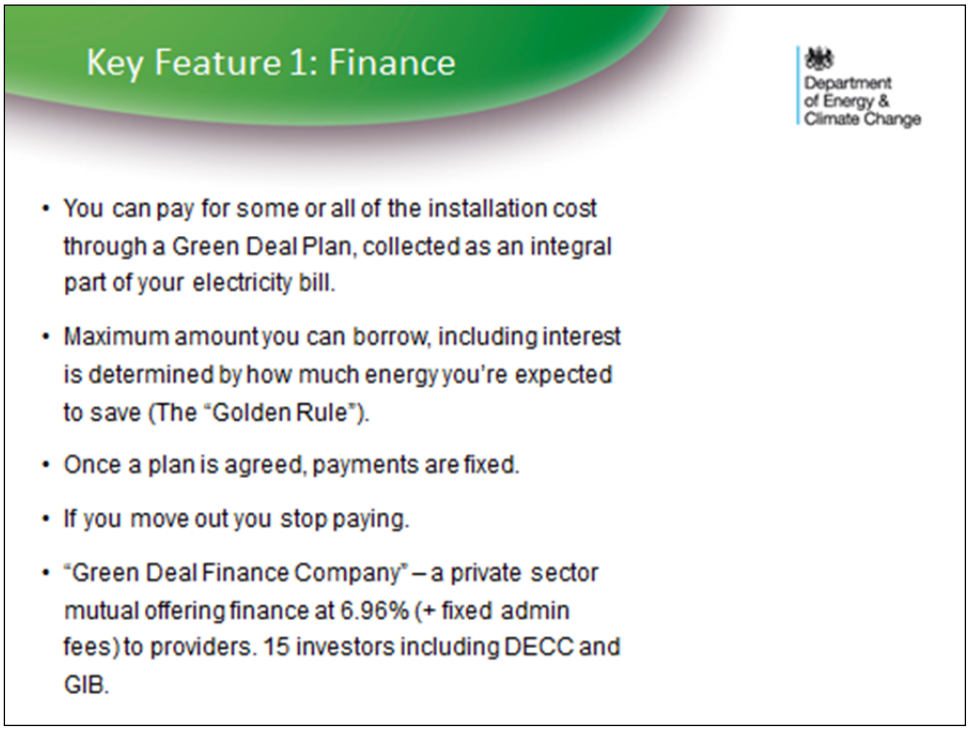


What we have here it maybe a little bit difficult to read on the screen so maybe on your slides it might be a bit easier this is actually an example of a real life Green Deal Advice Report or at least the front page of one, in fact this is my boss's Green Deal Advice Report but it gives you a flavor of the sort of information the customer receives, and helps crystallize how this works. So in the table at the bottom half, you'll see in this case there are three recommendations that she's received. I think there's a bit of solid wall in there and some floor insulation and maybe some solar or hot water as well. The next three columns will show you an indication of how much they might cost in order to install. They're not actual costs, these are estimated costs and it's actually quite difficult to do, which is why you tend to get these wide ranges for some of the measures, which is unfortunate and something we're trying to improve in future iterations. But we felt it was important to have that information in there for the customer.

Now the next two columns are the savings estimates and we have two different savings estimates for a reason. One of them is the savings estimate that a typical average household in that property will be expected to save and the other column is how much the actual household, who lives there, is likely to save. The reason we wanted to do that is because the Green Deal finance that the customer can get through a provider is capped at a maximum level and that maximum level is intended to be the estimated savings that property would achieve with those measures. Now there would be two options here. On the one hand you could say, “we know that this customer uses way more energy than the typical household so their savings are going to be greatly enhanced over a typical household so why not allow them to take out more Green Deal finance to reflect those bigger savings”, which is fine, except that if they do move out later on, and somebody else moves in who is a low energy user or they're poorer, they're going to be repaying a Green Deal finance loan which is higher than the savings they're going to achieve.

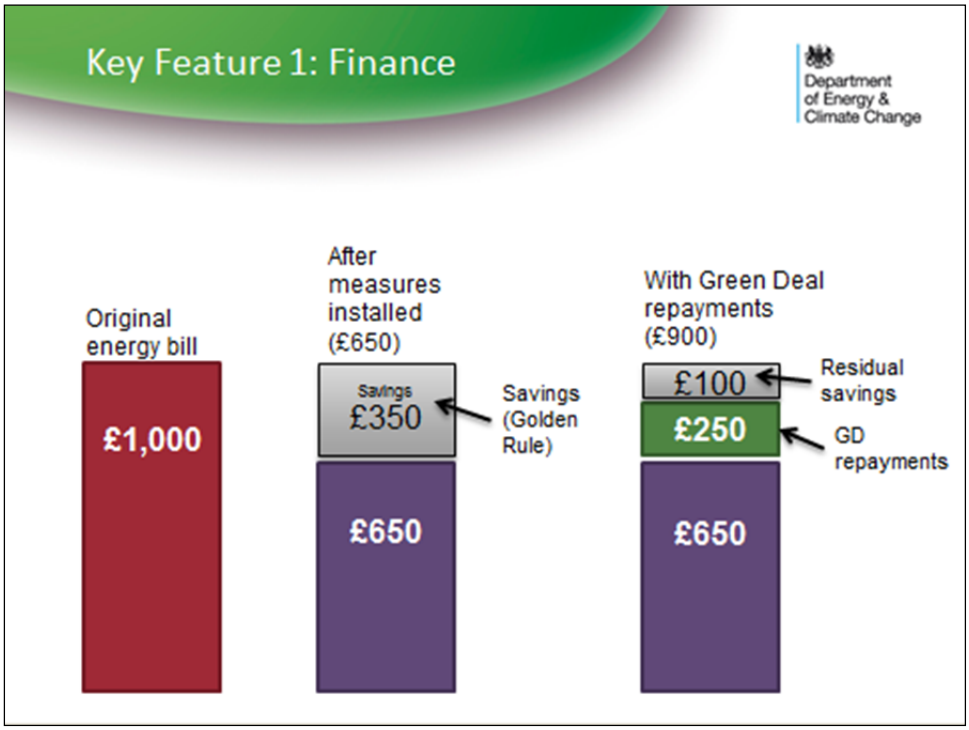
To hedge against that risk, we decided that the most pragmatic approach would be to use a savings figure which would be for the typical average household in that particular home and that is what you see on the right hand column. It's 173 pounds in the first year, which is what those measures are expected to save, and that is the key figure on this report because that 173 pounds is what we call the Golden Rule.

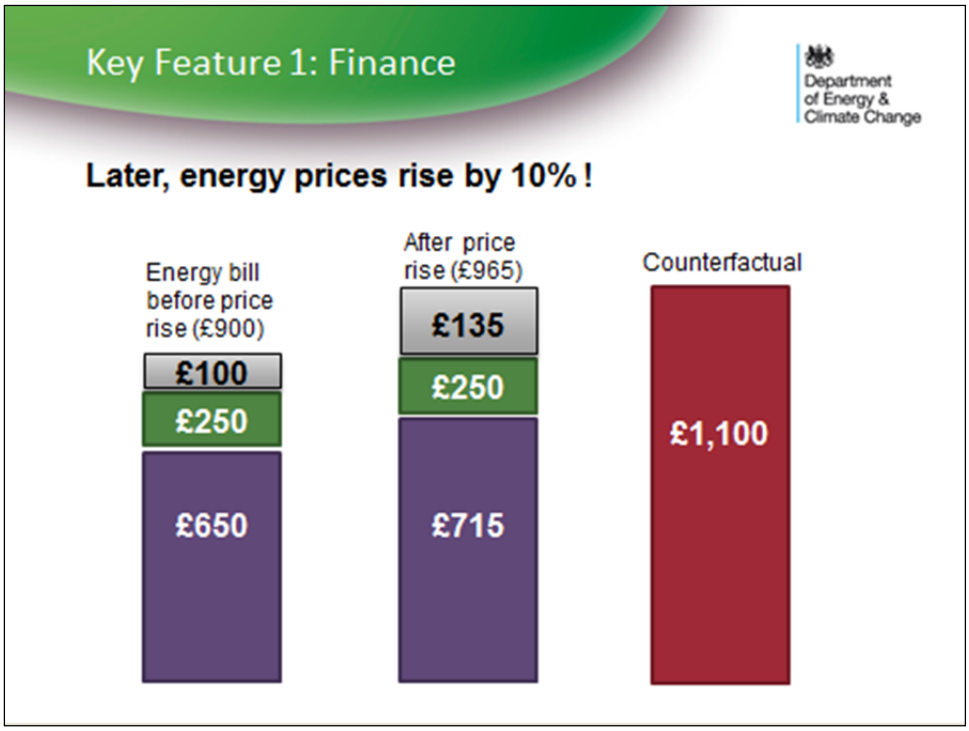
That figure is the one that is used by the Green Deal provider when they want to offer the customer a quote. They can see the maximum amount of Green Deal finance in the first year, and therefore all the years afterwards, they are able to offer the customer.



So let's talk a little bit about finance itself. I've already mentioned that it stays with the property when the customer moves which is one of the key innovations and the fact that the electricity bill gives a lot more confidence in terms of the repayments. In terms of the finance itself there were obviously no Green Deal finance planners before because there's never been anything like this before. It's something we've had to try to kick start from scratch. So what we've done for the early stages is set up a private not-for-profit company called the Green Deal Finance Company which is purely for offering Green Deal finance money to Green Deal providers for providers to give to the customer. There are 15 investors, or that figure may have changed in more recent times I am not sure. Jonathan may have something on that later. DECC is one of the investors as is the Green Investment Bank which is largely government funded. The Green Deal Finance Company, through this not-for-profit mechanism is able to offer a base interest rate of 7% plus some fixed administration fees. That may seem quite high to some here, on the basis that you can get perhaps mortgages for lower interest rates than that or other forms of loan. However in the UK there are two reasons why this interest rate is good, why it's attractive. One is that only about half the people in the UK have access to loans or mortgages because of their credit history or the fact that people aren't prepared to lend to them. Whereas through the Green Deal finance, the way we set it up, 80 or 90% of people in the UK will have access to Green Deal finance so a far greater number of people will be eligible, and have access to this.

So that's one reason why the Green Deal finance is a good thing. In terms of the interest rate itself, for a non-secured loan, especially of a small size, it's very hard to find interest rates that low. In fact, I think credit cards will be something like 17% APR and usually an unsecured loan will be greater than 10% in most cases, so in the UK it's actually quite an attractive rate.





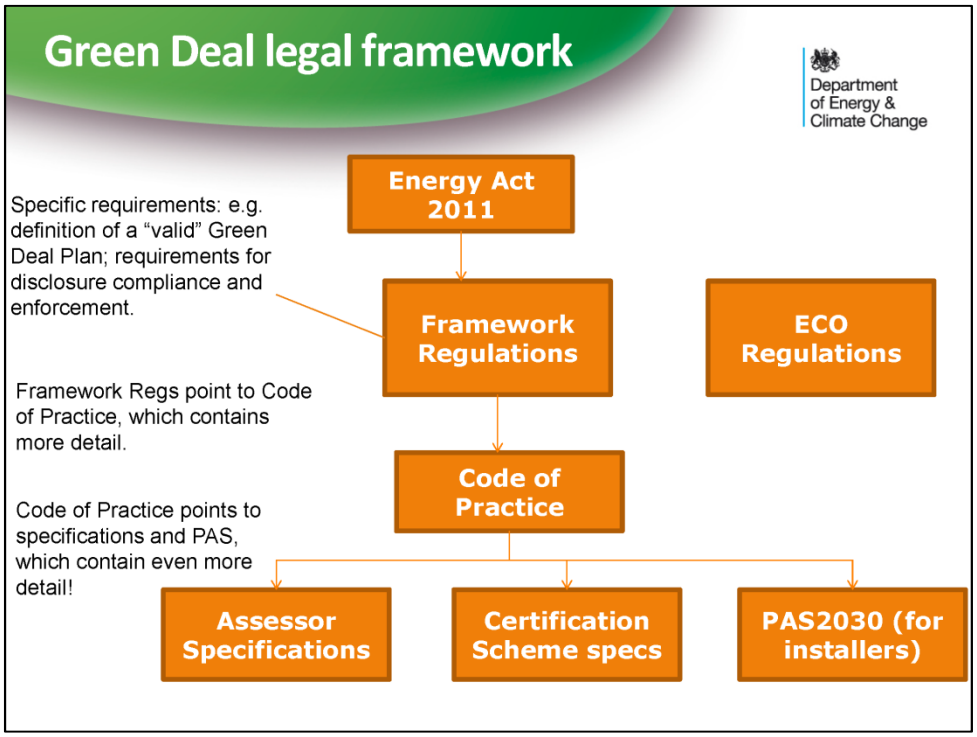
These slides are here to illustrate the way the Green Deal finance fits into the energy bill. On the left hand side we have the original energy bill, 1000 pounds for illustrative purposes, there's also some measures, the bill goes down to 650 through the savings so the grey box at the top is the bit they are not paying anymore. They decided in this case to have a Green Deal finance loan of 250 pounds so they've not used a full Golden Rule, which means that with the Green Deal finance and the original energy bill they're still making 100 pounds savings.

We then look into the future. Energy bills go up by 10% and this happened before Christmas in the UK so it can happen this way. Here you can see on the left hand side the same post installation energy bill of 900 pounds, that now increases to 715 pounds for the energy bill itself but the green deal component hasn't changed obviously so now if you look at the counterfactual, if they hadn't installed measures, their bill would go from a 1000 to 1100 which means that the actual difference to what they would have been paying is 135 pounds now rather than 100 pounds.

This is another key feature of the Green Deal which we found, and we thought was very important when we set it up. We need to make sure that the customer is able to trust the people they deal with. We're going to have assessors, we're going to have installers, we're going to have providers so we need to make sure that all those companies operate to high standards and the customer is going to trust them and get the work done to a good standard, because if that doesn't happen the Green Deal brand will be damaged and demand will inevitably fall so we've got a quality mark that registered companies in the Green Deal market are able to use. We have consumer protection measures such as cooling off periods and insurance-backed guarantees in case things do go wrong and if there are complaints, we've made it simple for the customer to know where to go to complain by having one point of redress, the provider. Any issues that go wrong with any part of this process simply call for the customer to go to the provider to complain. If that doesn't work there's an ombudsman in place to handle unresolved complaints. Jonathan will go into this aspect in a lot more detail in his presentation.

So in building the Green Deal we had four key aspects to build. We had new legislation to put in place, we had new IT infrastructure to build, we had new types of roles and skills that people had to train in. There had never been Green Deal assessors before, we've never had providers before, we've never had various other parts before so there were new qualifications for people to pick up and we had to build a new administrative system for the

market which the oversight registration body are handling.



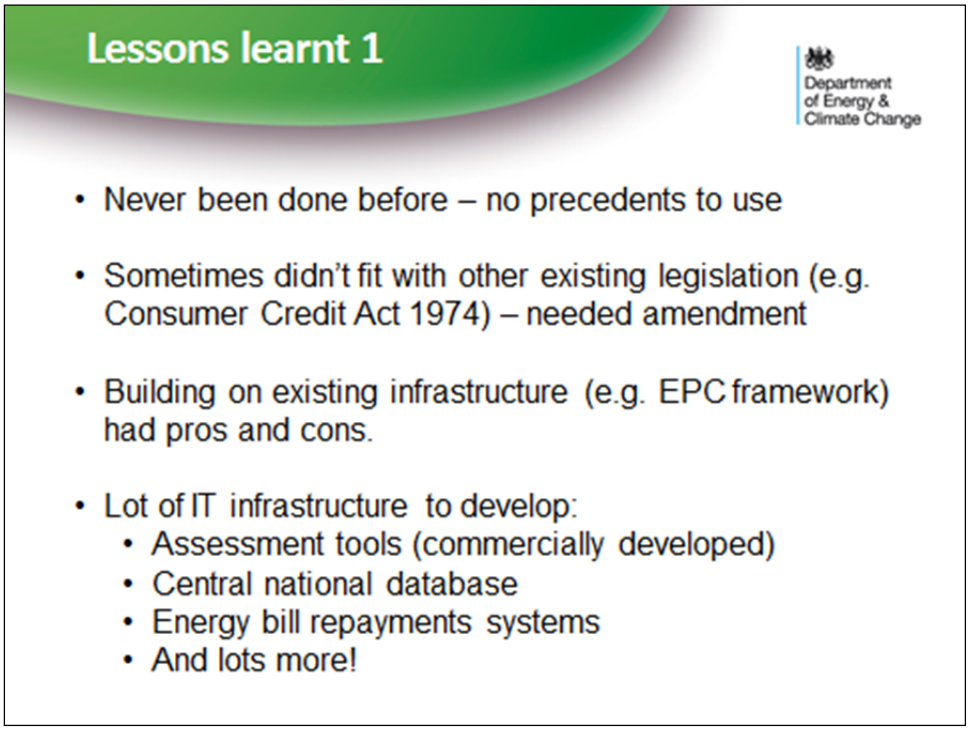
This just summarizes the regulation side. So initially we had to set up some new clauses in the Energy Act to give us the powers to create a Green Deal in effect and as you move down the slide you get to more levels of detail so the regulations that came in after the Act start to go into a bit more detail about, for example, what is a Green Deal, what is a qualifying Green Deal assessment, what is Green Deal finance, what does that mean? And

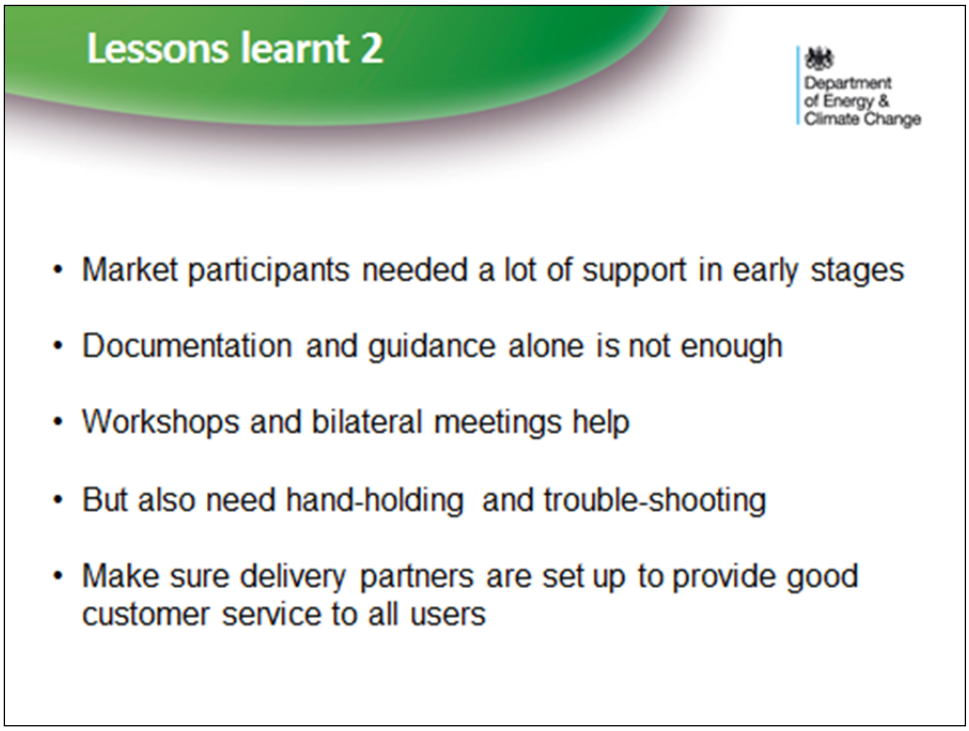
those regulations then point to the Code of Practice which goes into even more detail and in a kind of terms and conditions that the market participants have to abide by so they'll be a chapter in the Code of Practice for each type of organization - assessors, installers, providers and others that they have to operate by and if they don't or they are found not to then they can have their registration taken away so they cannot operate anymore in the Green Deal market. That kind of practice actually points to even more detail for some organizations.

In terms of specifications for exactly how they do their role on the ground, in terms of costs, because there's no government grant involved in Green Deal it was relatively small, really just paying for people like myself to develop the policy, maybe a bit of investment in helping the market get up to speed, about a million pounds for training, early training of assessors, etc. The biggest spend was the cash back scheme, about 200 million pounds which is the time limited scheme to try and kick start early involvement in the market.

So lessons learned, because the Green Deal had never been done before there were no precedents, nothing for us to learn from so there were bound to be some sticking points and problems along the way.

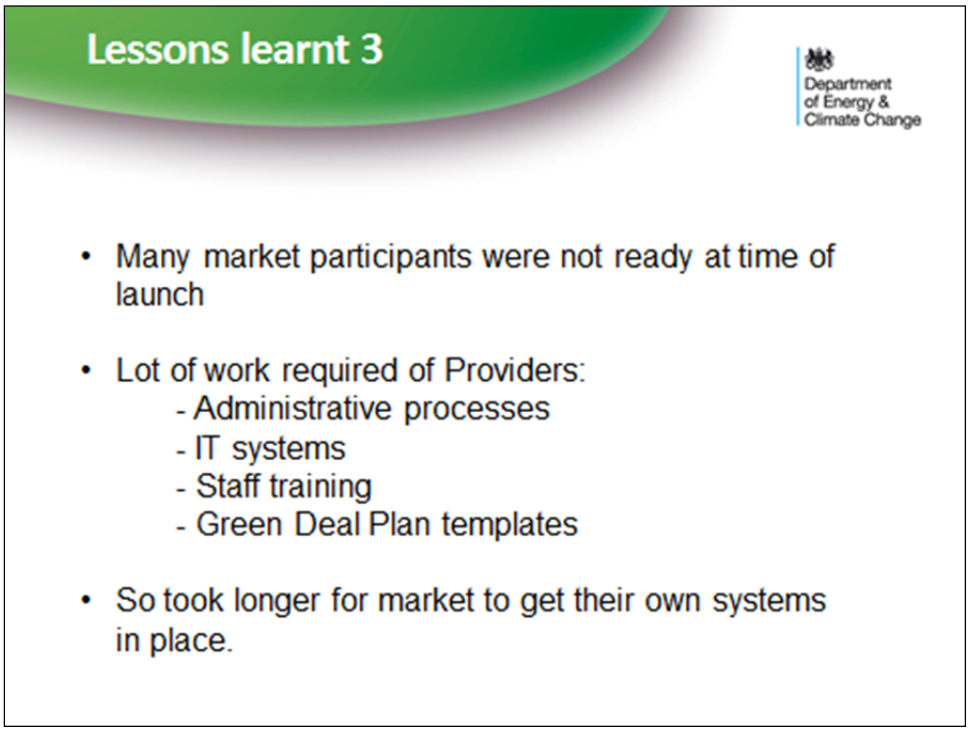
Some of those were involved in the Green Deal fitting in with existing infrastructure. We had existing legislation particularly around customer protection with the Consumer Credit Act which had to be amended to make way for the new innovative Green Deal finance loans. We also had lots of IT infrastructure and things like that to run assessments and the energy bill payments system which had to be upgraded. That can sometimes be more difficult than building from scratch.



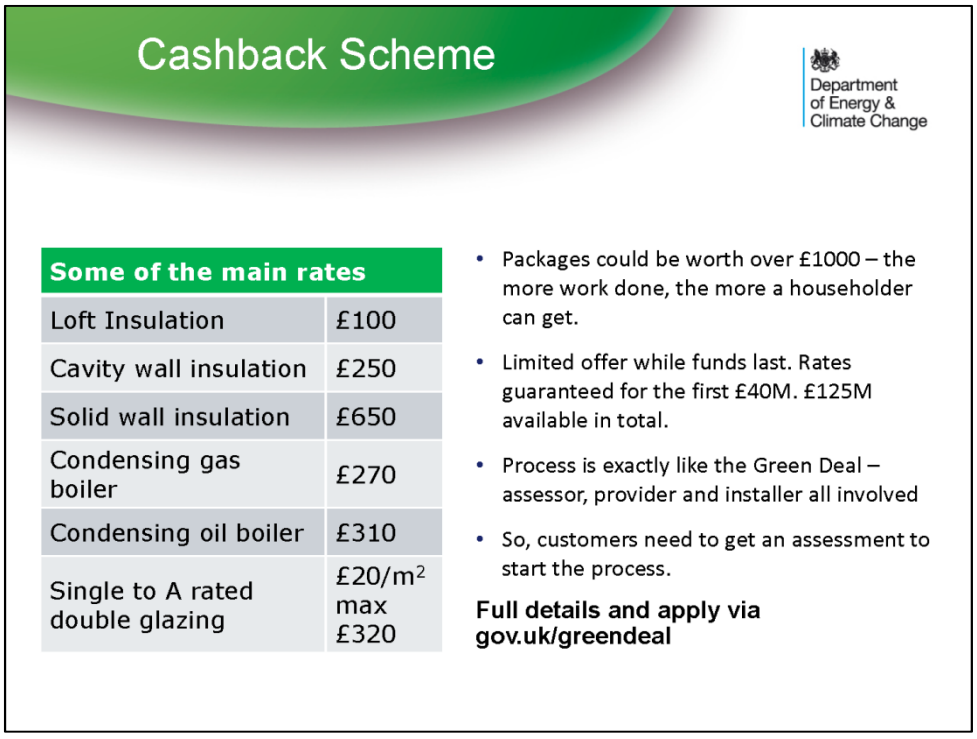


We also found that in addition to the stuff we had to build, the actual private market participants, assessors and providers had to build their own systems as well, which took a bit longer than we anticipated. It was quite difficult for them in the early stages. We provided documentation and guidance for them but it wasn't really enough on its own so we ended up establishing workshops and bilateral meetings with these companies to help them through the processes of setting themselves up. Again Jonathan will be talking a lot more about these steps

in his presentation.



And as a result, that meant that at the launch of the scheme, even though we had all of our infrastructure ready, a lot of the market participants themselves weren't ready at that point which meant that early take up was much lower than we perhaps would have anticipated.

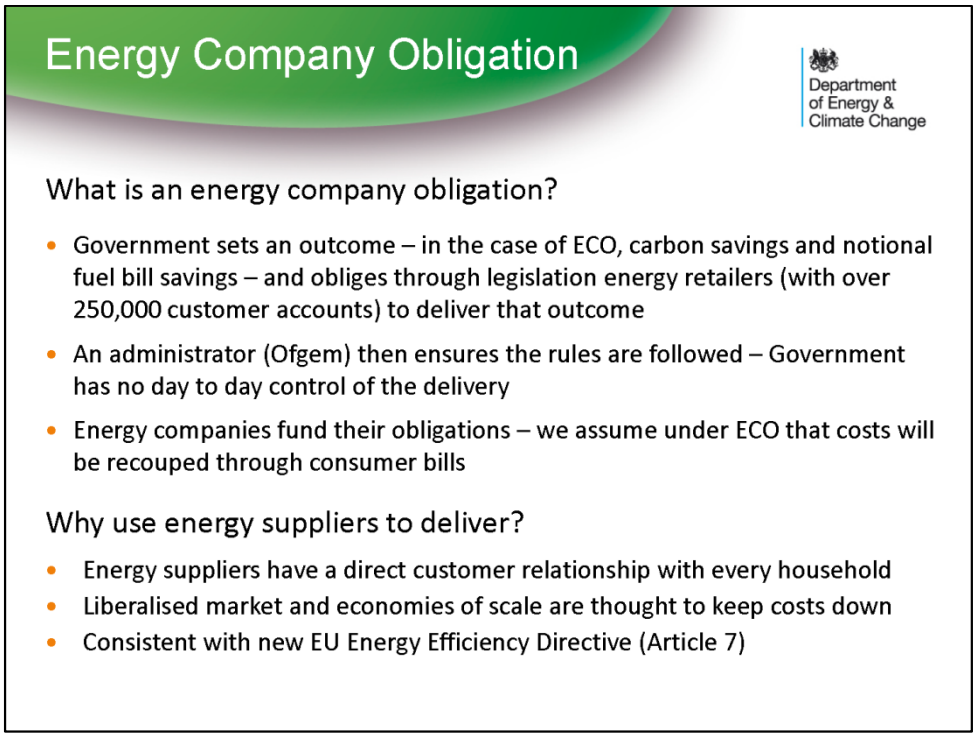


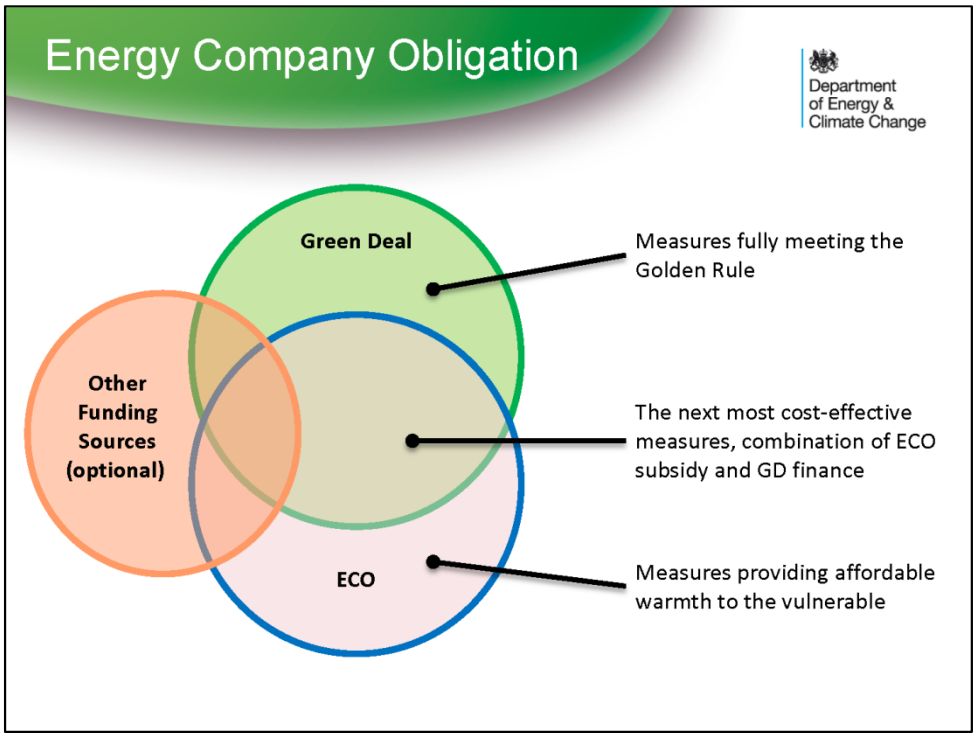
So moving onto a couple of schemes that sit alongside Green Deal, the cash back scheme as I mentioned is a

time-limited scheme that is still in operation now and will run for another few months yet. It offers the customer some fixed rates of grant for measures they install but they have to go through the Green Deal process to get this grant. They have to have an assessment, they have to go to Green Deal installers, they have to work through Green Deal providers even if they don't end up getting Green Deal finance they still have to go through that process and the idea is that it gets people familiar with the process. It helps to market participants to get their systems working properly and helps get things moving on the market early.

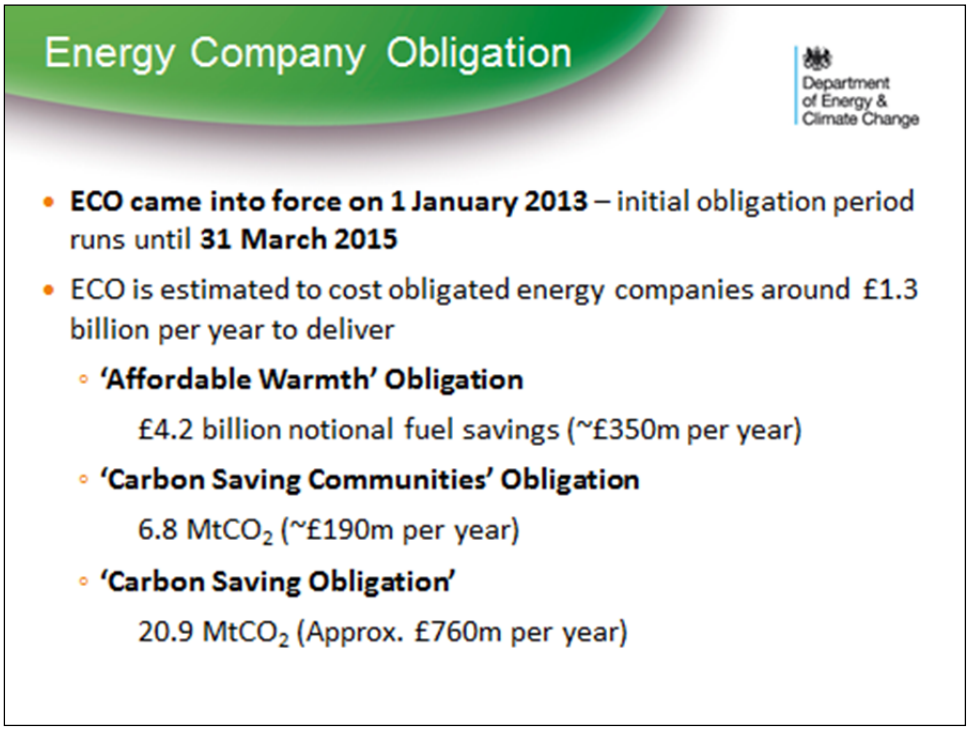
We're currently setting up a new Green Deal community scheme which has about 80 million pounds in the pot and the idea is that local authorities can bid for this money to do community level energy efficiency projects with Green Deal finance and the winning bids for this will be ones that demonstrate that they are going to be blending Green Deal finance with other sources of funding, particularly the energy company obligation which we'll talk about shortly and it will need to be a street-by-street approach rather than one house here, one house there. We want them to also develop local partnerships with other organizations.

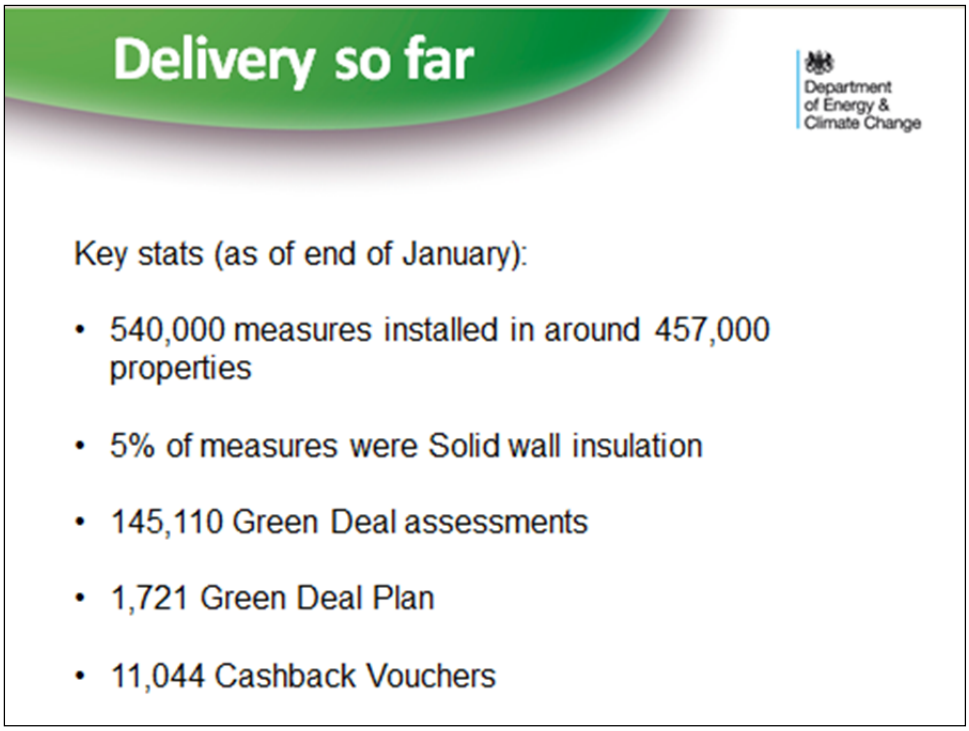
And so the big one really in parallel with Green Deal is the energy company obligation. This really is a whole presentation in its own right so it's very hard to get this down to one or two slides but the energy company obligation is a legal target, a legal obligation on the energy suppliers to deliver carbon savings in households. The way it works is we say to the energy suppliers, there are 7 of them at the moment, you have to deliver X million tons of carbon by 2017 and then we say these are the sorts of energy efficiency measure that we want you to do, and then we leave it to them.





We say you can do this how you want. They tend to do it through subsidy, offering the customer subsidy and grant, but also through other kind of marketing channels and it follows on from previous schemes like it such as the carbon emissions reduction target. The idea is that you get blending of Green Deal finance that you see here in this simple diagram, for the sorts of houses and customers that can get finance, but you also get sometimes pure Green Deal without eco and sometimes you get pure eco without Green Deal.

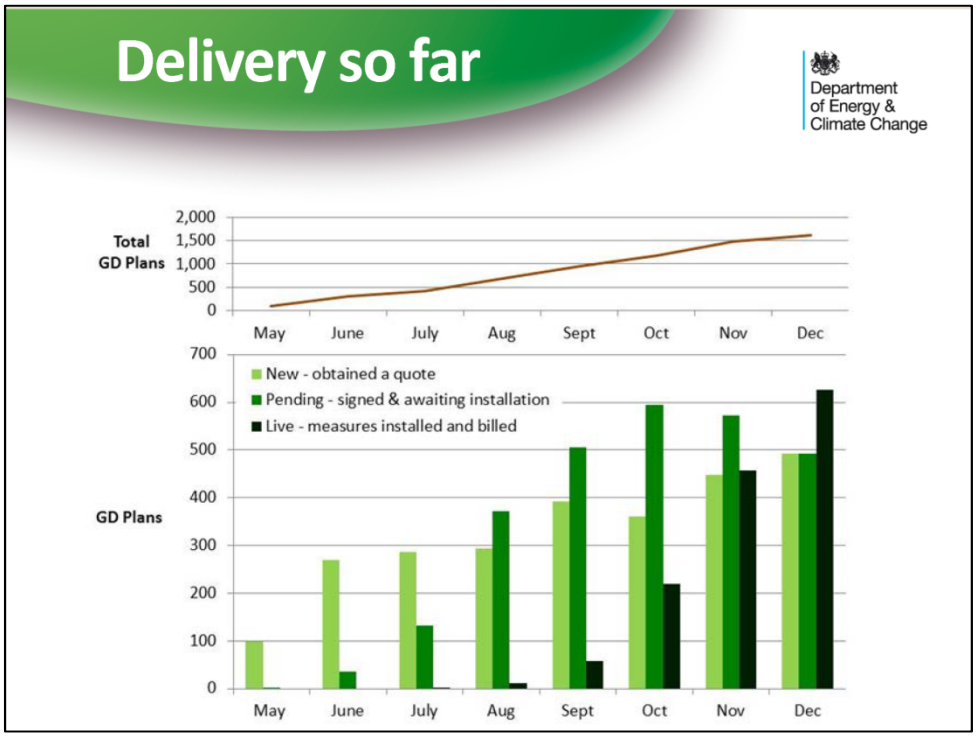




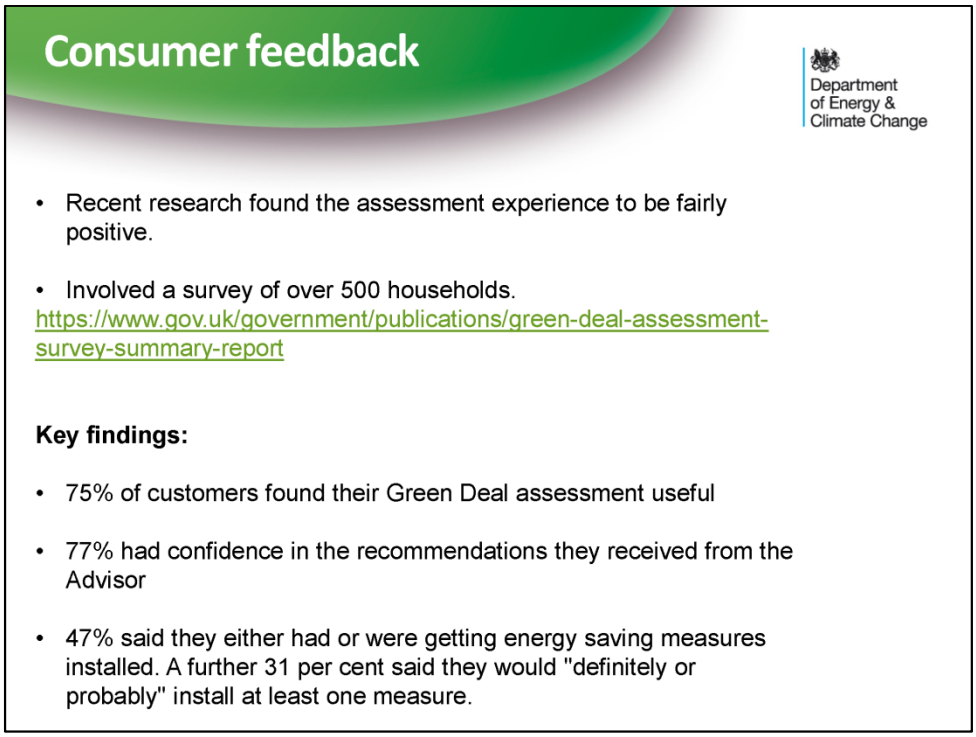
So just to finish up, I've got some statistics for delivery so far. So as you can see we've now since January or maybe February 2013 delivered just over half a million measures into about 450,000 homes through the winter policies we have at the moment. There are now 5% solid walls so that's about 30 to 40,000 solid wall homes which have already been treated which is a good start. We had 145,000 Green Deal assessments and the overwhelming response has been quite positive from those. We've done some surveys and found that 80% or so

of people found their assessments useful. They've gone to install at least one measure, and often more than one measure, as a result.

Now the figure that is probably most disappointing for us in a way is the fact that there is a relatively small number of Green Deal plans so far at 1700 at the moment. Now although it's a relatively low figure so far there are some good reasons for that. There's no reason yet to be too despondent. Firstly I mentioned the fact that there were early teething problems and the longer time it took for the providers to get up and running meant that from the very early stages of the scheme or the first several months of the scheme there wasn't really anybody around to provide finance at scale. So although quite a lot of demand was there from customers, there wasn't actually anyone who could provide the Green Deal plans. And the other thing really is that the Green Deal is a very long-term program. We envisage it being around for 20 years or so all the way up until 2030, 2035, which is when we are hoping that our housing stock will be transformed and the job will be done so there's a long way for us to go yet, and lots of ways for us to improve it in the future.



And there we just have a little bit of an illustration of the upward trend of the Green Deal plans over time.



So that's everything I had to say. I hope I've not overrun too much. I think we've got a Q&A session later on so if you've got anything you'd like to ask more detail on that would be a good time. Thank you.

Takase: Thank you very much Alan. I think it is better that we give the floor to Jonathan first before taking questions for Alan's presentation, so I would now like to invite Jonathan to the podium.

Now let us move to Jonathan's presentation. Jonathan's biography is available in the hand out that you can see. He is from the Green Deal Oversight and Registration Body. This is a body to manage the system and it is consigned by the British government and he is also a chief consultant of Gemserv Limited Management Consultancy consigned by the UK government and he has overseen the start of the Green Deal policies and he oversees the entire program of Green Deal policies.

Operating the UK's Green Deal & Other Energy Efficiency Schemes

Presentation by Mr. Jonathan Harley (Head, Green Deal Oversight & Registration Body / Principal Consultant & Senior Client Manager, Gemserv Limited Management and Consultancy)

Jonathan Harley: Thank you Kae and thank you to the LCS for inviting me to speak today. It's an absolute pleasure and I'm very glad that so many people have come to this event.

Just in terms of context, I give a little bit of background about myself, I've been in the energy and environment industry for around 15 years. I had 10 years at the largest energy company in Europe, E.on and for the last 5 years at Gemserv, which I'm going to be giving an overview on today.