

**Environment Committee – 4 February 2015**  
**Transcript of Item 5: Thames Water**

**Stephen Knight AM (Chair):** Item 5 is our substantive item for this morning on water supply and demand in London. Can I welcome the three guests we have before us so far? Alex Nickson from the Greater London Authority (GLA). We will shortly be joined by Richard Aylard, who is just coming down from the public gallery. He is External Affairs and Sustainability Director at Thames Water. Welcome, Richard. We will give you a moment or two to settle in. Our final guest this morning is Sir Tony Redmond, who is Chair of the London and South East Region, Consumer Council for Water (CCWater). Welcome to our meeting.

We have a series of questions on a whole range of issues affecting water in London, but I will start and direct my first question to colleagues from the GLA. Can you please provide a short overview of the Mayor's role regarding water issues and his policies and key objectives? We have a lot to get through and so perhaps a fairly short answer, if you can.

**Alex Nickson (Policy & Programmes Manager, GLA):** Let me kick off with that one. The Mayor has no formal responsibility for water resources or flood risk management. However, they are two very key pressing issues to the safety and security of London, the quality of lives of Londoners and the affordability of Londoners' bills. We have published a number of strategies that look at these issues and we take a very keen interest in it.

**Stephen Knight AM (Chair):** OK. Thank you very much and thank you in particular for the brevity of your response. That was very helpful.

Turning to Thames Water, can you just give a brief outline of your part in implementing the Water Strategy for London?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We are responsible for supplying clean water to 9 million people in the south and east of England, going right up the Thames Valley, but of course the majority of those are in London. We are also responsible for treating waste water, over a larger area, which amounts to 5,000 square miles. It is 9 million people on clean water and 15 million on waste water. There are other London water companies, but we do the sewerage for their customers. We have a larger number of sewerage customers than we do on clean.

We actually seconded a member of staff to work with the Mayor's team when this Strategy was originally written. We work very closely with GLA colleagues and we provide regular updates on our business plan and water resource plan so that they are aware of what is coming and, of course, they challenge us very robustly on that. Alex Nickson was a member of the Customer Challenge Group during the recent price review process and Sir Tony [Redmond] on my left was the Vice Chair and so there is no shortage of challenge coming in. We are trying to make sure that all the numbers really do add up for the benefit of Londoners in the long term.

**Stephen Knight AM (Chair):** Thank you very much. We are now going to turn to the subject of drainage and my colleague Murad is going to lead off the questioning.

**Murad Qureshi AM (Deputy Chair):** I will address it to the GLA. Could you outline the current Drain London programme? Kevin, I think you are the Programme Manager for it.

**Kevin Reid (Principal Programme Manager, GLA):** That is right. Thank you. The Drain London programme has been running for five years now. Obviously, we are quite a substantial way through that. I can set out some of the things that the programme has achieved so far, if that helps.

**Murad Qureshi AM (Deputy Chair):** That would be useful.

**Kevin Reid (Principal Programme Manager, GLA):** First of all, we have established a Londonwide forum of all of the key flood risk agencies involved in managing surface water: the 33 local authorities as lead local flood authorities and then organisations like the Environment Agency, Transport for London, Thames Water and the London Councils group as well. That forum has been ongoing for five years and is set to continue.

We have also established seven borough partnerships where the boroughs themselves get into geographical groups based around London and co-ordinate and share experiences, ideas and information about how best to manage flood risk.

Of course, perhaps the main bulk of work has been through Drain London actually procuring and delivering surface water, flood risk and management information for those 33 lead local flood authorities. Over the years, we have produced surface water risk maps for each of the boroughs; surface water hazard maps, which show just how hazardous any surface water flooding would be; a surface water management plan for each of those authorities; and a document called a preliminary flood risk assessment, which was a requirement under the European Union (EU) Floods Directive. Those have all been produced and handed over to boroughs about three years ago now.

Since then, we have invited boroughs effectively to bid to us as the Drain London programme for funding to investigate the high-risk areas within their local authority areas. Under that programme, we have undertaken 25 more detailed flood risk assessments to look at just what the nature of that risk is. That is spread variously between a number of the boroughs. About 12 of the boroughs have investigated one or more of their high-risk areas. If it is helpful, I do have a list here to remind me of which boroughs.

**Murad Qureshi AM (Deputy Chair):** We are going into that later on, particularly sewage flooding, which is a particular west London problem, if I remember rightly. Could you just highlight the extent to which you are working with Thames Water on this front and funding issues possibly in the future?

**Kevin Reid (Principal Programme Manager, GLA):** Thames Water is on the Drain London Board and has a role in terms of advising on the surface water risks. It has provided a considerable amount of information on drainage capacity and sewerage issues and indeed has been the liaison between some of Thames Water's officers and the borough officers.

In terms of direct funding, we have not had direct funding from Thames Water in terms of this particular programme, but Thames Water has funded or is in the process of funding some other initiatives which broadly the Drain London programme is supporting and broadening out. That includes trial projects for the likes of sustainable drainage techniques. That has been ongoing.

We have also through the Drain London programme investigated the risks to some of London's important infrastructure: things like hospital sites; secondary schools; and police, fire and emergency stations. Those facilities have been examined in broad terms across London and then the ones that have been flagged up as at higher risk have had some more detailed work going on to investigate what those risks are. That work is not quite finished yet. It should be finished at about Easter time of this year. I can say that broadly, from that sort of work, most of this important infrastructure is actually at pretty low risk. There are one or two sites that have some higher risks, but the vast majority of it is at pretty low risk.

**Murad Qureshi AM (Deputy Chair):** Richard, is that your understanding of the Drain London programme that Kevin has articulated?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes. We regard Drain London as a really important body. It was ahead of its time. We were on it from the start and it has delivered a lot already and there is a prospect of doing a lot more. We also work with the Environment Agency Regional Flood and Coastal Committee. Those two bodies are the strategic level at which we work. It is very helpful not to have to deal individually with 33 London boroughs all the time and Drain London gives us an opportunity to deal collectively with the boroughs. It also provides a bit of informal benchmarking so that those boroughs that have actually been a bit slower to pick this up can see what the really good boroughs are doing. Again, we work with everyone.

There are lots of schemes we are developing now, particularly working on what we can actually get out of sustainable drainage schemes. It is very easy to spend money dealing with flooding but, if you are not careful, either you move the problem somewhere else or else you do not spend the money efficiently. It is only by having these sorts of discussions, getting proper modelling, proper mapping and proper prioritisation that we can spend money as efficiently as possible.

**Alex Nickson (Policy & Programmes Manager, GLA):** I just wanted to say that when we set up Drain London it had three key roles: to understand and prioritise where the risks were highest; to build capacity across London to make sure that the people best in a position to own and act on those risks are acting on those risks but to have a collaborative approach to it; and to provide thought leadership and demonstration projects on how to manage risks in an innovative way that is cost-effective. Of those three aims, we are doing a pretty good job.

**Murad Qureshi AM (Deputy Chair):** That is something that the Environment Committee has been quite keen to support in all the time I have been here.

Can I just move on the discussion on the London drainage programme? Do you believe the Government's approach to managing surface water flooding works in London? How does this fit into the plans and responsibilities of the programme you are currently undertaking?

**Kevin Reid (Principal Programme Manager, GLA):** The Government has set about some changes to how it envisages surface water being managed over the last couple of years.

However, if we look back to the 2010 Flood and Water Management Act, it was a really significant step forward in terms of clarifying roles and responsibilities. For London, it was pretty clear: each of the 33 boroughs would be a lead local flood authority. That is, I would say, probably quite a good position compared to the county areas of England which have the county council as the lead local flood authority and then the district councils which obviously have quite a lot of other responsibilities, notably in planning terms as planning authorities. To have the lead local flood authority and the planning authority as the same organisation essentially is quite a good step from that Flood and Water Management Act.

The intention in that Act, clearly, was to set up something called sustainable drainage approval bodies, which would take a very hands-on role to giving detailed approval to sustainable drainage. Last year, the Government's consultations and then actions actually decided that that was not going to go forward. To be honest, that is a step which will focus less attention on sustainable drainage than would otherwise have been the case. However, the Government has been clear about the delivery of sustainable drainage through beefing

up the planning system and adding requirements to the National Planning Framework. It is saying very much the right things about just how important sustainable drainage is to incorporate into new development.

Really, London has been ahead of the game nationally for over ten years now with its London Plan policy. It is generally very well adhered to, certainly on the sorts of planning applications that come to the Mayor. In fact, I struggle to remember planning proposals which were not achieving at least a 50% reduction through the redevelopment on the current level of surface water discharge. Some developments in the outer parts of boroughs or perhaps ones that are at a less dense level are achieving greenfield runoff rates. For a city like London, some years ago people would have suggested that that was unlikely, if not impossible. That is a good story.

**Murad Qureshi AM (Deputy Chair):** Kevin, you have given many reasons why the programme is working well and Richard has also highlighted how convenient it is for Thames Water to be dealing with something that deals with Greater London rather than 33 boroughs. Is there a place for possibly the Mayor having some statutory responsibilities rather than at the moment this kind of voluntary opt-in on this?

**Kevin Reid (Principal Programme Manager, GLA):** You are quite right. On the whole, it is a voluntary approach. I suppose the one thing that we have identified through the Drain London programme that has not been delivered in any great sense thus far - not to say nothing has been done because there are some good examples - is to say, "The planning system is all very well and that will churn through over the years, but we have the other 99% of London that does not get redeveloped each year. What are we doing about trying to make sure that those buildings, roads, schools, hospitals, etc, manage their drainage more sustainably?" The planning system on the whole will not really affect that.

That is why we have started work drafting something called the London Sustainable Drainage Action Plan. It is a plan of actions and activities that will help to, again, on a voluntary and persuasive basis, persuade and inform the owners of housing estates, roads, hospitals, as I say - and quite a good target would be things like large-format supermarkets, warehouse stores, etc - through their regular improvements, updating and repairs to their real estate to manage their surface water more sustainably. For example, if a car park for a supermarket was being resurfaced, there is an opportunity to redirect that rainwater and do something more beneficial with it. Maybe a housing estate needs a new roof. That may well be an opportunity as well. It is not about saying, "You have to go out and spend a lot of money on new drainage". It is about saying, "When and if these opportunities for these repairs and renovations come forward, let us think about how you can manage and adapt those to perform much more sustainably in their drainage". It should not really add any significant costs.

**Nicky Gavron AM:** Could you tell us, Richard, how much in the five-year plan Thames Water is spending on sustainable urban drainage, first of all over your whole catchment, which is not just London, and then on London?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have £20 million earmarked with which we want to disconnect at least 20 hectares of currently impermeable surface that drains into the network by 2020. That is an aspiration. We think we can probably do more than that with the help of Drain London and others, but there is certainly --

**Nicky Gavron AM:** Sorry. That is in London or across your whole catchment?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That is across the whole catchment, but the biggest problems are in London. There is no proportion that has to be spent

anywhere. We will spend it where we can get the most effect for it. However, if you look at the moment at where the cost-benefit is highest, most of that is likely to be in London.

**Nicky Gavron AM:** What is your turnover?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Turnover is £1.6 billion, but most of that is going on operating the system for both clean and waste water. Besides the £20 million I mentioned earlier, there is an awful lot of other money in the programme which will deal with a whole range of drainage problems, including making sure that we get less flooding from the sewers from hydraulic incapacity. There is well over £200 million being spent to deal with sewer flooding in the Counters Creek catchment in west London --

**Nicky Gavron AM:** In addition to the £20 million?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Absolutely. The £20 million is purely earmarked for innovative sustainable urban drainage systems (SuDS) projects to see what we can learn and how we can do more by working with local authorities. Rather than try to carve out a proportion of the rest that is specifically earmarked for sustainable drainage, it will be spent in whatever way is most effective in achieving the objective, whether that be reducing sewer flooding or dealing with surface water. I can give you a better breakdown in writing of all the drainage elements in the business plan.

**Nicky Gavron AM:** That would be very helpful.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** I am very happy to provide that. It is all in our plan and I will just have to get it boxed up in one place for you.

**Nicky Gavron AM:** On the surface of it - or on the face of it, anyway - £20 million does not sound like very much for something we have been talking about for such a long time and is always seen as the disappearing cutting edge.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That is £20 million for innovative projects to see what we can learn and what we can do differently. At the same time, as I said, we will spend more than £200 million on Counters Creek, which will relieve at least 1,800 properties from the threat of sewer flooding. That is all drainage as well. It just has a different label on it. Within the Counters Creek project, we are also doing SuDS trial projects in three streets, which are quite well advanced at the moment. We are putting in monitoring equipment not just in the three trial streets but in three comparable streets so that we can work out how much water we are keeping out of the sewer and at what cost. That is something that the rest of Drain London is watching with great interest. If we can prove there is a cost-benefit there, lots of boroughs will want to do similar retrofitting across their own densely populated areas.

**Nicky Gavron AM:** Understood. Is the Counters Creek three streets part of the £20 million?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** No, that is already happening.

**Nicky Gavron AM:** Which is your first innovative project?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The first innovative project would be the attempted retrofit of SuDS in three streets: two in Hammersmith and Fulham and one in Kensington and Chelsea.

**Nicky Gavron AM:** Yes, but where are the £20 million innovative projects coming on?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The £20 million will be spent from April this year onwards and it is --

**Nicky Gavron AM:** What is your first innovative project?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is likely to be doing something at Old Oak Common. What we want to do is to try to actually design and build SuDS for the developers to then come in and adopt. It will not be a question of saying to the developers, "You have to do SuDS". We will say, "We have this all worked out and this is what you have to do to connect up to it and this is what it will cost". That is the first project that we are working on. It is a long way from being approved yet, but it is something that we think is a way of getting ahead of the problem rather than constantly trying to play catch-up once developers have something designed, as they have in Battersea. There have been some problems there where they have designed their development thinking they could automatically connect to the sewers and actually that is the last thing we want them to do. We have had to go back and, with Alex's [Nickson] help, we have been pushing back on that. The idea at Old Oak Common is to get right in at the ground floor, start with SuDS and then think how the development works around it.

That is likely to be the first innovative project but, as I said, that money is earmarked for April 2015 to April 2020. So it is going to take us some time to work out how we choose to spend it and where we can get the best bang for our buck.

**Nicky Gavron AM:** Alex, is the GLA very involved in that?

**Alex Nickson (Policy & Programmes Manager, GLA):** Yes. Our game plan - I do not think it will come as any surprise to Richard - is to try to get as much of that £20 million for London as possible. We think the Drain London partnership and the Sustainable Drainage Action Plan are our key ways to justify that we can spend that money well and extrapolate, share and disseminate the lessons learned from it in order to enable a quantum step-change in how we do drainage.

**Stephen Knight AM (Chair):** Can I ask that when you put that in writing you share it with the whole Committee?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, of course. I will send it via the clerk.

**Jenny Jones AM:** Forgive me if I just hop back slightly. The Mayor has talked in his Water Strategy about decreasing summer rainfall, increasing numbers of people and so on. With current trends, when are we likely to experience shortages of water or is this now going to be an annual event?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have a 25-year water resources plan, which aims to make sure that we do not have water shortages and that we put --

**Jenny Jones AM:** We are coming to that. I really meant the immediate future.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** In the immediate future, we have groundwater levels high across the whole catchment and so there are not going to be any problems with water supply, unless we get truly extraordinary weather, this year. If this summer is dry and next

winter is dry, it is possible we could start to have problems in 2016. However, the whole basis of our 25-year plan is to make sure that we do not get to that point. Clearly, with London's population growing, we need to get the latest population forecasts properly reflected in our plans, which will be done at the annual update. That may change the rate at which we need to develop schemes to make sure there is enough water. It is a rolling programme to always try to stay well ahead of the problem.

**Jenny Jones AM:** "Well ahead"? That sounds great. I wanted to ask under question two as well about fracking. I understand that at the moment water companies are not statutory consultees when local authorities start to look at planning permissions for shale gas extraction. What is your view on that?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We would like to be consulted. We think that the biggest single safeguard is the Environment Agency. We work very closely with it and we know how seriously it looks at everything to do with water resources, both quantity and quality. That is a real reassurance.

However, we would like to be consulted. The Government, although it has said that it thinks the current arrangements are fine, has actually conceded that under secondary legislation water companies will be formally consulted before fracking goes ahead. That will give us an opportunity on behalf of customers to register concerns.

**Jenny Jones AM:** You will take a view based on research from other places and --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, research from other places. We will look at the geology of the area, where we abstract water from and what the consequences might be. There are two things, really. One is whether the fracking process is going to require large quantities of water and, if so, whether it is available. In our area, it is quite likely the answer is going to be no. Then there is also the question of whether there is any possible risk of contamination to the groundwater we rely on. We and the Environment Agency will want very clear assurances on that because this is our raw material and the stuff of life that we are talking about. We do not think it is difficult to do, but we are reassured that we are going to be part of the consultation process going forward.

**Jenny Jones AM:** I wonder if you could outline your leakage reduction plans for London?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The first thing is that we have brought leakage down by a third in the last ten years and we are going to get it down by another 11% in the current five-year period. We have further reductions planned after that. The problem is that as you get leakage down, the unit cost of each further bit goes up and so there is a point at which it becomes uneconomic. On the basis of the consultation process around our draft business plan, we are going beyond the economic level of leakage now.

The big thing that is going to make a difference is bringing in progressive metering of all our customers because between around 30% of our leakage is actually on customers' pipes: the small pipes between the streets and the customers' homes. As soon as you put a meter in, you can find that. Even before we connect the meter up, we will be doing the measurements and we now offer free repairs, but the problem is finding these leaks. They are often quite small, under somebody's front garden. The grass looks a bit green and nobody asks why.

**Jenny Jones AM:** Not my garden, no.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Not your garden, Jenny, but you can see how the problem exists. For instance, in Bexley where we are starting this progressive metering programme, about half of the gain in water will be from customers using less and the other half is from just identifying where these leaks are. Therefore, customer-side leakage we can get down a lot.

The other thing is that where we have full metering we can do what we call a 'water balance' based on water in equals water out plus leakage. If we can do a whole area, we can then work out where the leakage is at its worst and we can target it most effectively. Of course, once you get down to these things, there are all sorts of problems with illegal connections and pipes that had not been capped off properly 50 years ago etc. However, until you have a proper sum to do, you cannot work out where to target the money best. We think we can probably get leakage down further as we start to get the results through from the progressive metering programme.

The key there is that we are going to meter as many individual properties as we sensibly can, but the big problem is blocks of flats. Some older flats have all the kitchens connected at one side and all the bathrooms connected at the other. Unless you fit two meters into the flats, you cannot actually work out what they are using. What we are saying is that we think we can get to between 70% and 75% of properties in London individually metered, but for the rest we are going to meter the block and we will know exactly where the water is being used. This approach of metering blocks of flats, as a block, has worked very well. We found one recently that was leaking 33 litres per minute. We found others where the seals on the toilet cisterns had all perished and nobody had noticed. It is not just a question of metering each individual household. We will do that where we can. Where we cannot, we will meter the building because then you will get the water balance. That is when you can really work out where you need to target the leakage to get the best possible value out of your spend.

**Jenny Jones AM:** This Authority is actually advocating a long-term aim of improving leakage rates to the equivalent of 80 litres per property per day. Is that something you recognise as achievable?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, we do recognise it. It is not achievable in the short term. It is a very reasonable, very long-term aspiration, but it would mean really very considerable reductions in leakage. We have got it down a lot. We are going to get it down a lot more. However, we have to go step-by-step with this, firstly, because there is a limit to how much you can do at any one time - and we all know about the disruption that the leakage work causes - and, secondly, because we want to get the information back from the metering programme so that we can then target the spend as effectively as possible. Until we have that information, we cannot give you an accurate figure of how low we think we could get leakage. There is this problem that the curve for leakage-per-pound goes almost straight up once you get to a certain point. Therefore, it is fine to have an aspirational target, but it is going to take a long time to get there. It will be 11% in the next five years.

**Jenny Jones AM:** Thank you. The recent incident at Farringdon highlights a problem that could happen at any time, presumably, anywhere. Are you actually prioritising such pipework in your overall plan?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The burst at Farringdon was on a 16-inch main. We call anything of that size a 'trunk main'. They are very thick and they are under very high pressure and they last, normally, a very long time. But if they do burst, the consequences can be very considerable.

What we have done is we have risk-assessed all of our trunk mains and we have worked out which ones would have the highest consequence if they burst. If there is a burst in a particular area, are we going to flood a bit



of waste ground or are we going to flood Regent Street? They are the most extreme examples. Based on that, we have targeted our replacement programme for the mains that we think are at most risk.

The other thing that we have is three different ways of monitoring the condition of the pipes. Two of them work on monitoring the pressure. A very small change in pressure on a pipe could mean that you have a small leak developing which could suddenly cause a big bang and you can get in and target your investigations to try to find out where it is. We have others that listen to the pipe because, before a pipe bursts, the acoustic signal from it tends to change. Again, if you have a change in the noise: "Why? What is going on? Let us get in there and look at it".

I do have a presentation on this which in fact the Mayor's Office has seen, but I am very happy to supply it to the Committee. It talks about these three. There is 'Syrinx', 'Hydroguard' and 'Sahara'. They are all slightly different systems and they are all ways in which we monitor what is going on with the trunk mains.

The other thing they do is, if we do have a burst, they can tell us exactly which pipe it is on and where. Under some of London's streets, you have two or three mains going down in parallel. Until you know which one has burst, you do not know which one to switch off. It is not only a question of stopping the flooding, but you have to be very careful about cutting customers and businesses off water at the same time.

There is a lot of complexity to this, but it is about risk-assessing to work out where the consequences are highest and then monitoring and then replacing where necessary. At Farringdon, for instance, we are going to replace 400 metres of main alongside the station. We are still working out exactly what happened and what caused the burst, but we are clear that the consequences of another burst there are such that we should replace it.

**Kit Malthouse AM:** I just wanted to ask quickly about the incentives that you have to tackle leakage. You said that you are now bumping up against it becoming uneconomic. I understand that where you put in the meters, obviously, I as a customer would be able to detect from my bill or you would detect from my --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We will detect it for you, yes.

**Kit Malthouse AM:** You would say, "You are using more than the average. Either you have double the number of people in the house or there is a leak". Beyond that, what incentive do you have?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have a target set by the water regulator (Ofwat) in the business plan and that has incentives and, more importantly, disincentives attached to it. If we outperform, there is a small incentive available to us. If we do not get there, there is a pretty large penalty. I do not know whether Tony wants to come in on this because he helped to design this framework.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** The key question for me in terms of the way in which this plays out is that the customer has to actually understand and appreciate the benefits of using water differently. What we have done in CCWater is to try to introduce a process of improving their knowledge and understanding of what our most effective use of water is domestically. That is bearing some fruit. However, as Richard said, we are very keen to see that Thames Water actually performs at the level now set out in its plan because there are penalties attached for falling short of that.

**Kit Malthouse AM:** I understand that. What I am trying to get at, I guess, is that the target figure is a negotiated one.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Yes, it is.

**Kit Malthouse AM:** It is an arbitrary figure. If you look at any other business, if a percentage of my stock from my warehouse was disappearing, I would have a financial incentive to do something about it. In this situation, what you are saying is, "Actually, our incentive to do this is artificial. It is created by this target that Ofwat set and penalties are attached to it and it, fundamentally, is a negotiated figure".

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, it is a negotiated figure. We put a figure in our draft business plan for consultation. We had feedback from the GLA, from the Environment Agency, from lots of environment groups and from CCWater and they said, "You are not going far enough", and so we amended the plan to go further.

**Kit Malthouse AM:** I understand that, but when you then say that it is now starting to become uneconomic because the curve is flattening off on return --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It becomes uneconomic in the sense that it would be cheaper to develop a new source of water. We do not want to do that --

**Kit Malthouse AM:** No, I understand that, but what therefore I imagine will happen is that in your next round of negotiation with Ofwat you will say, "It is not economic for us to do this leakage anymore and we need to negotiate our target down. Let us put in some other stuff like finding new sources of water". However, presumably all of that extra capital spend on that new source of water versus the leakage attracts the fixed return that you get, does it not?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** No, it does not --

**Kit Malthouse AM:** What I am trying to get at - and sorry if I am slightly elongating it - is that you have more of an incentive to invest on capital infrastructure than you do on leaks.

**Nicky Gavron AM:** Yes.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Not anymore because Ofwat has moved entirely to what it calls 'totex', which is a total expenditure menu. There is now no incentive to prioritise capital schemes at all. Where the cost of leakage comes up against other schemes is in our Water Resources Management Plan, which needs to be approved by the Secretary of State. What we have to show there is that we are meeting the projected needs for water across our catchment for the next 25 years at the lowest overall cost, where cost is environmental, social and economic. That is where the trading-off is done between leakage and other schemes.

However, there are two reasons for replacing water mains. One is because it is the most effective way, initially, of getting leakage down on top of the find-and-fix programme that rolls on every year. Also, it is because, clearly, the pipes are not going to last forever. You have to replace a certain number just to keep up, as well as getting leakage down further, in order to cope with population growth and climate change.

**Kit Malthouse AM:** I understand that, but you said there is an 11% target on leakage that you have put in, which is a negotiated figure. Where did you start and where did Ofwat start to get to 11%?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** I cannot remember the exact figure but we started probably somewhere between 9.5% and 10% or somewhere around there. I do not have the numbers, but I could write to you about it. In fact, it was our revised plan that went in with the higher figure and Ofwat approved that on the basis that we had gone beyond what was economically the starting point because we had such strong support from customers and stakeholders for doing it. Therefore, this was not imposed by Ofwat; it sanctioned what we had negotiated with our stakeholders.

**Kit Malthouse AM:** I guess that is where I have a slight issue, really, because fundamentally Ofwat is taking a view on what is economically sustainable for you rather than saying, "This is an acceptable figure. Whether you make a profit or a loss, we want you to hit this". Obviously, you have a monopoly. There is nothing we can do about that. It is not like the franchise is up every few years and there is somebody who could perform better or have a bigger target and all the rest of it. Therefore, to me, it does not feel like a real negotiation.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The bit that you are missing there is the fact that Ofwat actually sets price limits, also.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Also, there is a very, very strong belief amongst customers that leakage must be reduced and the economics are actually put to one side in their eyes. Psychologically, they believe this is a big issue about water use that has to be tackled, and that is a pressure that is being brought to bear on Thames Water.

**Kit Malthouse AM:** I totally agree with that, but look at these large companies like BT. There is a huge customer view that BT should be doing a lot more on broadband, but it does not. I guess my problem is that it is a slightly artificial situation in which an arbitrary figure has been chosen of 11%. I do not know whether actually you could shoot the light out and do 20%, but it would mean that your return to your shareholders was nil. For me as a customer, I would say, "That is a better deal for me as a customer".

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** If you were to set impossible targets for shareholders, they would then price that risk into the capital that they make available and the borrowing to the company. That ultimately would feed through into the cost of capital that Ofwat sets for the industry and that would feed through into higher bills. There is a circular element to this.

**Kit Malthouse AM:** You said there are price limits.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Ofwat sets the price limits for us.

**Kit Malthouse AM:** It could set the price limits and force you into making less money?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It could, but it also has a duty to enable us to finance our functions as a company. Otherwise, you would not have any private sector investment in the companies. That has to be set at a level the companies can deliver for customers and for shareholders. It is a balance and it is a balance that Ofwat ultimately presides over but in which organisations like CCWater have quite a big say.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** We have pressed very hard on this balance between customer and shareholder interests and we always try to press the point that you are actually making and try to give the customer more of a say in that.

**Kit Malthouse AM:** I guess this is the problem we are always going to have with a monopoly, which is like, “Cough up or the baby gets it”.

**Murad Qureshi AM (Deputy Chair):** Yes, on Farringdon: it was interesting, Richard, yesterday when some of us on the Regeneration Committee went down to Smithfield Market and were told that you have not only the Underground and Thameslink going under it but Crossrail as well. When such investment is being put in place, to what extent is flood risk taken on board and the movements of water in places like Farringdon, given that the City of London will tell us quite clearly that there has always been a surface water flood risk there?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is factored in at a very early stage. We have been working with Crossrail for the best part of a decade on planning which services we would need to move and which ones we would need to reinforce in order to allow them to build Crossrail safely and efficiently. On the building side, it is absolutely fine. The same is going on with the Thames Tideway Tunnel. Where the Thames Tideway Tunnel goes in some places, we have to move some services and that work is all taking place. We have made sure we can do it in good time.

With the work that we are doing now with London Underground, we have what we call a ‘seepage protocol’. If we or they spot any kind of signs of ingress into a Tube tunnel - and this follows a very high-profile burst just before the Olympics that the Committee may remember - we now have a protocol for all that to get investigated. There was a lot of work done at Baker Street recently when we were worried water was coming in and could not find it. We worked with London Underground to do that.

As a result of discussions yesterday at Network Rail’s operations headquarters in Derby, we are going to have a very similar ‘seepage protocol’ - it may not be called that, but it will have the same principle - with Network Rail because, clearly, we need it.

**Murad Qureshi AM (Deputy Chair):** That is one of the things you have learned from this incident at Farringdon, which you have done in London and you are going to do --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes. The good work with London Underground has to be matched by equally good work with Network Rail.

**Murad Qureshi AM (Deputy Chair):** OK. I am glad to hear that. It was interesting that the City of London was also suggesting that it may be that the River Fleet is seeping through in the case of Farringdon, but my knowledge of underground rivers is not terribly extensive.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** No, I think you will find that the River Fleet is actually deeper and so it will not be seeping. What does happen is that there is a pumping station at Vine Street, which is operated by London Underground. That takes water from the tracks at Farringdon and pumps it into our Fleet sewer. It was that system that was blocked, as we discovered fairly late in the day when we sent our own engineers in to investigate. As soon as they unblocked the grille, the system started functioning properly and the water disappeared very quickly. That was another learning point. If it is an operational incident, we will have Thames Water people in the Network Rail control room and they will have operational people in our control room.

**Murad Qureshi AM (Deputy Chair):** There is another one that is potentially coming up that officers of the Westminster Council have told me about on Northumberland Avenue. To what extent are you actually going to limit the impact that is going to have on surface road transport?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That one I do not know about, Murad. I am sorry. I will have to write to you on that. We will let you know.

**Murad Qureshi AM (Deputy Chair):** Can I just come back to leakages? There is one point in our briefing that should not be missed. In Manchester, if we were customers there, we would probably get a better deal out of fewer leakages because United Utilities has outperformed its Ofwat leakage targets. Why can we not expect that from you?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have outperformed our Ofwat leakage targets as well.

**Murad Qureshi AM (Deputy Chair):** Not to the same extent.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Eight years in succession, we have outperformed them. If you go back a few years, I do not think you will find that other companies have achieved the same. It is good when any water company outperforms its targets because they are stretching targets and they are set to be. Since a very unfortunate period in the early 2000s, we have hit eight successive leakage targets and outperformed each year. Whether those targets are stretching enough is something that is a matter for discussion and that is why we have targets again for the next five years, but we have been hitting those targets.

The situation with London is that we have some of the oldest pipes in the country: 20% of the water pipes under London are more than 150 years old and 40% are more than 100 years old. We also have those pipes sitting in corrosive clay, which shrinks and expands depending on the weather. Of course, we have high pressures in those pipes because we have to move water around and into high buildings. We also have 24-hour traffic pounding down on some of those mains, many of which are quite shallow because when they were built nobody thought we would be putting huge lorries across them. That is all being dealt with step by step. That is how London's leakage has come down by a third. There is a long way to go.

**Murad Qureshi AM (Deputy Chair):** Tony, a comparison with other cities like Manchester, presumably that is a valid way of looking at this.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** It is a valid way of looking at it in one sense and certainly Thames Water's record in recent years matches those that actually achieved stretching leakage targets elsewhere. CCWater has been pressing this point with Thames Water for a very long time about reducing leakage. We are very conscious of the history of the infrastructure of London and therefore have to take that into account but, yes, we are always saying, "Do more". We are never satisfied with the leakage targets that are set by the company itself.

**Nicky Gavron AM:** Very quickly on metering, but just before that one leakage point, Richard. When I was first in negotiations about leakage, which is going back to 2003/04 [whilst Deputy Mayor of London], it was 750 million we were leaking a day. Your aim - let me just get this right - is to get down to 500-plus million by 2030 and so in 25 years you are going to reduce by 250 million litres a day?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes. We expect to get to 429 million by 2030 and that is 20% down from where we are now. That is a whole-company figure rather than a London figure, but the majority of that leakage is in London.

**Nicky Gavron AM:** I just want us to be aware of how many millions of litres of water we are wasting.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It was not far short of 1,000 million when we first really started getting a grip on this in 2004. In ten years, it has gone down and it is now less than 600 million at the moment. We have made very significant improvements, but it is really expensive. It costs well over £400 a metre to replace water mains in London. Therefore, it has to be a rolling programme and we have to keep going at it.

**Nicky Gavron AM:** On metering: Alex, the Mayor has very ambitious targets for metering, does he not, or had? Did he not want us to meter most households by 2015?

**Alex Nickson (Policy & Programmes Manager, GLA):** By 2025.

**Nicky Gavron AM:** All households?

**Alex Nickson (Policy & Programmes Manager, GLA):** It was all houses and blocks of flats by 2020 and all individual flats by 2025. This was based upon research from 2008/09. We are not going to get there. We still hold the line that Thames Water should be metering all properties as soon as possible. We think its current progressive metering programme is good. We think the idea of talking to customers about how they can save water - in combination with giving them a meter, looking for leaks, retrofitting and giving them more sight of the benefits of water efficiency to both their water and their energy bills - is entirely the right way to go. We are a little frustrated with how slowly the pilots are progressing and our key urgency would be whether we can get this going further and faster.

**Nicky Gavron AM:** Tony Redmond, do you think we could be going faster?

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** There are two things about metering. One is that we are supportive of the concept and principle of metering in terms of the ability of some customers to reduce their bills and in terms of the potential for improved water resource management. On the other hand, we are very concerned about the transition that some customers have to suffer in terms of having to pay a higher bill as a result of moving to a meter. We are looking to see how that can be managed because there is a danger here that very quickly people will move into a situation where they cannot afford to pay their bill and there is no immediate support beyond the social tariff that is hopefully being brought in shortly.

Therefore, we have mixed views, frankly. We have high support for the concept, but we are concerned about its application and how it might affect individuals who will struggle to pay their bills. One in six is struggling to pay their bills now and this could well exacerbate the situation.

**Nicky Gavron AM:** Is there a particular household type that finds it more difficult? I am in a larger household and, since water metering, our bill has gone down.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** It has something to do with the size of the house, but it is mainly to do with the occupation of the house and the behaviour of the individuals within the house. It goes back to the earlier point about water resource use and how we make sure that behaviour is improved to try to make sure that it is effective. Some people will continue with the particular way of behaving and living in their properties and that leads to higher bills than they might have anticipated. A meter is a bit of a check on their usage, which can cause some difficulties.

**Nicky Gavron AM:** Richard, just to confirm, your target for metering all households is when?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The proportion of metered homes in London is currently 31%. We want to get that to 56% by 2020, to 70% by 2025 and to 75% by 2030. However, by that stage, we will also have 100% of connections metered and so we will get the full water balance that I was talking about. Fitting 900,000 meters sounds easy if you say it fast enough, but actually 900,000 engagements with 900,000 customers has to be done carefully.

We are rolling it out borough by borough because then we can target our 'smarter home' visits. We have people working on our behalf who go around and knock on people's doors. This is a programme that is being developed. We are now getting a 70% take-up rate, which for any sort of door-to-door knocking or canvassing is extraordinarily high. The average that those homeowners are saving is 80 litres per property per day. We do not say, "Can we make an appointment?" We do not phone up. We knock on the door and say, "I have all the kit in the van. I can come and do it now, if you want me to", and 70% of people say yes. The average saving is 80 litres per property per day as a result of these 'smarter home' visits. Over a year, that translates to £60 off the water bill and £50 off the energy bill, because of course they are saving hot water. There is a lot of money to be made for customers in this way. The spur of having a meter coming is what has made these visits so effective in Bexley and Greenwich, which are the two boroughs we have targeted so far. That is a really important part of rolling it out. Also, of course, we spot the potential for customer-side leakage and so there is a lot of water being saved by the metering programme. However, if we rush it and get it wrong, we will not get that.

**Nicky Gavron AM:** It is all about capacity, not whether you are rushing or not.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is capacity, but it is also targeting it in a whole area because then we can do advertising, we can work with local papers, we can work with schools --

**Nicky Gavron AM:** I like that. Can I just run on to another part of what I am supposed to ask? It is about how we promote water-saving devices. In your kitbag of metering equipment, are you also carrying efficient showerheads and so on?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, absolutely.

**Nicky Gavron AM:** You are doing it all at once?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That is what people get in the 'smarter home' visit. They get somebody who has a showerhead and who will come in --

**Nicky Gavron AM:** They will get that? Do you mean you are not doing smarter home visits yet?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We are doing them right now and they are succeeding. We are getting 70% of people saying, "Yes, come in and fit that showerhead in my shower now". It is really working very well.

**Nicky Gavron AM:** I see. That really makes a lot of sense.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We also have an app that I would be happy to demonstrate to you that the people take with them. It asks people to say how many times a week they use the shower and how many times the washing machine goes on etc. Alex [Nickson], you have seen the demonstration, I think. It helps to show people how much they can save.

**Nicky Gavron AM:** How long do these visits take? An hour?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Probably about an hour, I would think, yes. I do not know exactly. This is not --

**Nicky Gavron AM:** How many boroughs a year are you doing?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** At the moment, we have just started. The progressive metering programme started in Bexley and is going to go to Greenwich next. Those are the two boroughs where we have been targeting the smarter home visits because we can say, "Your meter is coming. You might want us to come and fit this kit now because when your meter comes you will save money. Here is how much you can save". That is why we are getting such a high take-up rate.

**Nicky Gavron AM:** Yes. Just to get the hang of it, you are going to complete Bexley and Greenwich this year?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have had some initial teething problems in Bexley, as James [Cleverly AM] knows. We had to stop the work there because it was not going well with the contractors. We are now gearing up to restart that programme. Greenwich will be next and there will be a couple more boroughs coming on after that. The aim is not to try to dot it around piecemeal across London but to do it in areas where we can get proper engagement with groups of customers. We want to get people talking about meters and how they can save money.

**Nicky Gavron AM:** Alex, is the pace good enough?

**Alex Nickson (Policy & Programmes Manager, GLA):** I think we could always go further, faster, but it is important that the pilot proves the proof of concept and that Thames Water has a proper approach that it can roll out effectively and efficiently and we do not end up with horror stories appearing in the press. United Utilities had some problems earlier on that have really set back its approach to managing surface water. Therefore, it is right that Thames Water has a good pilot, a good methodology and positive press that builds support as the programme rolls out.

I am very concerned that we have an increasing gap between water supply and demand. We need to be talking about water security with the same urgency as we talk about energy security. Therefore, I will be keeping my foot on Thames Water's pedal on this front. Richard [Aylard] knows I am a professional pain in the posterior on this point, but rushing it is not going to make it happen any better. I will be minutely watching Thames Water's progress on this one and we are constantly comparing what Thames Water is doing with Southern Water and with other water companies to make sure that we think Londoners are getting the best approach here.

**Nicky Gavron AM:** Can you just remind us how many litres a day a household uses?

**Alex Nickson (Policy & Programmes Manager, GLA):** The average in London is about 163 at the moment. It was 167 a couple of years ago. It has dropped to 163. The national average is 155.

**Nicky Gavron AM:** What do you want to get it down to?

**Alex Nickson (Policy & Programmes Manager, GLA):** I want to get it down to at least 125 litres per person per day.



**Nicky Gavron AM:** Is there not some sustainable level of 80 litres a day or something?

**Alex Nickson (Policy & Programmes Manager, GLA):** No, 80 litres per day is a very water-efficient target we set originally in planning, but you would need to have remarkably water-efficient goods and you would need to have a remarkable level of awareness to get to that figure. You also need to have things like greywater recycling and rainwater harvesting to get there. That should be our target. We are working with Thames Water and the Environment Agency at the moment to apply the Thames Estuary 2100 programme's 'flexible pathways' approach to water resources. We are looking at how we can have a sustainable level of water supply meeting a sustainable level of demand, what the best resource options are to get there and what potential water demand has to also balance that off.

**Nicky Gavron AM:** While we are on water demand, just give us a few other cities because we are very high, are we not, at 160 or whatever litres a day?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Certainly in Germany it would be more like 130, but their water costs two-and-a-half times as much and so there is a greater incentive to save water there. In Rome it is a good deal higher than in London. In Paris it is about the same. In Amsterdam it is considerably lower. It does vary.

**Alex Nickson (Policy & Programmes Manager, GLA):** We are mid-table.

**Nicky Gavron AM:** Before I get on to the supply side, just in terms of demand, you were talking about what you were doing in Bexley and Greenwich.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Rolling out from there, yes.

**Nicky Gavron AM:** Presumably, there is going to be some sort of action plan. Could we ask to see your forward programme for boroughs?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes.

**Nicky Gavron AM:** What are you doing in terms of the general climate of awareness about water security and the point that Alex [Nickson] was making? We are aware of saving energy. We do not seem to be aware of saving water. The only time I can remember really it being hammered home in an effective way was when we had a potential drought a couple of years ago and, then, you did a fantastic job of marketing the fact that we had to save water. Where is all this marketing now?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It needs to be targeted, Nicky. In that instance, we had a real and present danger to London and we could justify spending a lot of money on marketing material. It was the right thing to do. If you do that day in and day out, first of all, its effectiveness starts to wane and you do not have it in your locker as an additional thing that you can do when there is a problem.

The other thing is that whenever we do research with customers - and we do a lot of this - they find it very hard to believe that there is a real problem with water resources for London. I have given interviews about water efficiency standing under an umbrella and it is not a good look - because all anybody is ever going to do is laugh. We have to target it at two groups of people; first of all to homeowners, "You can save money like this", particularly if there is a meter coming. The second group is people who are concerned about the environment. We also did a poster campaign talking about where people's water comes from and trying to

explain that it comes from the environment. It is more difficult in London. People absolutely take water for granted and want to take it for granted. Therefore, in London particularly, we do not have the sort of chalk stream-type dimension that you can use in Berkshire and Wiltshire and we have to target it at the potential saving.

The other thing that we do of course is we work with the Mayor to get this into the strategies. We have worked hard with the Government and we are very pleased to see that Ofwat now has a duty to promote resilience, which is new but came in with the Water Act. All these things will help. We are also raising awareness through things like the [Sir John] Armitage Commission on infrastructure, talking about the need for more water resources. We are pushing hard - and, again, the GLA is on the same path - that we think there should be a national policy statement for water, which would help to actually set down what the policy is. We have one on waste water. It is delivering the Thames Tideway Tunnel. We need something comparable on water.

**Nicky Gavron AM:** Tony Redmond, what is your opinion of the lack of marketing?

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** The first thing to say is that water stress is not something that is experienced universally across the country. There are different situations. In London and the southeast, the water resource management plans that have been constructed by the six water companies in this area have been extremely important in trying to identify the medium to long-term consumption.

The metering situation is one that is correct. The phasing of it, from our perspective, is a good one because it gives customers a better opportunity, slowly but surely, to come to terms with the new way of working. Metering in other companies, taking Southern Water as a case in point, which has all but completed its metering programme, does see evidence of reductions in water usage. Therefore, we are supportive of that.

However, we are also conscious of the fact that this area has to pay a great deal of attention to water resource management in a way other parts of the country do not.

**Nicky Gavron AM:** Is there enough marketing and making people aware?

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** On the awareness point, I would come back to what I said earlier. Leakage is a problem. Leakage can actually leave customers believing that there is not an issue that they need to address in terms of their own behaviours.

**Nicky Gavron AM:** Yes, I should think so.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Until such time as that leakage issue comes off the agenda - and it is not top of the agenda - it will be a continuing problem in convincing people in the way you have suggested yourself. People need to see the progress made to actually reduce leakage to enable them to take the matter seriously.

**Nicky Gavron AM:** On infrastructure, can you talk to us about how you are going to approach this? The population is rising and we are trying to get the consumption down, but you have been talking about needing more water supplies. What is Thames Water's approach to those, Richard?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** For the next ten years, we can get the extra water that we think we need to cope with population growth and climate change by managing demand. That is getting leakage down further, it is fitting meters and getting the leakage benefits

from that as well; it is encouraging water efficiency. We are spending twice as much in this five-year period as we did in the previous five-year period on water efficiency and we expect to get more than twice the benefit. That, again, was part of the feedback we had on our business plan.

**Nicky Gavron AM:** Just give us a figure, then. What is the figure for water efficiency?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We spent £15 million on it over the last five years and it is going to double to £31 million and we are going to get 38 million litres a day. We are going to get 100 million from leakage and so that puts it in proportion. The three things - leakage, water efficiency and metering - all go together and metering sits in the middle because metering is giving a benefit of itself because people have a financial incentive to use less. It is also giving information about leakage and it is giving a spur for people to use less on the water efficiency side. The three things go together.

Beyond about 2025, we are going to need a new source of water. We will have gained as much as we sensibly can out of leakage reduction, water efficiency and metering by then. There will be a bit more to get, but we are also going to need something big. There are three main options and we are spending the current five-year planning period examining those three options in great detail.

One is to reuse waste water by taking water that comes out of a sewage works, treating it to a much higher than usual standard, putting it back in the river and re-abstracting it for water treatment. The second one is to bring water from other parts of the country, potentially using the canal network for part of the journey. The third one is to build a big new reservoir southwest of Abingdon, take water out of the Thames in the winter when it otherwise just flows away to the sea, store it and put it back in the Thames in the summer so that it flows down to London and we can abstract it at Kew and Hampton as we do anyway. It would be a river-regulating reservoir.

Those three options all have different costs, different benefits, different concerns and different risks. We are spending this current period, as I said, working with our Water Resources Forum, which again the GLA is represented on with the Environment Agency and CCWater, looking at which of those is going to be the best option for London and the southeast.

**Nicky Gavron AM:** How can we increase, Alex, the water in our aquifers? Apparently, aquifers are 20% of our water.

**Alex Nickson (Policy & Programmes Manager, GLA):** Yes, 20% of our water comes from groundwater supplies. The problem with an aquifer is that if you inject water in it, it is inclined to run away. You can increase the supply into the aquifer only by finding a confined aquifer, somewhere where the water does not run away. Thames Water already has one of those and is investigating a second one. It is part of the plan. The current one you operate one in every seven years. For seven years, it gets topped up and then, when we have a drought, they abstract from it. As I understand it, it is a location-specific opportunity that cannot be used just for the whole of the London aquifer.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is under north London, Enfield and surrounding areas, and the aquifer there is dished that you can actually collect water there. What happens is that every winter when we have filled the Lea Valley reservoirs, if we still have spare water - and we usually will have - we treat it and we inject it underground to top up this aquifer. Every year, it gets a bit of a recharge and hopefully, by the time you get to six, eight and ten years' time when you next have a drought, you have an additional store of water there that can give between 100 million and 200 million litres

a day for London. That plus the desalination plant are our two reserve items to be used only when it is absolutely necessary.

We have also had problems with water resources in southeast London particularly because we are taking water out of the chalk streams, the Darent and the Cray and others. That is an area that is outside the London ring main and so we cannot easily get water there from the north London reservoirs. We are developing aquifer storage and recovery at a place called Horton Kirby. The aim is to try to do the same thing there. However, it is a little bit experimental because until you start putting the water down there, you do not know whether it is going to stay there or run away. You can do your geological investigations and make the best assessments and we think it will work, but that is now going ahead. Potentially, if we could find more places to do it we would, but in most places you put it in and the water quickly becomes five miles wide and one inch deep with nothing you can tap into subsequently.

**Nicky Gavron AM:** Why do people say that forests are very good? Why do they want to plant trees in order to help the water situation?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Planting trees, basically, keeps the water cycle going. I am sorry for getting slightly off-topic. It helps the water cycle. Just take a look at what is happening in São Paulo where deforestation of the Amazon has caused an absolutely devastating drought.

**Nicky Gavron AM:** It is just that there are people now saying that if we want to help London's water problem, we should actually plant many, many more trees on the Green Belt. Part of my question was to ask for sustainable sources of water supply and whether you think that would help.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It will not do any harm, but I doubt we would be able to plant enough trees to make a difference for a city the size of London. That is my initial reaction. I do not know if Alex [Nickson] wants to add to that.

**Jenny Jones AM:** It might help with flooding.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It might help with other things, yes.

**Jenny Jones AM:** You mentioned three options: cleaning water, bringing it in from elsewhere by canal --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** And then storing it.

**Jenny Jones AM:** -- and a new source. I am just wondering. Presumably, you might have to do all three.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It would probably make more sense to do one on a fairly large scale than to do all three. Each of them would be pretty expensive in their own right to do at a sensible scale. There could be a combination, but we would need to work out which one offers the most.

The point about the reuse of water is that to do it safely, the international advice we have taken - and we have looked at this all around the world - is that we would need to use membrane technology and reverse osmosis. That is the same as we use in the desalination plant and it is very high energy. There is quite a high operating cost in running it. There are also concerns from a small minority of people who just do not like the idea of

recycling water in that way. There is also a problem that if you start to get filters blocked and things, the whole works could go down and you would be in terrible trouble.

The disadvantages for water transfer are that you have to be absolutely certain that there is water at the other end of the pipe when you need it. It is no good having it there most years or most of the time. You only want it in an extreme situation. If London is really, really short of water, what are the chances that at the other end of the pipe we have a supplying area that has enough water for us? Then there are the costs of pumping it across the country. We could do some via canal and some via tunnels. It is really expensive and we are only going to use it in a drought, but you would have to keep what is called a 'sweetening flow' going through it all the time to stop the water quality deteriorating and that is quite expensive. The other thing is that if you are taking water out of the bottom of the River Severn, it has accumulated quite a load of silt and agricultural chemicals and all the rest of it by the time it gets there and you are then going to pump it into the upper reaches of the Thames, which has some problems for biodiversity and water quality issues.

For the reservoir, you are taking a large area of farmland out of action and there are obviously concerns from people who live in the villages around it. There is no simple answer here. If there was, we would be doing it. We are looking very, very carefully at all aspects of all three options.

**Jenny Jones AM:** If I could just go back very briefly to the issue of fracking, when you are talking about diminishing supply, potentially, and increasing population, fracking can take huge amounts of water. Is that going into your calculations?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We are not factoring in any fracking at the moment because no fracking has been approved. However, if at any stage it looked as though it was going to be, it would then need to be factored into our water resource planning. We would need to get the best possible estimates of how much water was needed and when and where. The Environment Agency would be taking an interest at the same time. The water resource plan needs to cover everything.

One of the concerns at the moment is whether we have the population growth numbers right. I was being challenged on this the other day. Alex [Nickson], your figures show 3.1 million extra people by 2045 and ours show 2.3 million. We need to go back and revisit them and make sure we have the right numbers in them because this is a moving target. That is why we have an annual update to the plans.

**Stephen Knight AM (Chair):** Richard, could I just ask if you have identified sites for a potential new reservoir if you were to go down that route?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes. There is a site that has been around since the 1990s, really. We have done a very exhaustive look across our area. If you were going to build a reservoir, clearly, you have to avoid centres of population. You have to have the right geology. It needs to be clay. It needs to be close to the river so that you can take water out and put it back in again. It needs to be close to a railway line so that you can bring in the gravel you need to build the embankment. When we did that process, the only large site was this one between the villages of Steventon, Marcham, East Hanney and Drayton in Oxfordshire.

**Len Duvall AM:** In the five-year plan, Richard, can you just explain, alongside the engineering issues you are looking at, the cost of it? Who pays for this and what is the early thinking around that?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Ultimately, the cost of new water resource infrastructure, if it is approved in our plan, will then feed through into customer

bills. We will have to do it efficiently and there will be challenges on us to get the cost down. However, what we are doing over this period is looking at those three options from certainly the economic costs of both building it and running it for the long term. Secondly, there are the environmental costs, the water quality issues, the disruption to communities while we are building things, the use of the roads and rail and so on, plus of course the social cost.

All of those things are being put together because ultimately our water resource plan has to go to the Secretary of State at the end of 2018 and there may well be an inquiry. We had one in 2009. We were challenged in great detail. Therefore, we have to have a really very thorough look at all the consequences of what we are proposing.

We do think that a national policy statement for water would help because not only would it set out how much water was required and where, but it would also subsequently help to fast-track the planning system so that it would not have to go through a [Heathrow] Terminal 5-type of process. That is why we are pushing for a national policy statement on water.

**Len Duvall AM:** In relation to the question that Jenny Jones raised as well, as that debate about fracking nationally goes on, the Government is almost certainly going to have the final say. Coming back in terms of the players, I want to ask a question of the GLA in a minute. You will be working closely with the Environment Agency as well but, on the investment side, Tony, would that come into your remit and Ofwat's remit about charging and those issues around charging?

It does seem to me that you come to a point with infrastructure costs where I am not sure if it is right to load it back on to customers or whether there is a national subsidy put in place around that. I do not think politicians can have it both ways. There comes a point where you are driving down costs, you are using water metering, you are telling people how to use it sensibly and we have things being loaded on to the bills in terms of the dual issue about Ofwat. Ofwat has to look out for the interests of me, the user, but also it has to look out for the needs of the monopoly provider in terms of making a profit. What gives? Where does that in the next --

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Ultimately, as you are suggesting, it is a balance. If you take fracking, for instance, we are obviously concerned at CCWater as to the potential impact not just on the water resource use but on its impact in terms of the way in which that will affect customers with potential charges that might arise from the additional costs that Thames Water might have to incur.

However, the balance is a big issue because many of the points that are being raised about water resource management and the way in which the water industry is managing that actually becomes a national issue rather than a very local or even regional issue, but there is no evidence at all that any of those costs are going to be borne by central Government. They will continue to be borne by the industry. That brings back into play this tension between the customer and the shareholder interest. We, of course, not surprisingly, are always pressing Thames Water to think about that balance so that the customer does not unduly bear additional burdens of the sort you have described.

**Len Duvall AM:** You are the right professionals to do it, but only in Britain would we do it this way in the sense of working out what our needs are for the future.

Can I just go back? There is a very important point that we first touched on in terms of the Water Strategy. Does it not beg the question of whether our Strategy is a bit out of date or is it a rolling Strategy? When do you revisit it?

Secondly, what was the last bit of lobbying the Mayor has done to Thames Water? I think I can answer for the Government because it would have been the Infrastructure Plan when he would have lobbied in a roundabout way about water use, I presume. I did not quite see it in the document, but when has he ever lobbied on behalf of the consumer and used his office to do that? How would I see that as an ordinary Londoner in terms of the Mayor's lobbying role both to the industry or the consumer bodies? You would have drafted it for him if he had done it. He would not have done it without your knowledge. How does that work?

**Alex Nickson (Policy & Programmes Manager, GLA):** There are three questions there. On a review of the Strategy: we are certainly looking at updating the Strategy. We are assuming that all the environmental strategies are currently rolled into one environmental strategy. We are looking at whether we will be updating all of them or updating them individually as chapters. We are certainly keeping that under review. The Strategy was published in 2011. There have been significant changes both to Government legislation and also to regulatory legislation around that. It is certainly feeling like we are getting towards a time where it would be valuable to do that. Whether that is for this Mayor to do in the last year of his administration or something that would be better held back for another Mayor is something we are assessing.

In terms of lobbying: lobbying can take form in many different shapes. I have drafted many letters that have gone to the Mayor's Office and that have gone to Richard [Aylard] on a whole range of subjects. Yes, we have done that. We are members of the All Party Parliamentary Group on Water and so we lobby through that. I also chair something called the London Water Group, which brings together all the water companies in London and we lobby all the water companies on what they are doing. Also, Thames Water sit on something we have constructed called the Water Advisory Group, which is advising on the infrastructure plan, and so we are lobbying through that. There are numerous ways we are henpecking Richard [Aylard] and other water company providers because Thames Water is not the only water company in London. We are pushing them through that.

I want to just come back on one other point. You asked a question about how all this extra infrastructure is going to be paid for and whether it always lands at the doorstep of the customer. You will be familiar with the Infrastructure Plan that was published last year. That identified that we need about £1.3 trillion worth of new investment up to 2050 and that there was a gap of at least £135 billion of investment that we could not make up through current funding arrangements. Part of the job of the Infrastructure Delivery Board - and Thames Water is represented on that - is to identify innovative ways by which we can start to fund this. Some of it we hope we can close the gap through efficiencies, but we have to find a new funding formula because the current funding formula is not going to deliver the scale of infrastructure upgrades and the new infrastructure we need to support that population.

**Kit Malthouse AM:** About that, on your lobbying: given what we have talked about in terms of the structure of the industry, I do not quite understand what the point of lobbying the companies themselves is. If they are rational operators they will operate within precisely the margins that Ofwat decrees, whether that is capital investment, targets and all the rest of it. There is a bit of incentive on the upside and some penalties on the downside and so they will come in within that corridor. Given that, presumably the only conversation that is really worth having is with Ofwat?

**Alex Nickson (Policy & Programmes Manager, GLA):** I disagree. Certainly we have plenty of discussions with Ofwat, and we met with Cathryn Ross, the new Chief Executive of Ofwat, at the end of last year.

**Kit Malthouse AM:** Are they discussions to say the targets are not high enough, the return is too high, the prices are too high? Is it a consumer --

**Alex Nickson (Policy & Programmes Manager, GLA):** Pretty much.

**Kit Malthouse AM:** -- or is it the standard British, rather civilised, "How can we scalp the consumer to the extent they do not really mind but give the shareholders a --" Is it part of that?

**Alex Nickson (Policy & Programmes Manager, GLA):** No, I would suggest to you it was almost like you had read the brief in the points that you rolled off there. It was exactly those issues. How is Ofwat justifying that Thames Water was making enough investment? How can it justify bill inflation or the bills against shareholder return? Why are we not pushing it harder in order to build in resilience so that we have the systems against future droughts? All these sorts of issues were part of the Ofwat meeting. Also, the purpose of our strategies and our policies is for Thames Water to use that to then go to Ofwat and say, "Look, our stakeholders are demanding we go further and faster and this is their independent evidence base that is pushing us to do that". We play the game both ways. We also lobby the Departments for Environment, Food and Rural Affairs and Communities and Local Government around these issues.

**Len Duvall AM:** One very last question. It is to Richard [Aylard]. In terms of your five-year plan, in terms of a third eye and independent assessment and rigour about what you are proposing, what does Thames Water do internally about that? What are the arrangements on a project like this to make sure we are taking the best possible decision? You are the only provider of that. What extra steps do you take to make sure that is the best option for all interests, not just maybe your interests?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** First of all, the outcomes are set in the business plan. It is our plan. Ofwat decides what funding is available and then we have to implement it. That then gets broken down into a whole range of schemes. We have two alliances set up, one of which is an infrastructure alliance with some of the biggest names in contracting companies and they have an incentive in getting costs down. If they do benefit, we benefit and so do customers. We also have a delivery alliance, which is looking at dealing with the day-to-day problems around pipes, leakage, sewers and things. They are incentivised too, so there are plenty of incentives there.

Also, when we go for something like the Water Resource Management Plan, which is a five-year process, we have a number of contractors involved, experts advising on the different bits of the plan to make sure we have something that will be robust if we go to a public inquiry. We also have a continual challenge, quite rightly, from the CCWater. Tony [Redmond] and I meet very regularly. We also have a Customer Challenge Group, which was set up during this price review process for the first time. They challenged us on what was in the plan and the extent to which we had consulted customers properly. That was a really very helpful challenge. The plan, as Alex [Nickson] knows, did change as a result of those challenges. That group will stay in existence and will continue to meet with us and put questions to us and to the Board. Tony [Redmond] comes to dinner with the Board on a regular basis. There are lots of challenges in the system. We are also very transparent and so, if anything does go wrong, people see it pretty quickly.

**Stephen Knight AM (Chair):** Thank you very much. I am going to move us on now because we have to move on to the next area, which is sewage and water quality. James, you are going to lead off?

**James Cleverly AM:** I will avoid the obvious jokes. What is Thames Water doing at the moment to firstly reduce or avoid pollution into the Thames and the other rivers in your patch?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** There are three parts to cleaning up the tidal Thames. The first thing is we are in the process of completing major overhauls to all of the five sewage works that discharge into Thames: that is Mogden, Beckton, Crossness, Long Reach and Riverside. They are all big works and they are all having either higher treatment standards or more capacity or both. That is already providing benefits in the river.



The second thing is we are building at a cost of £635 million the Lee Tunnel, which runs from Abbey Mills to Beckton Sewage Works. It is a four-mile-long tunnel. It means that the Abbey Mills combined sewer overflow (CSO) into the Lee, which is much the biggest on the London system, will no longer happen after the end of this year. It will go into the tunnel instead and it will be pumped out at Beckton for treatment.

That is two major things. The third part of this is the Thames Tideway Tunnel, which will deal with the remaining 18 million tons of sewage in a typical year which goes into the river further up. Abbey Mills is a long way downstream, but we have discharges all the way from Acton through Hammersmith, London downwards, which will only be picked up when we complete the Thames Tideway Tunnel. That now has development consent. We expect to get on to some of the sites to start preparatory work this autumn. Serious construction of the tunnel will start in 2016. That should be complete in around 2023 and will pick up all of the remaining CSOs. Those are the main things that we are doing to clean up the Thames.

I would not want to miss the other thing, which is misconnections. There are a lot of properties in London where either cowboy builders or DIY plumbers have connected up things that should go into the foul sewer into a surface water sewer. You have what we call 'misconnections'. We have kitchens, bathrooms and toilets connected up into a surface water drain and leading into a natural river or stream. We estimate there are about 60,000 properties in London misconnected in this way. We work with the Environment Agency on a rolling programme targeting these. We recently found a 24-bedroom hotel that was entirely misconnected into surface water drains. That is helping to clear up a lot of the smaller rivers and drains across London.

Those two things together, plus the higher treatment standards at the sewage works, are making a big difference to the river already.

**James Cleverly AM:** You might not have these figures at your fingertips - if not, perhaps you could provide them to the Committee afterwards - but roughly how much untreated wastewater is going into the Thames annually at the moment? Once these things are fully rolled out, where will you get to?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** At the moment in a typical year - and bear in mind this figure could obviously go up and down depending on the rainfall - it is 39 million tonnes at the moment. The sewage works improvements, which are just about finished, and the Lee Tunnel will bring that down to 18 million tonnes a year. Once the Thames Tideway Tunnel is finished, in a typical year it will be 2 million tonnes. That will be 2 million tonnes of very dilute sewage because you will have captured all of the most polluting 'first flush' in the tunnel. The Environment Agency are confident the river can cope with that amount. There is enough natural dilution and London will then be having the same sorts of standards of dissolved oxygen in the river as other major cities around the world.

**James Cleverly AM:** The halving of the problem from 36 million tonnes to 18 million tonnes, when do you envisage --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The halving of the problem will be as soon as the Lee Tunnel is finished and it should be operational at the end of this year, probably in December 2015. That will stop the discharges at Abbey Mills. In volume terms, yes, you have it down from 39 million tonnes to 18 million tonnes. That is protecting the downstream end. Actually, because of the way that flows in the river go up and down on the tide, a discharge at Hammersmith will take a month to reach the sea in the winter and three months in the summer because it oscillates up and down on the tide. The discharges upstream therefore cause the most damage. You will get the volume down by half, but the biggest impact will not come until the Thames Tideway Tunnel is complete in 2023.

**James Cleverly AM:** Just before I move on to the next bit of questioning, at the moment the regularity of the system topping over is quite high. In my understanding, it happens quite a lot. How will this reduction come about? Is it going to be a similar number of occurrences but with less severity or is it going to be peak impact on a few numbers of occasions?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** At the moment in a typical year, we get 50 to 60 times when one or more of the CSOs discharge. In a really big storm they could all be discharging. If you have a localised thunderstorm it might be just one. That is 50 to 60 times there is something going into the river. Once the Thames Tideway Tunnel is complete we should only get, again in a typical year, around four discharges a year. They will be quite big because it will be after you have had one big storm followed by another big storm. You will have the tunnel full and you will be pumping it out, but there will be still some that goes into the river.

The important point, which is a point I made earlier, is that you have captured all of what we call the 'first flush'. If you think about it, when you have a fairly dry period you have low flows in the sewers and lots of nasty stuff settles out in the sewers. Then you get a big downpour and the whole lot gets punched into the river in one go. That is when you get the big fish kills. Now what will happen is that all of that will go in the tunnel. The system has had a really good clean through and it is being pumped out. When the next rainstorm comes, everything has been cleaned. If you do spill into the river, it is causing much less damage than the first bit. Does that make sense?

**James Cleverly AM:** Can you talk to us about Mogden and the impacts there?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Mogden is the furthest upstream of the five tideway sewage works and so clearly it is one we are very concerned about. What we have done there is we have actually increased treatment capacity by 50%. What happens in a sewage works is a biological process. You can only push so much sewage through at any one moment. You cannot shut the door: if it is coming in, it has to go somewhere. When the works is at full capacity, any additional flow gets diverted into storm tanks, the aim being that when the flows go down you can pump back from the storm tanks into the works when it has capacity. The problem comes if the works are full, the storm tanks are full and it is still coming in the door. At that point, you spill from the far end of the storm tanks into the river. Fifty percent extra capacity means the storm tanks will be used less and they will get full less. That is already proving, as far as the Environment Agency is concerned, a considerable benefit to the upper river.

**Stephen Knight AM (Chair):** We have had, though, since the work was complete in April 2013, still 47 occasions on which the storm tanks have been emptied directly into the Thames. That seems like quite a lot, given that this was supposed to solve the problem.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** What it was designed to do was to solve the problem in the river. The measurements in the river have been absolutely fine. There have been a number of spills. Do not forget we had the wettest winter in 250 years last winter and we have had very high groundwater levels ever since. That means there is some infiltration into the system. It means you have high incoming flows to Mogden. Therefore, we have had more than we would expect in a typical year. As I was saying before, we have captured the 'first flush' on a much bigger scale than we did before and what is going in the river from the storm tanks does not appear, from the Environment Agency's records, to be causing any problems. We are meeting our standards of treating the additional volume of income sewage.

**Stephen Knight AM (Chair):** Were you anticipating having that many discharges even after the work was completed?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** No, but it is very difficult to model exactly what you are going to get in any year. We did work back through the historical records for our modelling. The works were sized to meet the standard the Environment Agency set for incoming flows, which is 1,064 million litres per day, and the works is achieving that. That is the standard against which we are measured. The other thing is they are looking at what is actually happening in the river and what the outcome is in terms of dissolved oxygen, suspended solids and everything else. The results of that, I am led to believe, are absolutely fine. This has not been a typical year by any means.

**James Cleverly AM:** There is a particular complaint you do get in Mogden from the residents of Isleworth - and I think Twickenham as well - about the stink. That does not seem to have come down appreciably if you see the letters we get here or that I certainly get. Should you not have done a bit more on that front for the residents?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** What we set out to do was to make sure that in extending the works we did not create any additional odour. The extension was to be 'odour-neutral'. We took measurements of what the odour was before we started. Measurements have been taken now we have finished and it has not gone up. We have hit that standard. Any odour from the works is already going to be a concern to us.

What we are doing is we are now trying to work out what more we can do. We have extra staff working on the site. We have some new bits of kit going in. We have cleaned out all the digesters and complaint levels have gone down, but clearly even one complaint is one too many. It is down to constant vigilance by the site staff now to just get that down as far as we possibly can.

**James Cleverly AM:** I will just have to report that back to the residents of Isleworth.

If we could just have an update on the projected timelines for the Tunnel, please?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We hope to be able to start work on some of the sites later this year. That would be things like erecting hoardings, putting in power and clearing away anything that needs clearing away so that we can make a full start on the programme in 2016. Towards the end of 2016 is when the first of the boring would start. That programme would be finished in 2023. After that, the tunnel would be commissioned. It is all on track at the moment to hit those timescales.

**James Cleverly AM:** You say it is all on track at the moment. What do you identify as the kinds of things that could knock it off track?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** From a project perspective, we are doing two tendering processes: one for the people who will finance and own the new company that is being set up to run the company; and also one for the contractors. Assuming those processes go well, we will have all that we need to get on and build the tunnel, given that we have now development consent from the Government. It would have to be something quite unforeseen to slow the process now.

**James Cleverly AM:** Very unforeseen, as opposed to slightly unforeseen?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes.

**James Cleverly AM:** Obviously the tunnel has been, and is still, quite contentious. There has been a fair bit of opposition to its construction. Are there technologies on the horizon that could make this potentially obsolete? Obviously, if we are putting this amount of investment and this amount of disruption in the face of significant opposition over such a long timescale, if we get to the end of it and we are presented with what could have been a quicker, cheaper, simpler and less contentious option, it is going to be quite egg on the face for a lot of people, is it not?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** There has been a lot of work done looking at alternatives. There are people who think that you could do the whole thing with an expansion of sustainable drainage. But there is nobody yet who has been down in the Lee Tunnel and seen the immense size of it, knowing that with the Thames Tunnel attached it is going to be 20 miles long and that it will be full in a single storm, who has come back saying, "You could park all this on the surface in sustainable drainage somewhere". We need both. We need the tunnel to deal with the existing problem of a very heavily built-up city with a combined system that cannot economically be separated now. We also need lots and lots of sustainable drainage, which is why we are working with Drain London and working with the Sustainable Drainage Action Plan and why we have things in our business plan to work out what we can do on sustainable drainage. It is going to take decades. Even with the best will in the world, nobody can see how you can do that quickly across London.

The other thing too is that when you have the tunnel in place, you have a linear connection. Wherever you have a very heavy rainfall, you have the whole capacity of the tunnel available to store it. If you are going to go with local solutions like sustainable drainage, you have to have enough in each of the areas that might be hit by a sudden storm to capture all that load.

The other thing is that the tunnel fills up after a storm and then you pump it out at Beckton within 48 hours. If you have a second storm, the tunnel is empty 48 hours later. If you have collected everything that has formed in the first storm in sustainable drainage, that is all still full and so when the second storm arrives you have got nothing to store it in. The tunnel is actually a better solution, but it is not the only answer. The rate that London is growing and the rate of impermeable surfaces that are being created - it is not just the big developments, it is the little bits of infill here, the little bit of tarmac there, the few flagstones - all of that is ultimately adding to the problem of a combined system which has to take both the rainfall and the sewage.

**James Cleverly AM:** [Joseph] Bazalgette [19th century British civil engineer] famously over-specified the system that he put in. I am not sure whether this is quite the case. Did he not lie to the commissioners about --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** I am not aware that he did. What I do know is that when he was building the tunnel, London's population was between 2 million and 2.5 million. He said, "It is not going to get to more than 4 million and so let us build it for 4 million", or words to that effect and so it was built. The other --

**James Cleverly AM:** How much futureproofing are we getting into the Tideway Tunnel?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The Thames Tideway Tunnel is good for at least 120 years. It will be a very resilient piece of infrastructure, assuming that nobody decides to separate out London's existing system. Even in the 1860s [Joseph] Bazalgette looked at whether he could separate the sewers from the rainwater. He decided he could not. He is known as the architect of the London sewer system. But if you look at his own drawings, and on his own memorial it says, "Architect of London's main drainage system". He was setting out with his system to do both and that is what we have inherited. We have to work around that with SuDS.

**Nicky Gavron AM:** With all this sewage there what is the scope for joined-up thinking and anaerobic digestion? It is a fantastic source.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** What comes out of the tunnel will be fairly dilute because bear in mind it has a lot of rainwater in it. It is all treated at Beckton and all of the sewage at Beckton is either incinerated or goes through anaerobic digestion. We are also putting a new front end on the anaerobic digestion called thermal hydrolysis. That means you get more energy and less solid material, which is good because it means you have less to take offsite and more energy generated onsite. Our current plans are to generate a lot more renewable energy than we are at the moment through anaerobic digestion and thermal hydrolysis.

**Nicky Gavron AM:** What are you going to do with the renewable energy?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It will be used to power our own sites and if there is any surplus it gets exported to the grid. We do a lot of pumping which needs energy, but we think we can get up to a third of our energy needs met from our own sources. We are at about 16% now and we think we can double that. Part of the programme over the next five years is to do a lot more with this thermal hydrolysis so that we get not just anaerobic digestion but really good quality.

**Stephen Knight AM (Chair):** Can we move on now to the general issue of sewage and homes?

**Murad Qureshi AM (Deputy Chair):** I cannot think of a worse type of flooding than sewage flooding. We have a bit of that in west London, unfortunately. Richard, how will you reduce the risk of flooding in homes by 10% as Ofwat has suggested with its overall target?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The 10% reduction relates to what we call 'sewer flooding - other causes'. That is principally blocked sewers and collapsed sewers. What we are doing there starts with a lot more CCTV. When we have the CCTV results, we then do an enhanced cleaning programme on a regular basis, plus there is a lot more customer education going on to explain to people what they should and should not put down the sewer. We do not want fat, we do not want wet wipes; the things that actually create blockages. We have done a really detailed analysis and we know which boroughs have the worst records for sewer blockages and we have had some very hard-hitting advertising campaigns running on that.

**Murad Qureshi AM (Deputy Chair):** I do know in Maida Vale you have a bigger investment programme.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** A big project more or less completed there.

**Murad Qureshi AM (Deputy Chair):** We have a similar problem in the borough of Kensington and Chelsea and Hammersmith and Fulham of 1,800 properties. Is the approach going to be different from what you are doing in Maida Vale?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is a bigger and more widespread problem. One of London's lost rivers, known as Counters Creek, starts up in Brent comes down through west London and goes into the river at Chelsea. When that floods, it hits the basements particularly. In 2006 and 2007 there was very bad flooding there. We have records of at least 1,800 properties that flooded but we know there are around 5,000 at risk. That is a multifaceted programme which involves first of all putting what we call 'flips', which are little individual pumping stations for the worst-threatened

houses. It also has the SuDS scheme. It has a lot of local schemes where we are taking the bottlenecks out of the system to make the water flow faster and it has an additional bit of substantial sewer, again, to take bottlenecks out of the system. That is a big project. We have had a lot of help from Kensington and Chelsea and Hammersmith and Fulham over the last six or seven years to develop that. It is in the business plan and is being rolled out. The consultation for phase one closes at the weekend and we plan to get started next year.

**Murad Qureshi AM (Deputy Chair):** Just a small one. The developer there is St George's. Has it incorporated what you are suggesting with the Creek?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** I am not sure which St George's development we are talking about.

**Murad Qureshi AM (Deputy Chair):** It is in Imperial Wharf, is it not, a further phase --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That I do not know. Certainly, as Alex was saying, the new applications coming through are normally pretty good about sustainable drainage and if not they get bounced back by the GLA if not by us.

**Alex Nickson (Policy & Programmes Manager, GLA):** The planning permission for Imperial Wharf dates back several years. I could not tell you off the top of my head what the provision is. I am happy to look into it if that would help. I would expect it to have some provision for sustainable drainage. Whether it is quite up there with the 50% reductions I mentioned earlier, it might not be quite as good as that. That is my gut feeling.

**Murad Qureshi AM (Deputy Chair):** My final comment: it sounds like another underground river of London wanting to seep out, for understandable reasons.

**Stephen Knight AM (Chair):** Thank you. Can we move on now to our final area, which is around pricing, in particular the price impact of the tunnel itself and the investment in that? Len is going to lead off here.

**Len Duvall AM:** Firstly my questions will be to Richard and then I will ask Tony [Redmond] to comment. By how much do you expect water bills to rise as a result of Thames Tunnel? What is the estimation there?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** The bills that are going out now, which are for the forthcoming year, have £7 in them that relate to the work that is being done to get this far on the tunnel. That will go up in stages and by 2020 it is expected to be around £34 at the end of this five year period. Beyond that five-year period there will be some further increase but we do not know exactly how much yet. The reason we do not know is because we have not yet appointed the company that is going to own and build the tunnel. That is being competed on cost of capital and so that will have a bearing on costs. Nor have we signed the construction contracts. Again, the amount we can sign those for, and the amount of leverage we can get to get the price down, will also affect the cost. What I would say is that we have Ofwat and Infrastructure UK, on behalf of the Treasury, looking at all of the numbers and challenging them very hard and so the cost will not be any higher than it absolutely needs to be to get the project done efficiently.

**Len Duvall AM:** The issues of driving down the cost - and you alluded to this earlier on - is about the contract management and the nature and function of the new company that is going to take it over. All those are in hand; you are transparent and CCWater will see that, Ofwat will see that, and others can challenge if they want to?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, by competing for both the financing and the construction we think we are going to get the best price for both.

**Len Duvall AM:** How would you support customers who struggle to pay, though?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** We have a whole range of ways of supporting our customers. One of things that it says on our billing leaflet that is going out now is, "Look, if you have problems paying this bill, please give us a chance to help you. Please just pick up the phone and ring us". We have a whole range of things. We have a social tariff in place now. We have a customer assistance fund. We have a charitable trust. If people really cannot pay there are an awful lot of things we can do to help them. If they will not pay we have no sympathy, but we do actually just need them to pick up the phone and give us a chance to help.

**Len Duvall AM:** The new energy finance research from Bloomberg suggested that your dividend policy restricts you from financing options around the Thames Tunnel. Is that why the new organisational vehicle is important? Do you plan to review this or change this in order to reduce the burden on customers? Have you explored that issue or is this a load of bunkum?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It has been explored very carefully by us, Ofwat, Defra and Infrastructure UK. The conclusion was that the right answer was to take up the option in the Flood and Water Management Act, which was for projects that were well outside the normal expected scale for a water company to be put out to what is called an Infrastructure Provider. A separate company is appointed. This will be regulated by Ofwat. It will have its own shareholders. They will raise the money and they will pay the contractors.

If you look at Thames Water, we are an £11 billion company, roughly, and we have a large number of projects that we deliver. If something goes wrong on one of those projects and it costs more than we expect, you can potentially offset that against doing something elsewhere a bit cheaper. That is what makes the water industry a low-risk investment. If you suddenly graft onto that a single £4 billion project, which is a tunnelling project under London that has a higher risk profile, you change the risk profile for the whole company. It was a decision by the Government to invoke this Infrastructure Provider option and have a separate company, which will be tendered for and which would then work with the contractors to get the best deal.

The final twist to this is that the Government has put in a support package, which would be invoked only in the most extreme circumstances. What that does is it means that the bidders can make a realistic bid because they do not have to price in extremely unlikely but extremely expensive risks. The taxpayer ultimately, in effect, becomes the insurer of absolute last resort, which again helps to keep the prices down.

**Len Duvall AM:** We would say the Tideway Tunnel fits into the category that the Government said and everyone else said. Would a reservoir fit into that category?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Potentially, yes, it could.

**Len Duvall AM:** Why?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Again, because a reservoir would be £1 billion-plus for a company that more typically does projects in the low hundreds of millions.

**Len Duvall AM:** I am a simple soul, but do companies put aside some money for some of these big projects in terms of their business issues and stuff like that? The Tideway Tunnel let us set to one side, but just going back in terms of you designating which bits of the business -- we come and have a special arrangement where the customer picks up the bill. The supply of water, is that not your primary function?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is but we do not do the designating. It is either Ofwat or the Government that designates a project for delivery by an Infrastructure Provider. It is perfectly possible that a reservoir could be done through the conventional system. You did ask, "Was it possible?" The answer is, yes, it is possible. The measures are there.

**Len Duvall AM:** Let us say you are driving down on the focus. In the setting-up of the new infrastructure company that develops it, Thames Water's role is quite crucial because even though it is arm's length from Thames Water it affects the bills. How will you show me, as a customer, that you have made a saving in terms of this process? How will it be presented to me? Will it be separated out in a bill or will I have to go to your annual accounts? Where will that be passed on? How do I know that is a saving or does it get lost in the mishmash of everything else?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It will not be lost. It will be in the fact that there has been competitive tendering both for the financing and for the contracting. We will have the lowest possible price for the company that owns the tunnel and for actually building the tunnel. Then ultimately it is Thames Water that operates it, but then you are talking about 15 years' time.

**Len Duvall AM:** My £7: in 2020, when I look at my bill, is it really going to be £34 or could it be cheaper?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It could be cheaper. We simply do not know at the moment because we do not have those numbers in.

**Len Duvall AM:** That is the maximum it could be?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is not the maximum. It is the best estimate on the information available at the moment.

**Len Duvall AM:** The best estimate, all right.

**Stephen Knight AM (Chair):** It might be £40.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Sorry?

**Stephen Knight AM (Chair):** It might be higher?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It might be higher; it might be lower. It is the best possible estimate that we can give you at the moment, but we will know more by later in the year when these contracts have been signed. What I can tell you though is that at a very early stage in all this the Government published a figure and it thought that the maximum impact on bills would be £70 to £80. We are very confident that that is very much on the high side. Exactly where it ends up depends, as I say, entirely on the tendering processes.

**Len Duvall AM:** Obviously you will have given a lot of thought as to the presentation of this and your core business of everyday business in terms of supply and that you would not want this to do your company any more reputational damage. Will you be taking steps to separate out and to explain what that cost in the bill is?



What is the thinking of the private sector around issues like that when they have to explain specific aspects of bills in terms of their presentation?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** If you look at the billing leaflet that is going out now, it has a very detailed background on how the money is spent. It includes a statement I used earlier - that £7 of the existing bill is on the tunnel and that we expect that to go to £34 by 2020 - and there will be some more after that. Also, over the whole period we will be driving down other aspects of our work by doing it more efficiently. I anticipate that we will do the same thing every year.

**Len Duvall AM:** Tony, do you want to comment?

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Yes, I would like to if I may. Thank you. Transparency is a big issue here and one that we have been pursuing with Thames for some considerable time to make sure that the actual impact, cost and implications of the Thames Tideway Tunnel are understood by all customers. Although we have gone some way to that in terms of the explanation in the leaflet, we would have liked to have seen a headline of exactly what the bill includes for the Thames Tideway Tunnel each year, but that has not been accepted by Ofwat and so we are where we are.

The second thing is that we must recognise that although there is an increase, as Richard [Aylard] has suggested, of £34 over five years, it is not necessarily evenly spread. We wanted in the interests of customers to have that evenly spread rather than any spikes that might occur during the course of the period. That has not been accepted, either, and so we are not very happy about that.

The third thing to say is that it impacts other companies within the greater London area, such as Affinity. They will actually find bill increases in 2015/16.

There are a whole series of issues around making sure that the customers have a fuller understanding and appreciation of exactly what the Thames Tideway Tunnel means both in terms of cost and ultimately in terms of service. We are very keen - and Richard [Aylard] will bear this out, I am sure - to make sure that we, as CCWater, are engaged with the Thames Tideway Tunnel infrastructure provider and that that is not so separate that we cannot have any access to customers' and residents' experiences of the actual construction of the tunnel and the disruption that will inevitably occur from time to time. All of those things are very much in our mind. Of course, ultimately, we want value for money for the customers. That is something else that we are pressing and have been ever since the inception of the scheme.

**Stephen Knight AM (Chair):** Tony, do you want to just comment on the issue that was raised earlier about support for customers who struggle to pay their bills? We had an answer from Richard [Aylard], but as the representative of customers I ought to ask you if you had anything further comment on that issue.

**Sir Tony Redmond (Chair, London and South East Region, CCWater):** Richard [Aylard] has already outlined all the various mechanisms to try to help customers who struggle to pay their bills. We continuously believe that there is more to come. Sometimes the juxtaposition of unwillingness to pay and inability to pay is a challenge. For those who sit on that potential overlap, we need to see more done to address that. It continues to be a problem. I said that in one in six struggles to pay their bills. It is a serious issue for us and we are conscious of it, too.

**Nicky Gavron AM:** With your indulgence --

**Stephen Knight AM (Chair):** Nicky, is it a very quick one?

**Nicky Gavron AM:** Yes, a very quick one. I just want to understand. Is Bloomberg saying the Thames Water shareholders will get dividends from --

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** They are entirely wrong with that. No Thames Water shareholder will get a dividend from the tunnel. The tunnel company is entirely independent and will have its own shareholders. They raise the money, either from equity or debt, and they will get a return at the rate set that they are bidding for. It will not come to us.

**Nicky Gavron AM:** Where will they borrow the money from?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** It is entirely up to them.

**Stephen Knight AM (Chair):** Somebody will make a profit out of building it, but will not be you.

**Nicky Gavron AM:** They will not be borrowing from the same source as Thames Water borrows from or will they? Maybe?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** They might go to the same banks; I do not know.

**Nicky Gavron AM:** You have done that because of the risk profile and therefore the borrowing is going to be more expensive?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Yes, exactly. The risk profile is different to the rest of the company's business and --

**Nicky Gavron AM:** Yes, but there is a guarantor of last resort, which is us, the customers, and so why is the risk profile so high?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Just because it is a single project and so you cannot therefore net off gains and losses against other projects and because you are tunnelling 70 metres deep under London.

**Nicky Gavron AM:** I am just trying to work it all out.

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** That, from an investor perspective, is a perceived different risk to extending Banbury Sewage Works plus building a new water treatment works in Reading, for instance.

**Nicky Gavron AM:** Even when there is a taxpayer underneath it all?

**Richard Aylard CVO (External Affairs and Sustainability Director, Thames Water):** Only in the most extreme circumstances, Nicky. I would not want to overplay that. By the time we get to that point, everybody else and the insurers will be very, very substantially out of pocket before anything gets paid for by taxpayers.

**Stephen Knight AM (Chair):** Presumably the customer as well. Can I thank all of our guests for their valuable contributions?