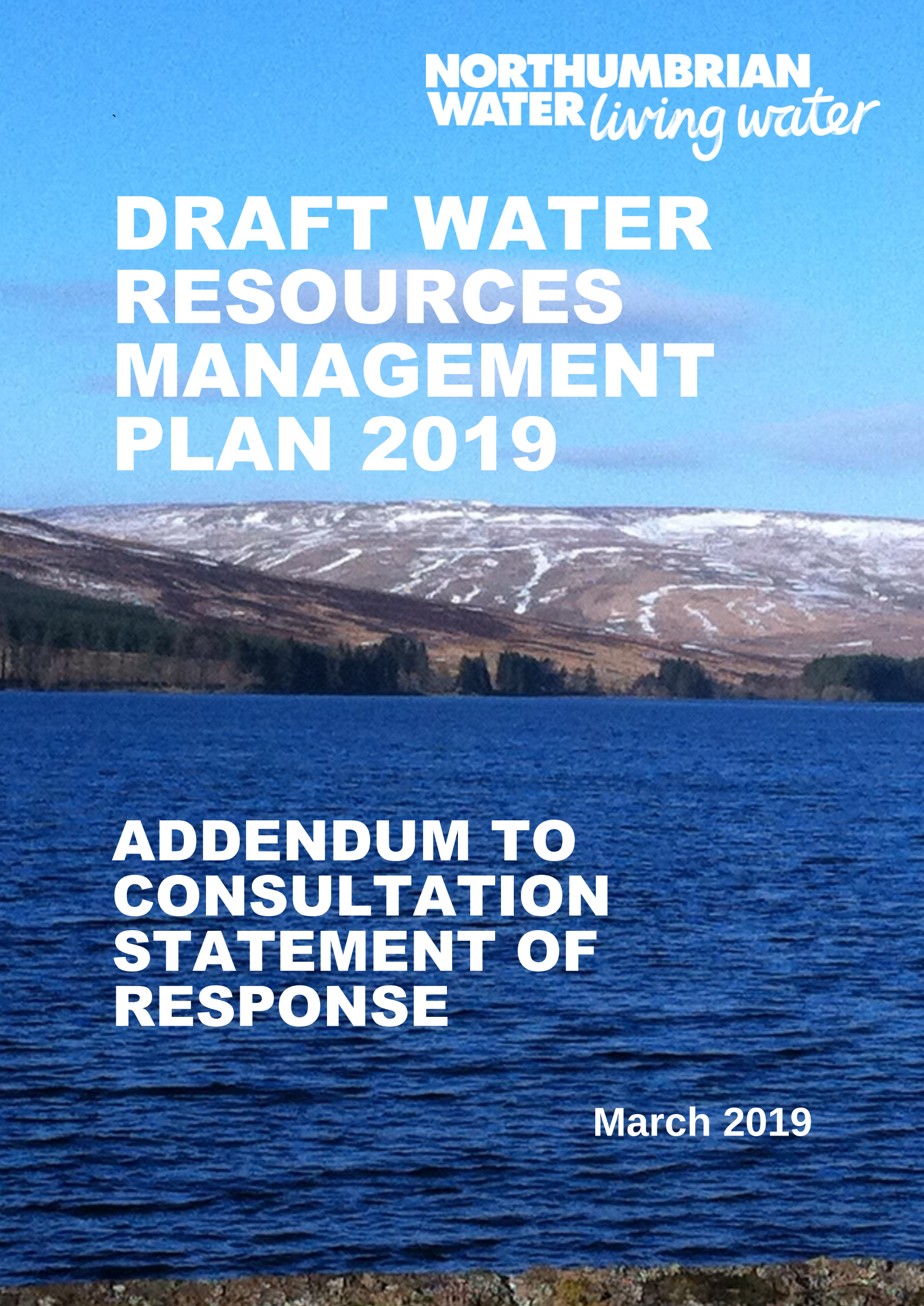

NORTHUMBRIAN WATER living water

DRAFT WATER RESOURCES MANAGEMENT PLAN 2019

ADDENDUM TO CONSULTATION STATEMENT OF RESPONSE

March 2019

DOCUMENT CONTROL SHEET

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Northumbrian Water is a trading division of Northumbrian Water Limited which is a group Company of Northumbrian Water Group

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1 INTRODUCTION

1.1 Purpose

This document is an addendum to our draft Water Resources Management Plan 2019 (dWRMP19) Consultation Statement of Response which we published in September 2018. It should be read alongside our initial Consultation Statement of Response.

1.2 Background

We updated our dWRMP19 and then invited statutory consultees, our customers and other interested stakeholders to comment on it. The consultation on our dWRMP19 took place over a twelve week period between Monday 5th March and Sunday 27th May 2018. The dWRMP19 was, and continues to be, available for review on our website https://www.nwl.co.uk/wrmp.

Consultees were asked to send their written representations on our dWRMP19 to the Secretary of State for Environment Food and Rural Affairs, which were then forwarded to Northumbrian Water at the end of the consultation period.

We then prepared and published our dWRMP19 Consultation Statement of Response which detailed:

(a) the consideration that we gave to the consultation responses;
(b) any changes that we made to the dWRMP19 as a result of consideration of those consultation responses and the reasons for doing so; and
(c) where no change was made to the dWRMP19 as a result of consideration of any consultation response, the reason for this.

Defra subsequently wrote to us on 8th February 2019 and requested additional information to support our initial dWRMP19 Consultation Statement of Response. This information is presented in Section 2 below.

2 ADDENDUM TO CONSULTATION STATEMENT OF RESPONSE

This section presents the additional information requested by Defra on 8 February 2019 to demonstrate compliance with Directions 3(d), 3(e), and 3(f) in its final plan.

2.1 Direction 3(d)

Additional information requested by Defra

3 (d) the emissions of greenhouse gases which are likely to arise as a result of each measure which it has identified in accordance with Section 37A(3)(b), unless that information has been reported and published elsewhere and the water resources management plan states where that information is available;

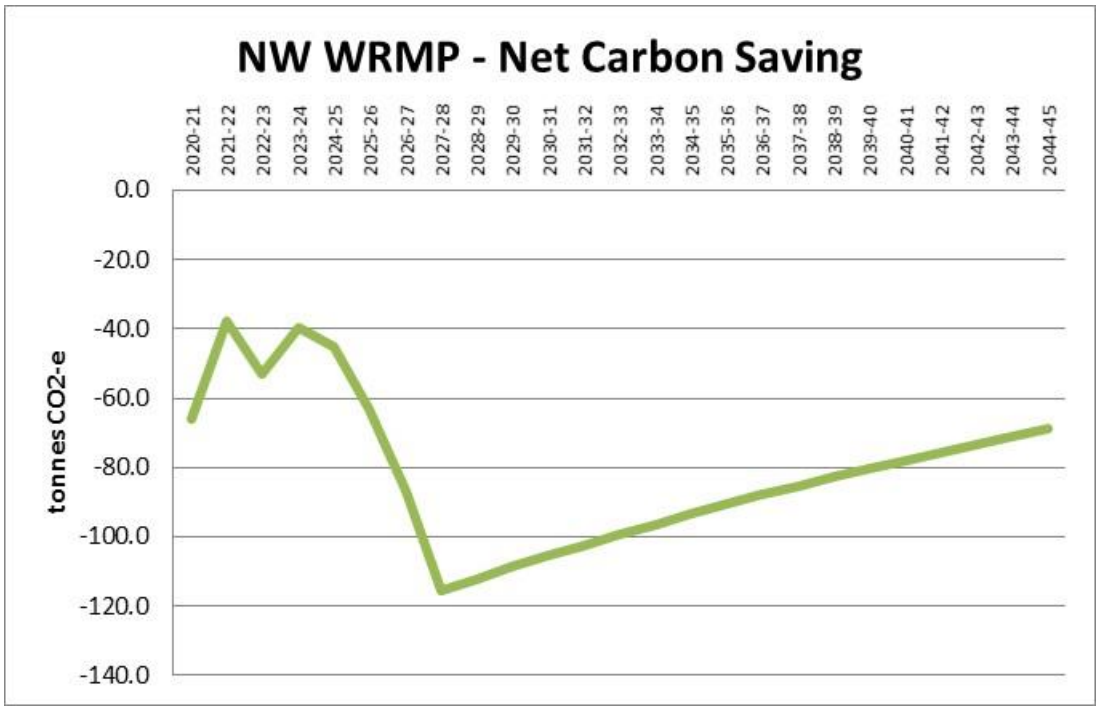
The company has presented data on greenhouse gas emissions for current and future operations as a total, and references being carbon neutral by 2027/28. However, it has not described the emissions from each measure in the preferred plan individually. The company must state its estimate of greenhouse gas emissions associated with each preferred (final plan) demand option individually to meet Direction 3(d).

We have updated Section 6.6 of our revised draft Water Resources Management Plan to include the following information.

The Impact of Our Planned Actions on Carbon Emissions

We have provided in our Water Resources Management Plan a descriptive account of the environmental impacts of our planned actions, including those relating to carbon emissions. Here we set out the impact in quantitative terms.

Overall we expect to see our emissions increase over the period of the plan as a result of the actions we propose. How the emissions relating to plan will change over the period through to 2045 is shown in the chart below. Savings are viewed as positive; the negative figure indicates an increase in emissions. This will peak in 2027-28, then fall thereafter.



The overall increase is small, peaking at less than 120 tonnes CO2-e annually. To understand the small scale of this increase, our emissions for the water service for NW were around 45,000 tonnes in 2017-18. The impact of the plan proposals adds less than 0.3% on the same basis.

However, any increase in emissions might seem surprising given that the proposals will reduce demand and with it the volume of water we need to supply. As such the projected increase requires explanation.

The main reason for the rise is that from 2018-19 there will no longer be any emissions linked to our use of electricity. This follows a switch in our energy supplier to Orsted who provide all their power from renewable sources.

Our emissions have fallen considerably since we first started routinely calculating these in 2008. Whilst some of this fall is due to actions we have taken to be more efficient in our use of energy, or through the development of low carbon renewable energy, much of this reduction has come from lower emissions linked to our use of grid electricity.

Grid electricity use has to date been by far the biggest single component of our greenhouse gas emissions. In recent years the emissions linked to each unit of electricity has been falling, as coal fired power stations have been replaced with cleaner gas and renewable power generation. This is set to continue and by the middle of this century the emissions linked to electricity use will be a small fraction of what they are today.

Some electricity suppliers are leading this switch to low emissions energy, which is a growing market in the electricity supply industry. In 2015, in order to encourage this

growing provision, international and national reporting protocols were changed to allow purchasers of cleaner energy to reflect the lower emissions attached to it in their reporting, as long as the emissions were backed with certification of origin.

From 2018-19 we will adopt this 'market based' emissions factor approach, following a switch of supplier to Orsted, one of the companies leading the transition. As a result we expect the emissions linked to the provision in water in NW to be in the order of just 6,500 tonnes CO2-e this reporting year, then continue to fall through to 2027-28 when we expect to become carbon neutral. This is the point at which our operational activities no longer add to the problem of global warming. This change has a major impact on our estimate of the emissions impact of our water resources plan.

Although we have no supply side proposals in our plan, we will undertake a range of activities that will help to manage demand, under the three headings of leakage management, water efficiency and metering. For each of these areas we have assessed the impact of our proposed actions on the greenhouse emissions for which we are responsible.

Each of our proposed actions will deliver a saving in the volume of water we need to supply, and with that there will be a fall in emissions in the early years until we become carbon neutral. After that point any saving in water will not produce a reduction in emissions. Even in the early years of the plan the fall in emissions we will see will be a much smaller effect than had we continued to use the UK national grid emissions factor, because of the switch in our reporting approach.

Alongside this effect, with some of the actions there will be an increase in operational activity that might increase emissions. An example would be the employment of more technicians to find and fix leaks. Such staff will increase our emissions through their use of vehicles and vehicle fuel in carrying out their duties.

In each case the emissions linked to the action is changing over time. In the case of leakage technicians the development of cleaner vehicle technologies will mean that the emissions for a given level of activity will fall over time. We have made an assumption about the pace of this fall.

It is the effect in emissions terms of these two counter-acting factors that determines the projected emissions impact going forward, and results in the rise we expect to see. Had we continued to use the national grid factor our programme of work would have produced, in any year of the plan, a saving in grid related emissions of around twenty times the increase resulting from the work involved.

Emissions impact of each proposed measure

Within this overall context of the impact of our proposals on greenhouse gas emissions we can also quantify this for each specific measure proposed in our plan. There are no supply side proposals needed within the timeline of the plan. We do though have demand side proposals in the three areas of demand management,

leakage management and metering. The way that these contribute to the overall carbon impacts previously set out is shown in the chart and table below.

The chart shows how each the proposed actions contributes to the change in overall emissions year by year. The table summarises this information for each future five year AMP period through to 2045.

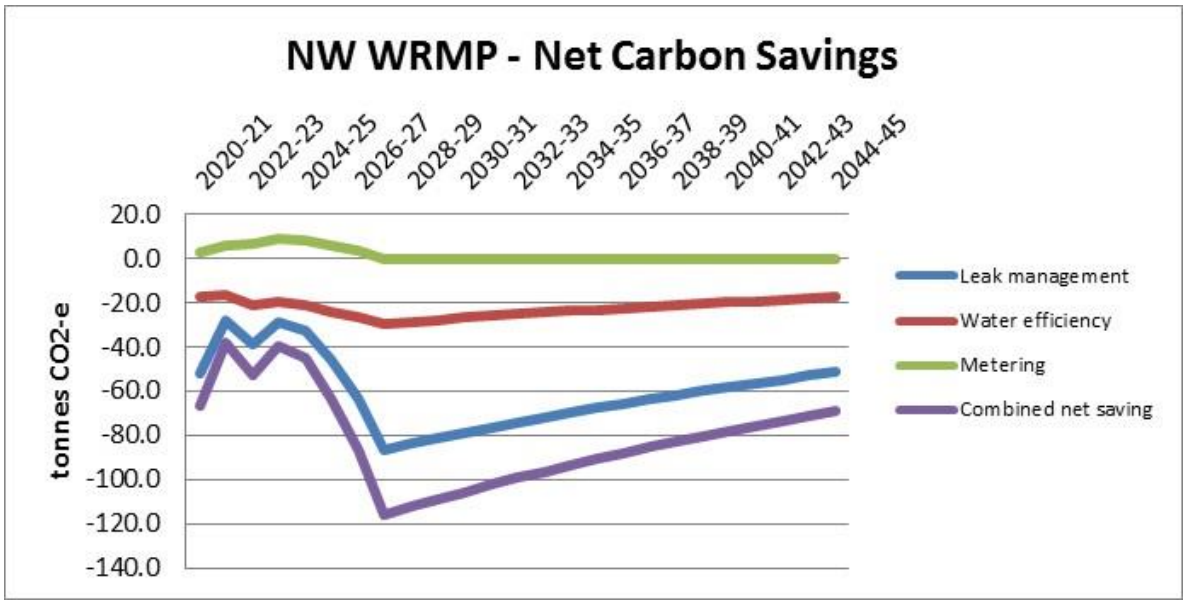


Table showing impact on GHG emissions of each demand side proposal

	AMP7 2020-2025	AMP8 2025-2030	AMP9 2030-2035	AMP10 2035-2040	AMP11 2040-2045
Leak management	-179.7	-360.5	-370.9	-318.5	-273.5
Water efficiency	-95.6	-136.1	-126.1	-108.3	-93.0
Metering	33.5	9.8	0.0	0.0	0.0
Combined net saving	-241.8	-486.8	-497.1	-426.8	-366.5

Valuing these carbon impacts

Alongside quantification of the impact in emissions terms we have also examined the economic impact of what we propose. Applying the latest projected carbon values published by UK government in line with the Treasury Green book there is a progressive rise in the carbon cost of the proposed programme of work. That said, by 2045 the carbon cost of the programme remains small, not even reaching £13,000 a year by the year 2045. Unsurprisingly, the value of carbon has no impact on decisions relating to the WRMP. This is true both in overall terms and for each of the proposed measures.

2.2 Direction 3(e)

Additional information requested by Defra

3 (e) the assumptions it has made as part of the supply and demand forecasts contained in the water resources management plan in respect of— (i) the implications of climate change, including in relation to the impact on supply and demand of each measure which it has identified in accordance with section 37A(3)(b);

The company responded to the representation on this failure but appears not to have recognised that the Direction requires the assessment of the impact of climate change on its demand options (not the other way round). The company has therefore not assessed and described the impact of climate change on each of its preferred options in the final planning scenario. The company must clearly state the impact of climate change on each preferred (final plan) demand option individually, including the assumptions made in the assessment, to meet Direction 3(e).

We have added Section 6.7 to our draft Water Resources Management Plan to include the following information. Text highlighted yellow is new information.

The impact of climate change on the proposed measures

As well as examining how our proposals will impact on the greenhouse emissions that drive climate change, we have also considered what the implications for climate change might be on our proposed actions. We have looked at the potential impact on each of the demand side measures we propose on demand management, leakage management and metering.

Both for demand management and for metering we identify that any changes in climate will have no impact at all on our proposals. The actions we are taking are independent of any climatic effects.

Climate change may have an impact on future leakage, but no allowance has been made for this in this plan. The reasoning behind this assumption is set out below.

The predicted future climate is one of hotter drier summers and warmer wetter winters. More frequent and severe droughts are also expected. This has the potential to lead to changes in ground movement in clay based soils, which in turn can have an impact on burst frequency and leakage. In summer this movement is likely to increase burst frequency and leakage. Warmer winters will mean that freeze-thaw events causing ground movement will be less frequent. This means that burst frequency and leakage in winter is likely to fall.

This understanding is based on work undertaken in 2009 (Making the Earth Move: Modelling the impact of climate change on water pipeline serviceability by Goodchild, Rowson and Engelhardt). This established a relationship between burst frequency and actual evaporation, daily rainfall, minimum grass temperature, and soil moisture deficit. A change in burst frequency implies similar changes in leakage.

However, this relationship only holds for asbestos cement and cast iron pipes in clay and loam soils. This pipe/soil combination is seen only across a small proportion of our network, a figure that is falling as these older pipes are replaced. With other combinations of pipe and soil there is no established effect.

The quantification of these impacts that act in opposite directions across the seasons is not straightforward. In the short run the changes in temperature and their impact on soils will be too small to have a significant impact. It is only towards the end of the plan period that the potential effect will be greater, though even here this impact will be mitigated as the proportion of polyethylene pipe in the network grows as cast iron and asbestos cement pipe is replaced.

The analysis undertaken suggests that in the Northumbrian region there would be a net reduction in bursts. The projected increase in summer bursts is more than balanced by a reduction in winter.

In this plan we have not included for this impact. Instead we have assumed that leakage will not be affected by this climate driven effect. There are two reasons for this.

Firstly, as yet we are also unable to quantify the impacts of two other proposed actions to lessen leakage. These are the development of innovative techniques and customer-focused activities, which are neither defined at this stage, or their impacts quantified. We have allowed for no impact of either of these planned actions in reducing leakage, and have made the assumption that they will not be affected by the changing climate.

This assumption feeds into the second reason in that the Ofwat target for leakage is no longer based on an assessment of what is an economic level of leakage where the marginal cost of additional management actions equates to the value of water saved. Instead a fixed target is set. We intend to meet this target by a range of actions. With two of these – the deployment of new pressure management schemes and the installation of new semi-permanent correlating noise loggers – we are able to estimate the impact. However, this is not the case with either innovative techniques or customer-focused activities.

Any further leakage reduction to achieve the Ofwat target that exists after taking these actions will be met by a change in the rate of mains replacement. This is scheduled to take place from AMP 9. The impact of changes in the climate will be one underlying driver that affects the scale of replacement work needed. The success of the innovative techniques and customer-focused actions is another.

However, the leakage levels seen will not change. Instead we will vary the extent of mains replacement needed, to the extent required to hit the leakage target. As a result we are able to assume that the level of leakage will not be impacted by climate change, although our responses in terms of mains replacement may be. This also means that there is no wider impact on supply and demand.

2.3 Direction 3(f)

Additional information requested by Defra

3 (f) its intended programme for the implementation of domestic metering and its estimate of the cost of that programme, including the costs of installation and operation of meters;

The company has included optant and selective metering as part of its preferred programme, however it has not fully described how it plans to implement this. The costs of installing and operating meters beyond AMP7 has also not been provided. The company must describe its approach to implementing its metering programme (for example, which areas will be prioritised for meter installation), together with installation and operational costs over the whole planning period, to meet Direction 3(f).

We have updated Section 5.2.6 of our revised draft Water Resources Management Plan to include the following information. Text highlighted yellow is new information.

In NW, our metering programme is almost entirely focused on delivering installations through optant requests. Our rdWRMP assumes that only five meters will be installed selectively each year in AMP7 for large users who are resistant to having a meter fitted. We have no plans to introduce change of occupier metering.

Optant rates in Northumbrian Water remain high despite the fact that we do very little to promote meters beyond the basics of providing information on our website and on unmeasured customers' bills. In AMP6 we have consistently seen optant rates above the forecast level.

	2015/16	2016/17	2017/18	2018/19
Forecast optants	14,000	14,000	14,000	14,000
Actual optants	14,219	15,247	17,880	16,386 (forecast)

After seeing a remarkably constant optant rate over many years we are confident that the rates will continue at similar levels at least until 2030 given our comparatively low level of meter penetration. In the coming years we will also do more to improve customer awareness about the potential financial benefits of switching to a meter as part of our commitment to eradicating water poverty. This will be done in a targeted way to stimulate optants through time in areas where customers are likely to benefit from switching to a meter. We will promote water efficiency alongside this to further support customers with reducing their bill and maximise the benefit to reducing consumption.

From 2030 we expect optant rates to start declining in line with increasing meter penetration. We observed a decline in optant rates in ESW which coincided with reaching meter penetration of around 60% and we will reach this level in NW in about 2032. However, with continued targeted promotion of meters we expect the decline in optant rates will be slight and gradual through the remainder of the planning period in NW.

The costs of our optant metering programme up to 2045 are summarised below (in 2017/18 prices). The capex costs are for meter installations only and do not include the cost of meter replacement. The opex costs are cumulative and reflect the escalating opex costs associated with all the meter installations made from 2020 onwards.

	AMP7	AMP8	AMP9	AMP10	AMP11
Installation numbers	87,500	70,000	50,000	50,000	30,000
Capex £'m	£22.879	£19.245	£13.915	£13.915	£8.677
Opex £'m (cumulative)	£0.739	£1.330	£2.166	£2.901	£3.460
TOTEX £'m	£23.618	£20.575	£16.081	£16.816	£12.137