

Water Resources Management Plan

Statement of Response to our Draft Water
Resources Management Plan Consultation
May 2023

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Executive Summary

We published our draft Water Resources Management Plan (dWRMP) in November 2022. Our plan sets out how over the next 65 years we will continue to sustainably provide high quality water to our customers, ensuring best value whilst also improving the catchments in our supply area.

Following the publication of our plan we commenced a 14-week consultation period, which ended in February 2023. We received formal written responses from eight stakeholder groups. In addition to this we ran two in-person stakeholder events in order to gain further targeted feedback on our plans. These events were attended by 24 stakeholders from 15 different organisations. Written feedback was received from a wide range of stakeholders, including our regulators, a wildlife trust, representatives from the agricultural industry and the independent body representing our customers, CCWater.

We have reviewed each of the comments we received and, where appropriate, we have used the feedback to update and improve our plan. We have set ourselves an even more challenging Per Capita Consumption target (how much water our customers use every day) as a result of the feedback we received. To help us achieve this and our leakage target we are planning a programme of smart metering. However, these changes do not materially change the recommendations we made in our dWRMP.

Our Statement of Response document includes:

- A summary of the key feedback we received from our stakeholders.
- An overview of the improvements we have made to our WRMP both because of this feedback and also further information becoming available as we have continued to develop our plan.
- The impact of these changes on our plan.
- Supporting annex A which lists all of the stakeholder comments we received and our responses in full to each comment.

The feedback headlines from the consultation are shown below in **Figure 1**.

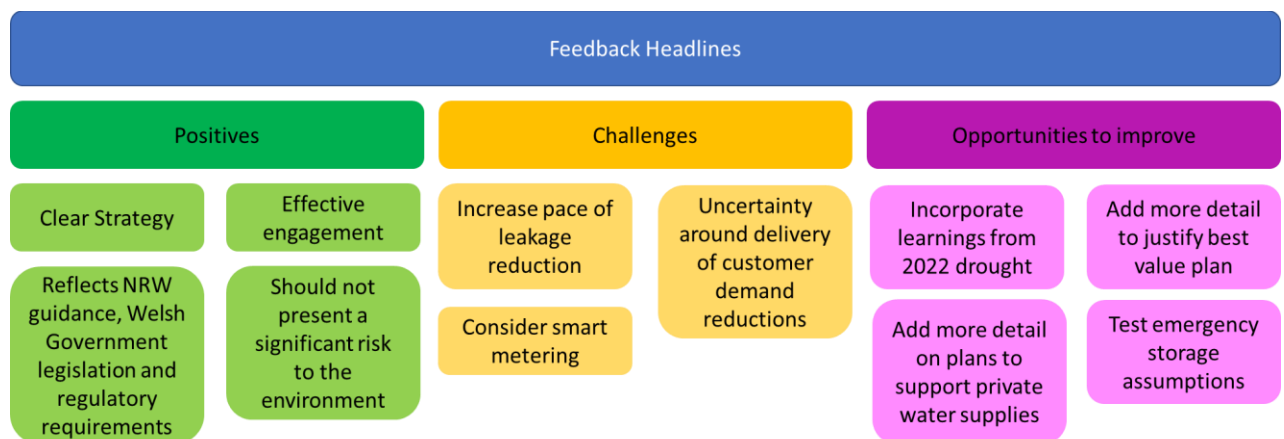


Figure 1: Feedback headlines from our draft WRMP consultation process

We will continue to develop our plans, taking into account any further data and information that becomes available in the lead up to the submission of our final Water Resources Management Plan (fWRMP).

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Statement of Response

1. Introduction

We published our draft Water Resources Management Plan (dWRMP) on 16 November 2022 for public consultation. Our dWRMP set out how over the next 65 years we will continue to sustainably provide high quality water to our customers, ensuring best value whilst also improving the catchments in our supply area. We sought to strike a balance between the economic case for supply and demand investment, meeting the expectations of our customers and stakeholders and protecting and enhancing the environment. We used a best value planning approach, with our proposed plan providing multiple benefits, such as taking less water from the environment and reducing our carbon footprint.

The consultation ran for 14 weeks, until 22 February 2023. During this time, we provided the opportunity for stakeholders and customers to feedback on our dWRMP through two in-person consultation events and we publicised the plan as part of the Water Resources West social media campaign.

We were pleased with the attendance at our stakeholder events, welcoming 24 stakeholders from 15 different organisations. We also received formal written consultation responses from eight organisations.

All feedback that we have received has been reviewed and considered and has helped us in producing our final Water Resources Management Plan (fWRMP), which we anticipate will be published in autumn 2023.

Within Annex A, we have provided a summary of all feedback, explained how we have taken this feedback on board and signposted where this has been reflected in our fWRMP. Wherever possible we have made changes to our fWRMP documents already, however, where further work is required for us to fully enact a change, we have detailed the approach we will take.

2. Our Consultation Process

Our consultation period began on 16 November 2022 when we published our dWRMP on our public-facing website^[1]. As it is very important for both customers and those with more technical awareness to understand what we're proposing in the draft plan, we structured our dWRMP documentation into three levels of detail. For our stakeholders and more informed customers we have the Level 1 Non-Technical Report^[2] accompanied by a Customer Quick Guide^[3], which was a more engaging, customer-focused document that didn't include too much technical detail. For more detailed information, we produced various technical documents including full explanations of the methods we followed and data tables.

Customers and stakeholders had the opportunity to feedback on our dWRMP through Welsh Government, and the details of how to do this and where to send comments were provided on our website. There was also a dedicated email inbox for more open responses. We publicised the publication of our dWRMP to stakeholders via email to 111 individuals from 60 organisations, including Ofwat, Defra, Natural Resources Wales, Consumer Council for Water (CCW), Local Councils, Rivers Trusts, Wildlife Trusts, RSPB Cymru and Farming Unions in Wales.

To complement the publication of our dWRMP and provide opportunities for more detailed discussion on its content, we held two in-person workshops to which all consulted organisations were invited. These workshops were attended by 24 people representing 15 organisations, including representation from Ofwat, local councils and Natural Resources Wales. With the stakeholder events we took the opportunity to talk to stakeholders not

¹ [HD website - Draft WRMP](#)

² [HD dWRMP - Non-technical summary](#)

³ [HD dWRMP - Customer Quick Guide](#)

only about the dWRMP, but also our draft Business Plan (PR24), so that everyone could understand how they fitted together. These workshops provided an opportunity for us to provide background on the aims of the dWRMP, what the challenges were for us both now and into the future, our plans to minimise our impact on the environment by reducing demand for water, and how people could send in their feedback. We also touched on smart metering, private water supplies and the feedback we had received from customers to date.

In addition to the public consultation was the robust research that was carried out by Blue Marble, a customer market research company, to understand customer views on our dWRMP. This is outlined in section 5. This provided key insights into how our dWRMP was supported by customers and any areas for refinement.

Alongside the research specifically carried out for the dWRMP, we’ve also considered the relevant feedback from customers as part of our PR24 Strategic Investment Research which was carried out between October 2022 and January 2023. This research included gaining opinions from customers on water supply resilience.

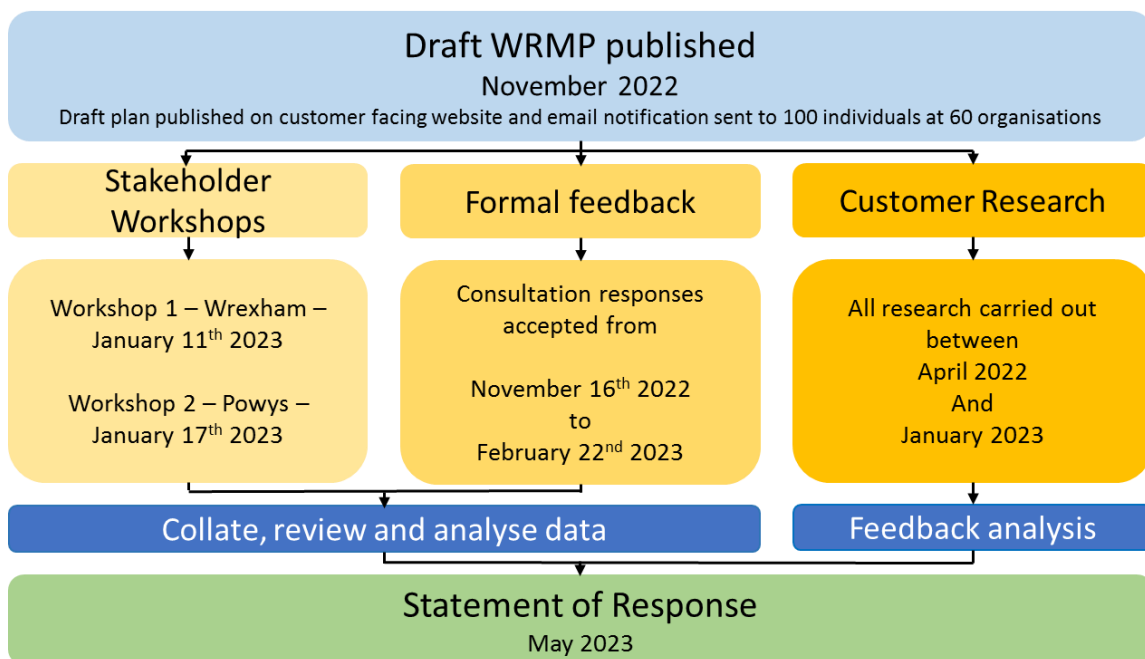


Figure 2.1: Flow diagram of our dWRMP consultation process

This document reviews how the feedback that we have received through all these channels has been carefully considered and how feedback has been used to shape our fWRMP submission.

3. Summary of the key messages from the consultation process

We encouraged a wide range of stakeholders to respond to our dWRMP consultation. We were pleased to receive formal responses from Arqiva, CCWater, Ofwat, Natural Resource Wales, NFU Cymru, Water Resources West, Waterwise and the Welsh Dee Trust. Whilst there was no formal response from Denbighshire County Council, Powys County Council, RSPB Cymru, Farmers Union for Wales, Clywedian Range and Dee Valley AONB Group, North Wales Wildlife Trust, they provided invaluable feedback during our stakeholder workshops.

3.1 Overview

From the formal responses we received, we saw a good amount of constructive feedback that highlighted positive areas of our dWRMP, and areas that could be improved. In general, our customer quick summary, non-technical summary, main narrative and technical appendix documents were well-received.



Figure 3.1: Quotes from consultation feedback on our dWRMP

Whilst we received much positive feedback, there were some areas identified that we could improve on before the publication of our fWRMP. We will explore each of these themes in more detail in the remainder of Section 3, and our full response to each comment we received from our stakeholders is presented in Annex A.

3.2 Reducing demand

Overall, the feedback we received from our stakeholders through both the formal written responses and our in-person stakeholder events was that they supported our aspirations to:

- halve leakage (from 2019/20 levels) by 2050;
- help our customers reduce their demand for water by setting ourselves a challenging target to reduce per capita consumption (the amount of water used per person per day).

However, we received several questions around pace, delivery and challenge to go even further. In contrast we also received challenge regarding the dependence of our plan on demand side measures and their deliverability, especially reducing customer demand.

Leakage

Our proposed approach for leakage, which sees us reduce leakage by 50% from 2019/20 levels by 2050, was generally well received by stakeholders and customers. In our dWRMP we outlined our glidepath for achieving this target, with a 10% reduction in leakage by 2030. We believe that this plan is already ambitious, with some innovation needed to achieve the 50% reduction by 2050 and to maintain leakage at that low level, and struck the right balance given affordability challenges. However, some of our stakeholders did challenge this ambition and questioned whether we should go further faster.

On the basis of feedback from our stakeholders, we carried out further analysis to assess whether we could increase the pace of leakage reduction in AMP8 to 15%. Whilst the costs associated with our dWRMP proposals are likely to have only a small impact on our customer bills, the other investment needs and regulatory requirements for workstreams other than water resources will be driving a bigger need for investment, which will result in an increase in our customer bills. Within this wider context, and with a supply demand surplus forecast across a broad range of plausible potential future scenarios, increasing the pace of our leakage plans at this point in time does not provide the best value for our customers. Our leakage target for AMP8 in our fWRMP will be 10%. We are including investment in smart metering in AMP8, using the additional insight this provides we will review the glidepath for reaching the 50% leakage reduction target by 2050 in our WRMP29.

Non-Household Demand Reduction

We acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra's water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further.

Per Capita Consumption (PCC) Ambition and Delivery

Although we do not have a supply demand deficit, feedback from our stakeholders and customers has indicated a need for greater ambition on demand. As a result, we have set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their Per Capita Consumption or PCC). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day by 2050 as stated in our dWRMP).

Achieving long term PCC reductions will require a combination of successful demand management initiatives led by Hafren Dyfrdwy, Welsh Government and UK Government. There is a clear need for a successful water labelling

programme to achieve the deep reductions in PCC in our area, and we will support Government led programmes as appropriate, promoting it to our customers to raise awareness and to encourage them to adopt efficient devices. Alongside this, having reflected on feedback we have received through this consultation, we are also planning to roll out a smart metering programme from 2025 onwards. As well as helping us to reduce leakage by identifying more leaks on customer supply pipes, it will also give our customers more visibility of how much water they are using on a daily basis, providing us with further opportunities for encouraging and embedding long term behavioural change through our water efficiency programme.

The covid-19 pandemic resulted in unprecedented changes to customer demand profiles and behaviours, and although we are seeing demand fall as consumer habits slowly return towards pre-pandemic patterns, our ability to achieve the forecast WRMP19 reductions has been challenged during the consultation process. Although we recognise we are not achieving the shorter term goals, we are committed to playing our part in delivering the long term national ambition to reduce PCC.

We will review our progress against our PCC targets on an annual basis and will adapt our long-term approach when we develop our 2029 WRMP.

3.3 Best Value Plan and Decision Making

We received some challenge about the level of information we included in our dWRMP to justify our plans as being 'best value' for our customers.

As part of our dWRMP we produced an unconstrained list of supply options, which we presented in WRMP Table 4. We identified and formulated 22 new supply options. They are high level conceptual solutions that, if we were in a supply demand deficit, we would have developed into detailed schemes and refined using the screening criteria we agreed with the other members of Water Resources West. We would then have produced metrics to enable optimisation of a best value plan which included both supply-side and demand-side solutions. Our assessments have shown that there is no supply demand deficit under the wide range of plausible scenarios we have considered, therefore we will not be pursuing the development and assessment of these options at this stage as we do not believe this is the best use of our customers' money.

For our fWRMP we are undertaking a best value analysis to understand the appropriate pace across the 25 years to 2050 and most appropriate technology choice for our smart metering and leakage strategy.

3.4 Drought Resilience – Lessons Learnt From 2022

The new Water Resources Planning Guidelines published in March 2023 require companies to include details of lessons learnt from their experiences during the 2022 drought in their fWRMPs in an appendix. Our fWRMP has been updated to include an appendix summarising the information required in the guidance.

The drought trigger for our company, specifically our Wrexham Water Resource Zone (WRZ), is linked to the storage of the regulation reservoirs on the River Dee. Once storage crosses through a trigger line known as the Storage Conservation Rule Curve (SCRC), shown in Figure 3.2, we carry out a range of activities which are described in our drought plan⁴. These activities change as we move from normal operating mode into "developing drought", "drought" and "severe drought" status (for example, our customer messaging changes in frequency and content as the drought develops).

During 2022 large areas of Wales were affected by drought due to a period of prolonged dry weather and a heatwave which broke records for the highest recorded temperatures. Storage on the River Dee remained above the SCRC trigger line across the summer, crossing only for a few weeks in October when we temporarily

⁴ [HD Drought Plan 2020-2025](#)

moved into “developing drought” status. Despite the fact that throughout much of the dry period we were in “normal” drought status, we kept a close watch on the situation and made some changes to our operations to help preserve storage in our raw water reservoirs and to optimise our operations. We held Drought Action Team meetings for the first time since our company formed in 2018 and implemented a number of improvements to our dry weather reporting processes, which will be applied moving forwards.

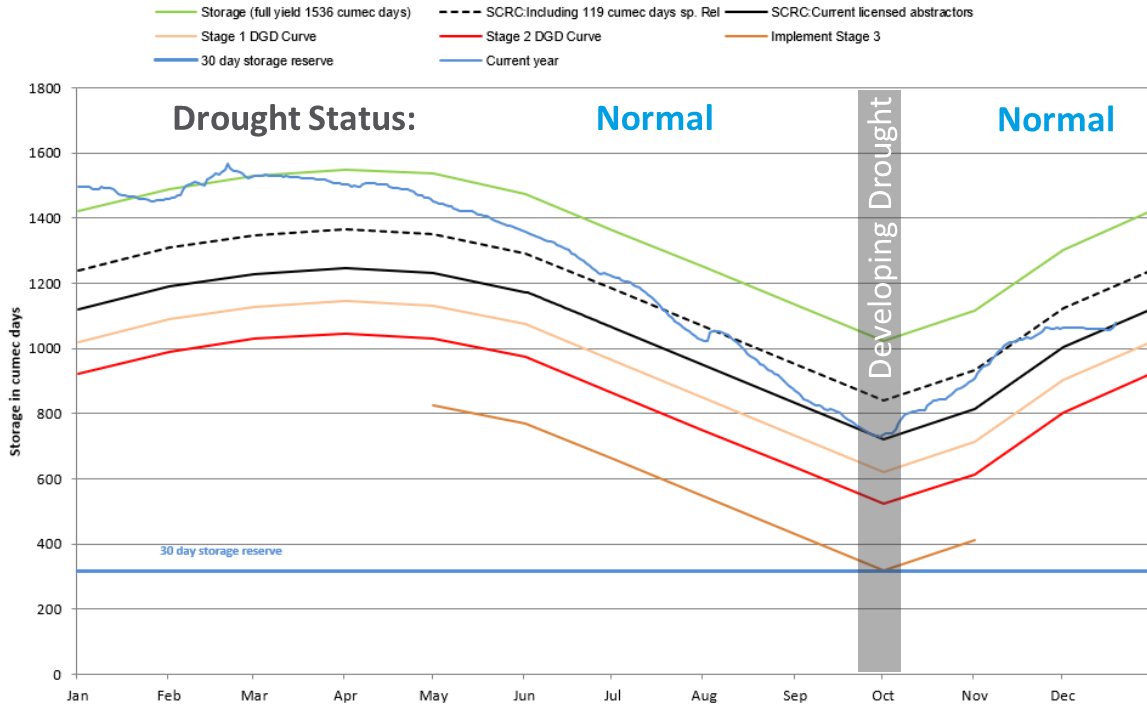


Figure 3.2: Hafren Dyfrdwy drought status during 2022

As some of our raw water reservoirs were drawn down during the summer of 2022, we took the opportunity to carry out bathymetric surveys to measure the depth and any features within the reservoirs which are normally submerged by water, providing us with up to date capacities for these reservoirs. We have carried out modelling to test whether these new measured capacities affect the deployable output of the Wrexham WRZ. There was no impact to the overall zonal deployable output as a result of these updates.

3.5 Drought resilience – emergency storage modelling

In previous WRMPs, our Wrexham WRZ and Seven Trent Water’s Chester WRZ were modelled using less than 100 years of historical flow data. As a result, emergency storage volumes were included in the modelling assessment as a buffer to protect supplies against droughts that are more severe than those recorded historically. Emergency storage is usually 30 days’ worth of storage. At the bottom of raw water reservoirs there is a volume of “dead water”. This is the water at the bottom of the reservoir that either can’t be treated due to levels of silt or other water quality issues, or can’t be abstracted because it is below the off-take.

The Water Resources Planning Guidelines for the 2024 WRMP require water companies in England to assess the resilience of their systems to droughts with a return period of 1 in 500-years. As the River Dee catchment crosses into both England and Wales and is used as a source of water by English and Welsh companies, the River Dee system has been assessed to take into account the 1 in 500-year drought resilience target. This makes sure that exceptional demand restrictions such as Emergency Drought Orders (EDO) are not required due to drought more than once every 500 years on average. This analysis required the use of large stochastic datasets that contain hundreds of droughts with various levels of severity and duration for our deployable output assessment (including very extreme drought with a 1 in 19200 years return period). Many of these droughts have a greater severity and longer duration than those recorded in the historical flow records used in past WRMP assessments,

so the emergency storage buffer is no longer needed. Our dWRMP assessment used dead water level as the failure criteria instead of emergency storage.

In light of feedback received from Natural Resources Wales (NRW) on our dWRMP, we have reviewed our approach on reaching dead water being the criteria for EDO failures. We have discussed this further with NRW and agreed an approach for testing the impact of including an emergency storage buffer to account for minimum abstraction requirements of abstractors in the catchment, helping to protect the river system in the event of a 1 in 500 year drought. NRW have carried out analysis and the results show that introducing an emergency storage buffer based on minimum abstraction requirements will not impact the 1 in 500 deployable output for either the Wrexham or Chester WRZs. Details of the analysis results will be included in our final WRMP.

3.6 Private and Non-Public Water Supplies

Our stakeholders responded positively to our plans to help support people within our area who use private water supplies. Following discussions with stakeholders at our Powys in-person stakeholder event, we have further developed our plans to support people and communities on private water supplies in our area. Over the next five years we will develop a longer-term strategy. Activities we will carry out to do this will include:

- Working with Powys Council – we will develop our links with the team at Powys Council who work with people on private water supplies so that we can share useful data and information.
- Reviewing hot spots of customer consumption – our Llandinam and Llanwrin WRZ, which covers a large part of the Powys area, is where we see the highest water use by our customers. This is also geographically where there are a high number of private water supplies. We will carry out analysis to understand whether any areas within this zone are particular hot spots for demand and whether we could offer any additional help to private water supply users in times of hot dry weather. If we are able to support private water supply users in these areas, it could help reduce water use by our customers, who may currently be using their mains water to fill up tanks and bowsers for their neighbours (which could also help us to reduce PCC in this area).
- Investigating whether our network can be adapted to provide more back up supplies – we currently have around 700 customers on dual supplies. We will carry out investigatory work to see if there is any potential to extend this offering.
- Surveying opinions of the private water supply community – we aim to engage with communities relying on private supplies to understand their experiences, aspirations and whether we can learn anything for our water efficiency work.
- Considering a non-public water supply support scheme – at one of our stakeholder engagement sessions a suggestion was made that we could set up an insurance scheme where people on private water supplies could pay into an insurance style scheme which would then be used to pay for tankering and access to water at periods when private water supplies are running low. We will consider the feasibility and practicality of running such a scheme.
- Providing support with alternative supplies – i.e. tanks and access to raw water reservoirs for the farming community to use in times of agricultural drought.

We will continue to work with WRW to better understand the needs of non-public water supply abstractors in our area and the wider Water Resources West region, and to identify ways that we can work together within catchments to ensure that the needs of abstractors, the environment and other recreational users can all be met in a sustainable way.

3.7 Strategic Resource Options

Although we're not directly involved in the Strategic Resource option Severn to Thames Transfer, the cross border nature of the catchments and Vyrnwy being our asset means we are actively involved in the regional reconciliation. We have an agreed position with WRW and WRSE as stated below.

The need to keep developing the Severn Thames Transfer scheme

The Severn Thames Transfer (STT) represents a strategic resource option that facilitates the transfer of water from the River Severn to the River Thames. This would be supported by several sources of water⁵ from United Utilities and Severn Trent.

During the development of the draft regional plans and Water Resource Management Plans STT was selected as part of the WRSE regional solution, in conjunction with other schemes, in 2050. This was also reflected in WRW's plans.

Whilst STT featured in both regions' draft preferred plans, a series of sensitivity tests at the time showed that the STT could be selected as early as 2039, if the South East Strategic Reservoir Option (SESRO) could not be developed, or not at all if government water efficiency policies resulted in a lower demand forecast due to increased water efficiency.

In March 2023 the regional reconciliation process began its third round. At this time none of the regions had finalised a preferred revised regional plan. Therefore, sensitivity runs were undertaken to explore what might happen under certain scenarios. This scenario modelling used the updated STT data, but some other information in the WRSE model was based on the draft plan.

The scenario testing approach confirmed that if the WRSE companies met the 110 l/p/d PCC target by 2050 then STT was not selected in the reported pathway (preferred plan). Sensitivity tests also confirmed the need for STT in scenarios without SESRO or with government water efficiency interventions not reducing demand to the levels anticipated. Therefore, the need for STT inclusion in an adaptive plan was confirmed. Given that the revised draft plan was still under development for WRSE, but we knew that the revised regional plan would seek to achieve the 110 l/p/d PCC guidance target, the more likely scenario was that STT would not be required in the preferred plan for WRSE or WRW. This was the agreed outcome of reconciliation for inclusion in the revised draft WRMPs, which includes adaptive pathways to deal with potential changes.

Although the water companies are working toward mitigating those risks through their plans, they are influenced by factors outside of the control of the companies and therefore have a reasonable likelihood of occurring. The adaptive pathways recognise different potential outcomes. In either case, there is a need to progress development of the STT system⁶ in the next 5 years so it can be delivered by 2039 if required.

As the regional plans continue to be developed the risks associated with the promotion of certain schemes or delivering the water efficiency targets, set out in the Environment Improvement Plan, remain. Both regions have developed a series of adaptive regional plans to help offset some of this risk.

The adaptive regional plans consider three scenarios:

1. benign scenario in which schemes and assumed savings from water demand reduction measures are delivered (this is aligned to the reported pathway/preferred plan)

⁵ The North West Transfer enabling use of Vyrnwy Reservoir, and recycling water from Minworth and Netheridge.

⁶ STT System includes the STT and the sources that feed water to the STT, namely Severn Trent Sources (Netheridge), Minworth and the North West Transfer. Changes to the flow regime in the Severn catchment due to releases, interactions with the Severn Regulation Scheme, a bypass pipeline for the Afon Vyrnwy and system operation are within the scope of the STT project.

2. a short term adverse scenario in which preferred supply options aren't delivered and STT is then required to be developed and operational by 2039/40; and
3. a long term adverse scenario in which the projected demand management savings do not materialise and additional water from STT is required by 2050.

Through this approach both regions would monitor the delivery of the schemes and benefits of their plans to understand if their plans are still on track or whether they need to adapt to one of the scenarios above.

For the regional plans to remain flexible and adaptive it is critical that key schemes are progressed in a timely manner. In the case of STT and the potential for it to play a part in the short term adverse scenario this would require development of the scheme to continue over the next AMP period (2025 to 2030) and through the next gates to provide confidence that the scheme could be utilised when required. Proposed milestones are under development and in discussion with RAPID to be reflected in future gate submissions.

Therefore both regions and relevant companies are promoting the continued development of the STT system in their WRMPs, Regional Plans and business plans to provide confidence to regulators and the Secretary of State that their plans are robust and can adapt to meet their statutory duties in the future. This jointly agreed text demonstrates alignment of the companies and regions on this need to solve national water resources risks identified in the National Framework.

4. Summary of Stakeholder Event Responses

At our stakeholder events we presented the long-term strategy we developed for our dWRMP. To maximise the time we had face to face with our stakeholders, we also presented an early view of our PR24 business plan. We posed a number of questions to our stakeholders using an online voting system.

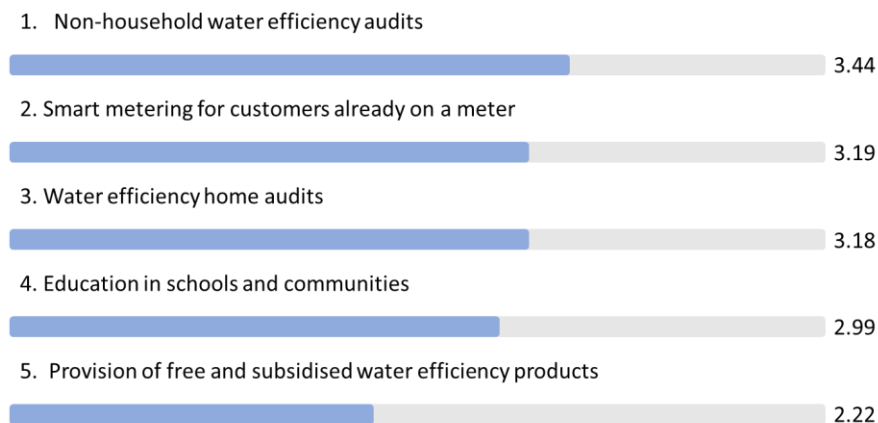
- **74%** of participants said they **agree** or **strongly agree** with the pace of our leakage plan (reducing leakage by 50% by 2050).
- **91%** of participants said they **agree** or **strongly agree** that we should continue with the current pace of reducing leakage by 15% this AMP.

From the survey results, we can see that most stakeholders agreed with the leakage targets we are using within our plan. There was a question of where the targets came from and why 50% had been chosen, but once it was explained that this was an industry-wide target, coming from Ofwat, this was widely accepted.

We discussed our water efficiency plan and whether we should be considering smart metering for customers already on a meter. Our customer research showed that our customers had very mixed opinions on this given the cost-of-living crisis. Our stakeholders indicated that they thought smart metering is a good idea and that it would help not only people to understand their water usage, which will help reduce demand, but also that smart metering will help with finding leakage. There was some concern about the cost-of-living crisis, and what support we would be making available for customers in need. There was also general agreement amongst our stakeholders that there isn't enough customer understanding of how much water they use and so more

education is needed. We asked our stakeholders to rank the priority we should give to a range of water efficiency measures. The results of this survey are shown below.

Please rank the following in the order of priority we should give to these water efficiency measures:



At the event we held in Powys, there was a lot of discussion around private water supplies and what help was available for those people who were not connected to the network. Powys has a high number of people on private water supplies, and many had been struggling during the 2022 drought with exceptionally low water levels. We discussed the plans proposed in our dWRMP.

It was also generally agreed that there needs to be more contact and work with business customers.

5. Summary of Customer Research for dWRMP

Focused customer research was undertaken by Blue Marble to get views from customers about the dWRMP. Two phases of research were conducted – one specifically for dWRMP, and one which looked at the wider topics of our PR24 Strategic Investment Plan. The dWRMP research carried out in April and May 2022 was qualitative and aimed at exploring the following:

- Opinions for water restrictions
- approaches for reducing demand
- use of smart meters
- leakage targets
- water transfers
- support of private supply premises.

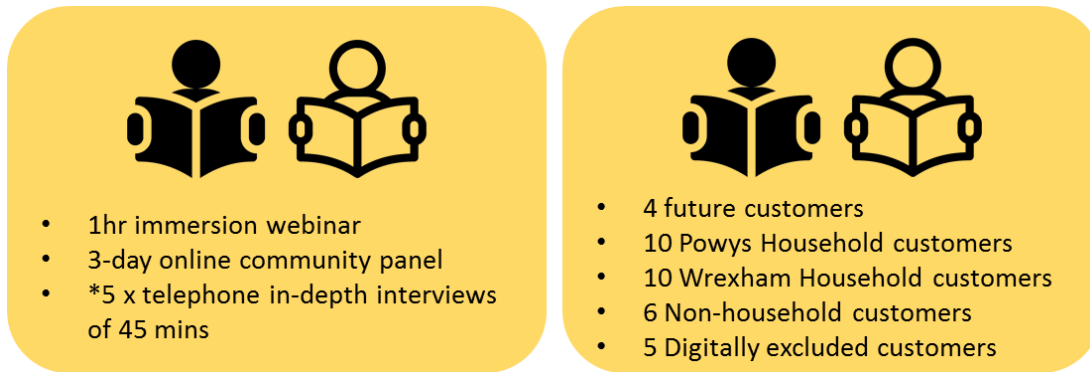


Figure 5.1: Description of the customer research conducted for our dWRMP

This insight showed that most customers knew little or nothing about the issues raised in the research, and that although they found it very interesting, it did leave them a little concerned. They had not realised the extent of future planning that we do and were reassured that we are thinking about the future and performing well against other water companies.

Overall, key findings from the customer research were that customers have many concerns about the next 25 years (e.g. new developments, demise of community, cost of living and environmental threats – including flooding) but are largely unaware of the water resources issues covered in the dWRMP proposals. Very few have experienced water restrictions in their lifetimes, and so hearing that we are planning for water scarcity is surprising but reassuring. Customers and future customers support the proposed level of risk of drought restrictions (1 in 40 for temporary use bans (TUBs) and 1 in 100 for non-essential use bans (NEUBs)) and many would accept more frequent restrictions.

Once informed, customers prioritised the dWRMP proposals as follows:

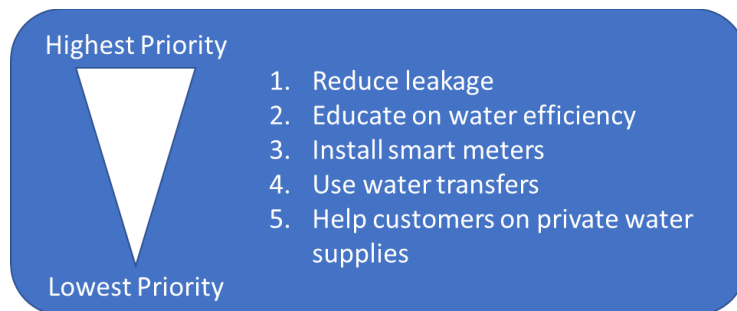


Figure 5.2: Priorities of WRMP proposals by informed customers

When looking at leakage, some customers said that the plans were about right, but the majority said that the plans were not ambitious enough and should be tackled sooner. The majority would like to see leaks fixed sooner, even if it costs more than it saves.

Water efficiency was discussed, and most proposed activities were seen as important – see the graph below:

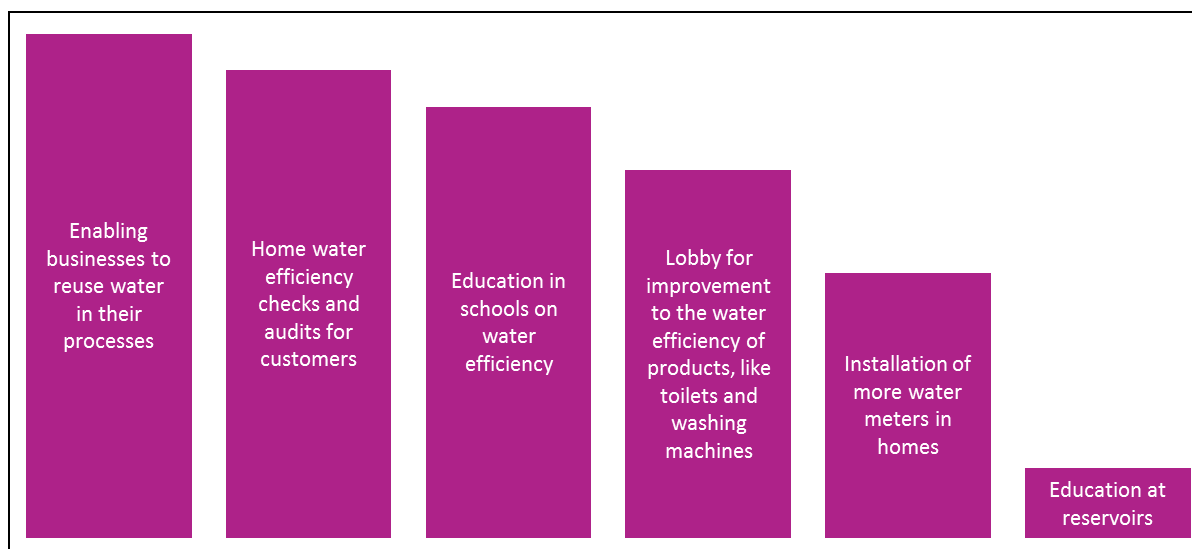


Figure 5.3: We asked our customers: “Which of the following should Hafren Dyfrdwy focus on in the future?” Participants were asked to choose the three they considered most important.

The majority of customers asked felt positively about water meters – they felt they would be motivated to monitor their water use and hopefully save water and money. Some had concerns though, which shows that clear communication of the benefits is needed.

Private water supplies were also discussed. Customers felt that those on private supply choose to be ‘off-grid’, and as they are not paying customers, question if any investment should be made at all. However most supported the mid to low investment options.

Overall, customers and future customers support the proposed level of risk of drought restrictions, and many would accept more frequent restrictions. And in terms of specific investment areas, they prioritise leakage reduction and managing demand (behaviour) through education above other investment areas,

The research has shown some invaluable and interesting views, which has been taken into consideration for our fWRMP.

6. WRMP Timeline and Next Steps

Following the publication of our Statement of Response on 15 May 2023, we will:

- Continue to work with Water Resources West (WRW) on the Regional Plan statement of response, which is due to be published on 21 June 2023.
- Complete any activities that we have committed to within this Statement of Response in preparation for our fWRMP.

Welsh Ministers will review this document, along with our dWRMP, and all representations made by our stakeholders through the consultation process. Considering technical advice from our regulators, they will then decide whether our fWRMP can be published. We anticipate that we will be granted permission to publish in autumn 2023.

Outputs of our WRMP will form part of our PR24 Business Plan, which is to be submitted to Ofwat in October 2023. The determination of our Business Plan will then inform our AMP8 Delivery Programme, starting in April 2025 until March 2030.

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Once the WRW Regional Plan Statement of Response has been published, we will continue working with WRW to create the Final Regional Plan, which will be published in autumn 2023. A high level timeline is shown in Figure 6.1 below.



Figure 6.1: How the Statement of Response fits into the wider planning timeline

Annex A - Table of All Responses Received

During the consultation stage of our draft Water Resources Management Plan (dWRMP), we received 108 comments from a total of 8 organisations and stakeholders. We would like to thank all of the groups and individuals who have taken the time to input into the development of our WRMP.

This annex provides a response to each individual comment received through the formal consultation response route. It should be read in conjunction with our main Statement of Response document, which summarises the key themes from these responses and how they have influenced our fWRMP.

Where comments received, or our responses, are particularly long they have been added to a notes table at the end of this document, and a hyperlink provided from the relevant line of each table.

The table below is sorted alphabetically by organisation name, and organisation names are abbreviated in accordance with the following key. We received consultation comments from the following organisations:

Abbreviation	Organisation
Arq	Arqiva
CCW	Consumer Council for Water
NFU Cymru	National Farmers Union Cymru
NRW	Natural Resources Wales
Ofwat	Office of Water Service
WRW	Water Resources West
WW	Waterwise
WDT	Welsh Dee Trust

Some of the consultees also use abbreviations that may be unfamiliar to other organisations. Consequently, we have provided a 'glossary of terms' below which explains what the abbreviations mean.

Abbreviations used by responding consultees:

Abbreviation	Definition
AMI	Advanced Metering Infrastructure
AMP8	Asset Management Period 8 (2025 to 2030)
AMR	Automated Meter Read
BMA	Bathroom Manufacturing Association
BVA	Best Value Analysis
BVP	Best Value Plan
CCW	Consumer Council for Water
CIWEM	Chartered Institution of Water and Environmental Management
DCC	Dee Consultative Committee
DEFRA	Department for Environment, Food & Rural Affairs
DO	Deployable Output
dWRMP	Draft Water Resources Management Plan
DYAA	Dry Year Annual Average
EA	Environmental Agency
EIP	Environmental Improvement Plan
ESW	Essex and Sussex Water
fWRMP	Final Water Resources Management Plan

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HD	Hafren Dyfrdwy
HH	Households
HRA	Habitats Regulations Assessment
l/h/d	Litres per head per day
l/p/d	Litres per person per day
m ³ /d	Cubic meter per day
ML	Mega Litres
ml/a	million litres per annum
MI/d	Mega litres per day
mm	Millimetres
MOSL	Market Operator Services Ltd
MtCO ₂ e	Metric tonnes of Carbon dioxide emissions
NBS	Nature Based Solutions
NHH	Non-Households
NRW	Natural Resources Wales
OfWat	Office of Water Service
PCC	Per Capita Consumption
PR24	Price Review 24
PWS	Public Water Supply
RCP	Representative Concentration Pathways
SAC	Special Area of Conservation
SPD	Source Performance Diagram
SSSI	Sites of Special Scientific Interest
ST	Severn Trent
TUBs	Temporary Use Bans
UK	United Kingdom
UKCP	United Kingdom Climate Projections
WAFU	Water Available For Use
WRMP	Water Resources Management Plan
WRPG	Water Resources Planning Guideline
WRW	Water Resources West
WRZs	Water Resource Zones
WiSDM	Water Infrastructure and Supply Demand Model

1. Arqiva

Ref.	Stakeholder Comment	Our Response
1.1	<p>We believe that Hafren Dyfrdwy must have an ambitious approach to reducing water demand in its water resource management plan, and a strong focus on the tools it can deploy now to achieve water demand reduction targets more quickly. Action to reduce demand will improve the resiliency of public water supplies, reduce the amount of energy required to treat drinking water, and help customers realise savings on their household bills.</p> <p>To achieve the necessary reductions in water consumption and ensure consumers can fully realise the benefits, water companies and households must be empowered with the real-time data smart meters provide.</p> <p>Arqiva is the UK's only large-scale provider of gold-standard Advanced Metering Infrastructure (AMI) smart water metering. Our meters play a pivotal role in supporting water companies to meet their targets. AMI provides accurate, hourly data that helps ensure leaks don't go unnoticed. This data also provides consumers with greater insight and control over their water use. Neither of these outcomes can be delivered as effectively by manual or Automated Meter Reading (AMR) meters.</p>	<p>Thank you for your response. Reflecting on feedback from our stakeholders we have updated our plans to include smart metering. We will take the information you have provided on board when developing our strategy.</p>
1.2	Please see Note 1	<p>Thank you for your response. Reflecting on feedback from our stakeholders we have updated our plans to include smart metering. We will take the information you have provided on board when developing our strategy.</p>
1.3	Please see Note 2	
1.4	Please see Note 3	
1.5	<p>AMI helps empower consumers to reduce per capita consumption and household bills. Consumers lack the knowledge they need to reduce their water consumption. One study found that almost half (46%) of people believe they only use 20 litres of water a day,⁶ while the average water consumption per person per day is 145 litres. Smart metering data encourages small behavioural changes that cut household water waste. Thames Water has shown that consumers with an AMI smart meter typically reduce consumption by 12-17%.⁸ They have also demonstrated that smart meters can deliver savings for households that need it most; vulnerable consumers using over 500 litres of water a day reduced their consumption by between 8-17%, the equivalent of £40 and £166 a year</p>	
1.6	<p>AMI could prevent 1 billion litres of water a day from being wasted by the mid-2030s, lowering carbon emissions.</p> <p>The leakage and water consumption reductions made possible by AMI smart meters provides the opportunity to improve the UK's water resiliency and support the water industry's transition to net zero. Approximately 6% of the UK's greenhouse gas emissions come from the supply and use of water within households. If one million smart meters are fitted per year over the next 15 years to homes that are not metered, the UK would secure an annual saving of one billion litres of water a</p>	<p>Thank you for your response. Reflecting on feedback from our stakeholders we have updated our plans to include smart metering. We will take the information you have provided on board when developing our strategy.</p>

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day by the mid- 2030s. This reduced household consumption could cut the UK's greenhouse gas emissions by 0.5% from 2019 levels (2.1 MtCO₂e),¹⁰ a significant and positive step towards reducing the sector's greenhouse gas emissions.

1.7	<p>AMI delivers wider economic benefits through improving operational efficiency. AMI delivers a range of benefits to water companies. These include more efficient leakage control costs; operating cost savings from reduced consumption; capacity benefits of reduced consumption (deferred investment or opportunity to trade water); reduced meter reading costs; improved infrastructure management; and improved forecasting data. Unlocking these benefits of AMI helps water companies' lower their costs, enabling greater focus and spend on delivering better services to customers.</p> <p>Modelling from Frontier Economics and Artesia shows a positive business case for investing in a wider rollout of AMI, with positive benefit to cost ratios for companies across England and Wales. Accounting for the lower carbon emissions smart metering makes possible alongside expected cost savings further increases the overall benefits of a wider AMI rollout. In a 2022 study, Frontier Economics and Artesia outlined that an AMI rollout across England and Wales by 2030 could deliver up to £2.2 billion in net benefits by 2050.¹² In comparison, an AMR rollout was anticipated to deliver benefits between £30 million and £400 million.</p>	<p>Thank you for your response. Reflecting on feedback from our stakeholders we have updated our plans to include smart metering. We will take the information you have provided on board when developing our strategy.</p>
1.8	Please see Note 4	<p>Thank you for your response. Reflecting on feedback from our stakeholders we have updated our plans to include smart metering. We will take the information you have provided on board when developing our strategy.</p>
1.9	Please see Note 5	

2. Consumer Council for Water (CCW)

Ref	Stakeholder Comment	Our Response
2.1	Please see Note 6	Thank you for your feedback.
2.2	<p>We are pleased to note our response to your pre-consultation has been considered in the development of this dWRMP. Most of the improvements we wanted to see have been included. However, we still remain of the opinion that there is a need for a real step change in the way the sector engages with the public on valuing and using less water.</p>	<p>Thank you for these comments. We understand that behaviour change is very difficult when it comes to asking customers to save water. We have a very comprehensive water efficiency PR campaign that has proven results so far and we intend to continue and expand on that going forwards.</p>
2.3	Please see Note 7	<p>Reflecting on feedback from our stakeholders, in our fWRMP we include details of our plans to roll out a smart metering programme from 2025 onwards. We are not considering universal metering at this stage. However, to achieve our revised PCC target (110l/h/d) and accelerated leakage programme we believe</p>

		we will need to utilise smart metering. We will link our smart meter roll out with water efficiency messaging to our customers.
2.4	Although we note that the Welsh Government has not mandated a per capita consumption target, we consider that the PCC reduction commitment in the dWRMP lacks ambition. Whilst Hafren Dyfrdwy is committing to a long-term reduction to 118 l/p/d, other companies in the sector are committing to a reduction to 110 l/p/d by 2050. The EIP 2023 requires companies to reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting figures by 31 March 2038, with interim targets of 9% by 31 March 2027 and 14% by 31st March 2032. In its dWRMP, Hafren Dyfrdwy's have proposed a reduction of 4.2% by 2025. We would like to see Hafren Dyfrdwy voluntarily have the same ambitions as other water companies. We have yet to see firm evidence that the company's customers will make the behaviour changes that it requires. What pilots do you have to draw upon now to demonstrate this can be achieved?	Feedback from our stakeholders and customers has indicated a need for greater ambition on demand. As a result we have set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their per capita consumption). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day as published in our draft WRMP). Our final WRMP sets out a strategy that delivers this target, via Hafren Dyfrdwy led water efficiency activity, a new smart metering initiative, and the spill over benefits from the UK Government's Water Labelling programme that they state will be introduced in 2025. We are also planning to work more with our non-household customers to help reduce their demand for water where feasible. We will continue to work with CCWater, Waterwise, NRW, Welsh Government and other stakeholders on initiatives to engage customers on behaviour change and use learning from industry best practice. We do not have any pilot schemes and will move direct to implementation in 2025.
2.5	We would be interested to hear if the company has explored how innovative tariffs (linked to smart meters) could help to encourage people to reduce water use (households and non-household).	We haven't specifically explored innovative tariffs as part of this WRMP, however, as part of our wider business planning, we will look to take learnings from other companies in the sector who are undertaking trials.
2.6	There is a clearly articulated need to help customers use less water and the experience over recent years has demonstrated how challenging this can be. We believe there is a need for a real step change in the way we engage with the public on these issues. Companies and other stakeholders need to do more to raise awareness and to persuade people of the need to value water and use it more wisely. This needs to be a key priority as it will also help customers to control their bills.	Thank you for these comments. We understand that behaviour change is very difficult when it comes to asking customers to save water. We have a very comprehensive water efficiency PR campaign that has proven results so far and we intend to continue and expand on that going forwards.
2.7	We would also like to challenge the over reliance on the Welsh Government's support on water saving initiatives (labelling and modified building regulations for new builds). Although these measures are likely to help to reduce water demand, they will still rely on behaviour change, and understanding of the label and the most efficient way to use the relevant white goods. The company needs to build in more thinking on what action it can take to address behaviour change. This could include exploring the possibility and practicality of compulsory metering of houses	Please see Note 10

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	with large gardens, or on all houses on change of occupier, for example.	
2.8	Welsh Government policy guidance is to “consider local multi-sector needs, such as agriculture and businesses, that have ability to switch to mains during peak demand periods and how you could support, where reasonably practicable, private water supplies during times of peak demand such as dry weather/ freeze thaw”. We are pleased to note the company is planning on support with alternative supplies for these customers.	Thank you for your comment. We are continuing to work with Water Resources West to better understand the needs of non-public water supply abstractors in our area, the wider Water Resources West region and to develop a multi-sector strategy for ensuring long-term sustainability. In our fWRMP, we have added more detail of the actions we intend to take over the next five years to help us build a longer-term strategy for supporting private water supply users. A summary of this can be found in our response to NRW - Issue 50
2.9	The dWRMP has anticipated a one third increase in demand for water from businesses (i.e., assuming the same mix of industries that are currently established). The dWRMP needs to have more detail on how the wholesale company will work with business customers and retailers (whilst the market remains open) in the short and long term to reduce demand and increase water efficiency. While the introduction of a new business demand Performance Commitment by Ofwat in the PR24 final methodology means there will be greater transparency and an opportunity set challenging targets, this is not a regulatory measure that can deliver demand reduction by itself. Wholesale companies’ plans need to be clearer on how they will manage business demand. We would like to see greater innovation and ambition in demand management, with the company showing how it will engage with business customers and retailers on joined up strategies to help reduce demand.	We acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra’s water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further.
2.10	Hafren Dyfrdwy is proposing to halve leakage by 2050 in line with sector commitments. We seek reassurance that this dWRMP will enable the company to match the EIP ambition of reducing leakage by 37% by 31st March 2038 in line with other water companies. For 2025 – 2030, the company is planning that the reductions in leakage will be achieved through a combination of active leakage control, pressure management and renewing water mains. These proposals seem to be more or less of the same actions the company has been taking to date.	Our proposed approach for leakage, which sees us reduce leakage by 50% from 2019/20 levels by 2050, was generally well received by stakeholders and customers. Our leakage target for AMP8 in our fWRMP will be 10%. We are including investment in smart metering in AMP8, using the additional insight this provides we will review the glidepath for reaching the 50% leakage reduction target by 2050 in our WRMP29. We note the EIP target is a UK Government ambition.
2.11	Please see Note 8	Reflecting on feedback we have received from our stakeholders; we are intending to roll out a smart metering programme from 2025 onwards. We believe that this will help us in reaching both our leakage and PCC targets as smart metering will help us and our customers to identify more leaks on

		their supply pipes. We will also have a water efficiency communications campaign that will aim to help change customer behaviour and this will include messages around leakage and how people can spot and report leaks.
2.12	Given that some water companies find the scale of the water resources needed cannot be met with solutions within their own supply areas, it is encouraging to see that potential raw water transfers have been explored through the regional water resources groups. We note that there are no plans for the company to carry out any raw water transfers but that the company will keep this under review.	Thank you for your comment.
2.13	It is very disappointing that details of the bill impact for customers is not included in the dWRMP. We would like to see it included. The bill impact of the 'best value plan' that the company is proposing will be in addition to the bill impacts from other regulatory requirements and investment needs. A single water affordability scheme is needed to make sure those most in need are protected from higher bills due to increasing environmental investment pressures.	At the time we carried out our dWRMP customer research, we didn't have the full picture of the bill impacts for our customers. The other investment needs and regulatory requirements for workstreams other than water resources need to be factored in - without this it's difficult for customers to see the full picture and make a judgement. Therefore, we will be testing this as part of our PR24 affordability and acceptability customer research, following the Ofwat and CCW guidance. We currently have various ways in which we can help and support customers who are struggling with their bills and we will be carrying out research on the ways in which we support those in need going forwards.
2.14	The plan has taken into consideration the views of customers as demonstrated by the research outputs shown in the dWRMP. As such, there is a thread between customer engagement, research and customer priorities in the plan. However, there is no evidence that customers were advised of the different bill impacts on the options the company tested. It is important that this is triangulated to gain the true views of customers.	At the time we carried out our dWRMP customer research, we didn't have the full picture of the bill impacts for our customers. The other investment needs and regulatory requirements for workstreams other than water resources need to be factored in - without this it's difficult for customers to see the full picture and make a judgement. Therefore, we will be testing this as part of our PR24 affordability and acceptability customer research, following the Ofwat and CCW guidance.
2.15	Please see Note 9	We will also be carrying out research on the ways in which we supports those in need (the single water affordability scheme is a matter of policy which is not in our control!!)

3. NFU Cymru

Ref	Stakeholder Comment	Our Response
3.1	Wales is rich in natural resources and strategically important within the UK for the environmental services it provides such as clean water and carbon storage. These services provide benefits for all of society.	Thank you for your comment. We are working with the other organisations in Water Resources West to better understand the needs of non-public water supply abstractors and to identify ways that we can

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NFU Cymru supports the devolution of matters relating to water. It is our strong view that decisions relating to water resources, including transfers, should be made by our elected representatives in Wales for the benefit of the people of Wales. We believe Welsh Government must understand the full economic value of Wales's water as a key strategic resource and ensure this value is returned, in full, to the people of Wales. Farmers who manage the landscapes that supply clean and plentiful water must be paid fairly for the public goods they provide. This must not be achieved through the curtailing of farming activity via restrictions on land management and costly regulation.

Water is a vital element across all agricultural sectors and farmers rely on a combination of rainfall, mains water and abstracted water to meet their needs. As population growth increases across the UK, greater pressures on a range of resources are expected including demand for water. A changing climate also means that additional water may be required in source areas for food production. Welsh farming must be able to access its fair share of water resources now and in the future to enable sustainable growth of the sector.

work together within catchments to make sure that the needs of abstractors, the environment and other recreational users can all be met in a sustainable way.

We have added further details to our fWRMP of the actions we intend to take over the next five years to help us build a longer-term strategy for supporting private water supply users. A summary of this can be found in our response to NRW - [Note 15](#)

4. Natural Resources Wales (NRW)

No	Stakeholder Comment	Our Response
4.1	Please see Note 11	Thank you for your positive feedback.
4.2	The draft plan does not include an assessment of the resource zone integrity of the four water resource zones (a requirement set out within the water resources planning guideline (WRPG)). The company should include an assessment of how they met the resource integrity definition within its final plan.	Please see note 37
4.3	Hafren Dyfrdwy has reported a 'Low Risk category' problem characterisation as defined in UKWIR (2016) WRMP 2019 Methods – Risk Based Planning document. The company has presented a high-level summary of the problem characterisation within its draft plan. For its final plan, the company should include the results for each stage of problem characterisation, with the supporting evidence used to reach the conclusion of low risk.	Please see note 38
4.4	We have noticed that groundwater level data is from manually dipped data (which usually used check data logger information). The company should consider installing data loggers to collect real time data sets to provide more temporally discretised groundwater level data for the deployable output (DO) assessments. If they are not planning to install data loggers, clarify within the final plan why this is the case	Our Llandinam and Llanwrin groundwater sources are both part of our AMP7 programme for groundwater level logger installations. Until this project is completed, we will continue to use manual water level data to define our deployable outputs for the two sites. At our Llandinam and Llanwrin sources, our Source Performance Diagrams (SPDs), used

		to calculate the deployable outputs for the boreholes, indicate that there are up to 13.1 metres of saturated borehole between the drought curves and the pumps at their installed depths. Therefore, as the deployable outputs are defined by the annual abstraction licences, we do not expect the sources to be constrained by either the saturated borehole thickness or the aquifer thickness.
4.5	Within Appendix A (Supply), further clarification should be provided when assessing the pumping capacity on how much saturated borehole thickness, aquifer thickness and the depth of the pump inverts factor into the assessment of additional DO.	At our Llandinam and Llanwrin sources, our Source Performance Diagrams (SPDs), used to calculate the deployable outputs for the boreholes, indicate that there are up to 13.1 metres of saturated borehole between the drought curves and the pumps at their installed depths. Therefore, as the deployable outputs are defined by the annual abstraction licences, we do not expect the sources to be constrained by either the saturated borehole thickness or the aquifer thickness.
4.6	The company should note within its final plan Appendix A that the Dee General Directions were last updated in December 2020 (this will supersede the June 2016 version quoted).	We have updated our fWRMP to reflect this.
4.7	Regarding Table A2.3: Footnotes 3 & 4 should also apply to the Twll limit at Stage 1 & 2 to qualify that the continuation of 41.5 Ml/d depends on the operation of Pen y Cae Augmentation.	We have updated our fWRMP to reflect this.
4.8	Hafren Dyfrdwy is a member of the Dee Consultative Committee (DCC) – chaired by NRW - alongside the other major abstractors and stakeholders within the Dee catchment. The River Dee is operated using rules as defined within the Dee General Directions. The special conditions for operation in severe droughts must be approved and adopted by all members of the Committee. Hafren Dyfrdwy has modelled the 1:500 drought resilience in the Wrexham WRZ utilising the Dee system storage up to its dead water level (dead storage). We would expect the company to consider using an emergency storage reserve as the trigger for emergency drought order implementation, rather than dead storage. This is because when the dead storage is reached there is no further water available from the Dee system.	Please see Note 36
4.9	It is also unclear from the draft plan whether climate change / drought scenarios have included the effects of consecutive events such as a number of dry winters and drier summers on groundwater levels.	Please see Note 12
4.10	For its final plan Hafren Dyfrdwy's should reassess its modelling of level of resilience to ensure that emergency storage is used rather than dead storage.	Please see Note 36
4.11	In addition, clarify whether the impacts of consecutive events have been considered for groundwater.	For our groundwater sources, we have determined the deployable output under a 1 in 500-year drought severity to establish the DO baseline and have then considered

the impact of UKCP18 climate change scenarios on this baseline. This assessment has been completed for our borehole sources in Llandinam and Llanwrin water resource zone and Oerog spring in Wrexham water resource zone. The climatic data used in this assessment was derived from Water Resources West (WRW) and comprises the stochastic rainfall and potential evapotranspiration data (48 years x 400 series, giving a total of 19,200 years' worth of data). We analysed the data from this stochastic series to conclude that less than 2% could be classified as a dry-winter sequence (based on the climate data) and so therefore we are confident that our analysis has included consideration of consecutive reduced recharge events. The results show that both Llandinam and Llanwrin are not predicted to be affected under the 1 in 500-year baseline plus the maximum probabilistic climate change scenario. Oerog spring is expected to have zero output under a 1 in 500-year scenario and this has been factored in to the deployable output calculations for Wrexham water resource zone.

4.12	Hafren Dyfrdwy does not appear to have included experience from recent prolonged dry weather and drought events e.g., 2018, 2020 and 2022 within its forecast supply and demand baseline assessments. The company should ensure that recent drought experience is included within its final plan.	Please see Note 13
4.13	The final plan should make it clear that the water resource zone forecasts are for the Dry Year Annual Average (DYAA) scenarios.	At the start of Section 6.4 "Recent demand trends" of the Main Narrative we have added the following text: Our baseline demand forecasts are based on a dry year annual average demand. This is when demand for water is at its highest before water use restrictions are imposed.
4.14	We also note that the supply demand balance figures in the Wrexham resource zone DYAA baseline tables do not appear to match those given in Table 7.4 in the main plan. This should be rectified for the final plan.	We have updated Table 7.4 in our final plan to reflect the supply demand balance numbers in the WRMP tables.
4.15	We welcome that Hafren Dyfrdwy has committed to reducing leakage by 15% by 2025, a further 10% reduction 2025-30 and 50% reduction (from 2019-20 levels) by 2050. Hafren Dyfrdwy propose this glide path as the right balance between customer bill pressure and making environmental gains by taking less water from the environment. We are not confident that the leakage programme will deliver this projected glidepath given that the draft plan does not include the specific details of what the leakage programme includes as well as detailed costing. The company states that the leakage reduction programmes will be defined, as requested by Ofwat, in the water company's PR24 Business Plan.	We will include further details of our leakage plans in our fWRMP.

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We expect the details of this programme, with supporting evidence to be included within its final plan. This should include full assessment of actions being taken and how their effectiveness will be assessed and reported to ensure the year-on-year success meeting the leakage reduction targets.

4.16	Please see Note 14	In response to feedback through the consultation process and our stakeholder events we have updated our final plan has a PCC target of 110 l/p/d by 2050. The delivery profile also shows a more gradual reduction of PCC to long term target reductions by reflecting the benefits of water labelling from 2025.
4.17	The company has acknowledged that a proposal Wrexham's Western Gateway Industrial Estate could potentially increase non household demand by up to a third in this resource zone. Hafren Dyfrdwy has included this demand within its assessment and the zone remains in surplus. The scale of increase in demand will depend on the types of industry in the new development planned for 2030 onwards. The company should include any changes to demand in the future plans once more information on the mix of industries is known.	We will keep in contact with Wrexham Council to monitor the progress of the Wrexham Western Gateway Industrial Estate development and will include an updated assessment in our demand forecast of our next WRMP, which will be published in 2029.
4.18	The non-household appendices (Appendix B) appear to have been written in part to clarify the English approach on retailers. The company should make it clear within its final plan that Welsh policy on restricted retail applies in Wales – with only non-householders of more than 50 million litres per annum (ml/a) eligible to switch to the retail market. As a result, it is highly likely that majority of non-householders will be direct customers of Hafren Dyfrdwy rather than retailers. Therefore, the company should amend the narrative to recognise this.	The non household demand forecast was produced as part of a Water Resources West project, and the methodology explanation will cover some aspects of the English market. Our fWRMP narrative is updated to reflect the setup in the Welsh market.
4.19	The draft plan states: As all of our water resource zones are in surplus and we are not considered to be an area under severe water stress, we lack the necessary authority to install smart meters for all our customers. This statement is misleading. There is no water stress classification in Wales, this was for England only. Whilst we accept that there is no universal compulsory metering policy in Wales - the company should amend Appendix G to reflect that classification doesn't apply in Wales.	We have amended the fWRMP to correctly reflect there is no water stress classification in Wales.
4.20	Hafren Dyfrdwy has been working on a collaborative project as part of Water Resources West (WRW) to develop a more detailed understanding of how much private water supplies and other sectors are located within their operational area. This information is crucial to the company's understanding of who may switch to mains water supply during periods of 'peak demand' such as in a drought or seek alternative raw water supplies from them before the proposed date of 2030.	Please see Note 15

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We welcome Hafren Dyfrydy's commitment within its draft plan to carry out work to better understand the potential demand needs from these sectors. The company should outline within its final plan what further work it intends to carry out with timescales in order to inform its next round of plans (WRMP29).

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| 4.21 | It is unclear from the draft plan how the company has managed uncertainty in respect to water efficiency take up being lower than expected. The company should provide further clarity within its final plan on how reduced demand management affects the zonal supply demand forecasts. | Please see Note 16 |
| 4.22 | Hafren Dyfrdwy has stated within its draft plan that they have engaged with its statutory consultee's including NRW and Ofwat. However, limited details of this engagement have been provided within the draft plan.
The company should include within their final plan specific details of the feedback provided by each organisation during pre-consultation and how these have influenced the development of the plan. | Our fWRMP includes further details about how our stakeholders have influenced our WRMP at both the pre-consultation and consultation stages. |
| 4.23 | Hafren Dyfrdwy has engaged with 35 customers for their views on how the company should prioritise investment through qualitative engagement exercise. The company should consider expanding its customer engagement to a quantitative exercise to engage larger numbers (especially if it's their feedback that's driving selection of demand management options) for its final plan. | Although we'd love to do more research with more customers, there is a cost to doing this and we don't feel this is justified when we don't have a deficit and so there are no supply options for customers to have a view on. However, since the draft plan we have done some more customer research for our PR24 plans, and this gives us further views on the change in our leakage ambitions and the perceived affordability of the plans. This will be taken into account for our final WRMP. |
| 4.24 | Now that Hafren Dyfrdwy is a full member of Water Resources West (WRW) regional plan, we expect the company to agree a stakeholder engagement plan alongside other WRW members, in its geographical area given the importance of the Vyrnwy & Clywedog reservoirs to the environment and wider society within Wales. | We note that this feedback has also been provided to Water Resources West and the other companies involved in the Severn Thames Transfer and its supporting SROs. We have worked with them to review and fully update our stakeholder engagement plan for Welsh stakeholders. We now have a joined-up engagement plan across the WRW core member companies and the STT and NWT projects for these aspects. We accept the need to do more engagement with Welsh stakeholders at this stage in the process, linking both to the transfer schemes and other opportunities, e.g. through environmental destination and partnership working. We have started to implement this plan, with a WRW presentation to the broadly attended NIC Wales/Consumer Council for Water conference in Cardiff on 31 March, a Hafren Dyfrdwy and STT meeting with Plaid Cymru on 19 April and WRW/STT meeting with the Wildlife Trusts along the Severn on 24 April. This also included the Dee Rivers Trust and |

the Severn Rivers Trust. Further coordinated engagement is planned, and we welcome RAPID and NRW input into our stakeholder engagement plan.

4.25	<p>The company has considered its Welsh legislation requirements under Environment Wales Act, Wellbeing of Future Generations Act and Climate Change Regulations 2021.</p> <p>We welcome the enhancement of ecosystem initiatives (environmental destination) set out within the draft plan. However, it is unclear how it has considered nature-based solutions (NBS) and providing wider environmental improvements especially to water quality within its final plan. The company's final plan would benefit from specific details of how they are going to implement NBS and improve water quality further.</p>	<p>We are continuing to develop our plans for PR24 including elements of catchment-based water quality improvements for our raw water reservoirs, which will be delivered through a nature-based approach. We are also developing our ongoing strategy for meeting the section 6 duty of the Environment (Wales) Act and will ensure that any schemes for improving biodiversity will deliver multiple benefits where possible, including water quality improvements.</p>
4.26	<p>The Welsh Government funded multi-sector water use project: Private Water Supplies (Arup 2021) identified a potential 42k private water supplies < 20m³/d, not registered with the DWI. These water users are particularly vulnerable to reduced flows and groundwater levels. We agree with Hafren Dyfrdwy that work needs to be carried out to connect to mains or provide an alternative sustainable plan of supply, especially during periods of prolonged dry weather, preferably before the proposed date of 2030.</p>	<p>We have added further details to our fWRMP of the actions we intend to take over the next five years to help us build a longer-term strategy for supporting private water supply users. A summary of this can be found in our response to NRW - Issue 50.</p>
4.27	<p>In assessing DO in general and options to increase DO, have costings been performed that look at options that include lowering of pumps, uplifts in treatment costs, assessing the potential to connect relic/mothballed wells that may have been used in the past, into the network.</p>	<p>As we are in surplus under all plausible scenarios (even without demand side improvements to PCC and leakage) we do not intend to progress supply side options to increase DO beyond their current level of development. This is because they are not needed under any plausible scenario.</p>
4.28	<p>The plan could consider how improved customer connectivity with local reservoirs may increase water efficiency behaviours.</p>	<p>We are continually updating and refreshing our customer engagement plans, and one of the things we are currently thinking about is how to help our customers feel more connected to where they get their water from. We will be updating our website and carrying out a social media campaign in the coming months.</p>
4.29	<p>The Dee General Directions were last updated Dec 2020 (superseding the June 2016 version quoted). Table A2.3: Footnotes 3 & 4 should also apply to the Twll limit at Stage 1 & 2 to qualify that the continuation of 41.5 MI/d depends on the operation of Pen y Cae Augmentation</p>	<p>Thank you for your comment. This has been addressed as part of No 4.7 in this section.</p>
4.30	<p>Hafren Dyfydwy need to clarify that the retail market is restricted in Wales and some of assumptions used around non households are unlikely linked to retailers and MOSI.</p>	<p>We will be updating Appendix B for the fWRMP and will make this clarification.</p>
4.31	<p>Clarification required in the headroom calcs page 5. "There is a larger gain in DO (7.6 MI/d) than loss in DO (2.4 MI/d) compared to the climate change central estimate (loss of 10.3 MI/d)". Confirmation required</p>	<p>We can confirm that the P10, P90 and central estimate figures used for those calculations are at RCP8.5. We will add this clarification to Appendix C in the fWRMP.</p>

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	as to whether P10 & P90 figures have been scaled to RCP6.0 or if all the figures quoted are for RCP8.5.	
4.32	Clarify the component number for climate change uncertainty: S8 on figure C2.4 but description is under the header S7 in section C2.1.	We will amend this for the fWRMP.
4.33	With respect to: D3 Uncertainty of the impact of climate change on demand and in relation to assessing consecutive climatic events such as 3 dry winters and drier summers, include further information as on which scenarios are and are not included in D3.	We have not made an allowance for D3, uncertainty of the impact of climate change on demand for our dWRMP24 and we intend to maintain this approach for fWRMP24. We have used climate change impact on demand factors on our central projection for household consumption from the UKWIR report, "Impact of climate change on water demand" (UKWIR, 2013). We have used the 50th percentile impact from the Severn Basin case study relationships. There are options for other percentile impacts and these could be used to define climate change impact on demand uncertainty. However, we already define a PCC uncertainty range for annual PCC (post climate change) forecast and believe this adequately covers climate change uncertainty. A further D3 allowance would lead to 'double counting' the uncertainty. Furthermore, our target headroom model would not enable us to assess climatic events over multiple years (such as three dry winters) as our target headroom model assesses each year independently.
4.34	S5 issues – gradual pollution of sources causing a reduction in abstraction. Further details of analysis required and what is meant by gradual pollution.	Gradual pollution in target headroom is defined as 'worsening water quality that may potentially affect the ability of the source to maintain the current or future forecast DO value'. We have included an explanation of our approach in Appendix C but will consider whether further details can be added for the fWRMP.
4.35	To what degree is wastewater leakage/loss from the wastewater/stormwater conveyance system being investigated so measures can be derived to help improve the quality of water resources including urban water?	There are 50 wastewater treatment works across our area, with 492km of sewer pipes serving a population of around 40,000. Most of these catchments consist of small rural networks comprising of small diameter sewers conveying low levels of wastewater, which are located away from water resource sources. As a result, the risk of wastewater escaping from the wastewater network and infiltrating through soil strata to contaminate water resources is not considered to be significant.
4.36	The environmental improvements work are focused on Mid Wales, specifically around Vyrnwy. This source is not used to supply HAFREN DYFRDWY customers. More information on environmental improvements within the Hafren supply area, especially those which are designed to improve water quality would be useful.	We are currently developing our environmental destination plans in line with our PR24 plan. We will provide further details on this where available in our fWRMP.

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4.37	Were other unconstrained options such as Managed Aquifer Storage considered?	Our unconstrained list contains 22 different supply scheme options. We have not included Managed Aquifer Storage as we do not currently have a land stamp large enough to accommodate such a scheme. We are aware that other companies are investigating these types of options through WRMP24. It is something that we will review and consider for WRMP29.
4.38	Our assessment of our groundwater sources has also shown that they are resilient to 1 in 500-year drought events, combined with the impact of climate change. Explanation required on how the assessment of climate change impact included consecutive event scenarios.	For our groundwater sources, we have determined the deployable output under a 1 in 500-year drought severity to establish the DO baseline and have then considered the impact of UKCP18 climate change scenarios on this baseline. This assessment has been completed for our borehole sources in Llandinam and Llanwrin water resource zone and Oerog spring in Wrexham water resource zone. The climatic data used in this assessment was derived from Water Resources West (WRW) and comprises the stochastic rainfall and potential evapotranspiration data (48 years x 400 series, giving a total of 19,200 years' worth of data). We analysed the data from this stochastic series to conclude that less than 2% could be classified as a dry-winter sequence (based on the climate data) and so therefore we are confident that our analysis has included consideration of consecutive reduced recharge events. The results show that both Llandinam and Llanwrin are not predicted to be affected under the 1 in 500-year baseline plus the maximum probabilistic climate change scenario. Oerog spring is expected to have zero output under a 1 in 500-year scenario and this has been factored into the deployable output calculations for Wrexham water resource zone.
4.39	The plan states: As all of our water resource zones are in surplus and we are not considered to be an area under severe water stress, we lack the necessary authority to install smart meters for all our customers. This is misleading, there is no policy in Wales for compulsory metering even in water scarce areas.	We will amend the statement in our final plan to reflect this.
4.40	More information is needed on how the presented demand management measures represent best value.	We are reviewing our demand management options and will provide more detail as appropriate in our fWRMP.
4.41	It would be useful for Hafren Dyfrdwy to present evidence that customers do not want to opt to have meters and how the company will progress meter penetration.	We don't have compulsory metering in Hafren Dyfrdwy, but we do offer an optant programme which allows customers to have a meter installed should they wish. As part of our fWRMP we will be including our plans to roll out smart metering to our customers. This will include providing smart meters to

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customers who opt to have one and replacement of existing meters.

4.42	Several water efficiency measures supported by Hafren Dyfrdwy are presented, would the water company consider incentivisation schemes for larger water saving appliances such as water harvesting cost effective?	We have not considered tariffs or incentives as part of this WRMP. It is something we will look into as part of our wider business planning.
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5. Ofwat

No	Stakeholder Comment	Our Response
5.1	Please see Note 17	Thank you for your comment.
5.2	Please see Note 18	Reflecting on feedback we have received from our stakeholders our fWRMP has a PCC target of 110l/p/d by 2050. We have developed a plan to help us achieve this target and details are presented in the WRMP reporting tables and narrative.
5.3	We welcome the fact that the company has tested different target profiles such as achieving 50% leakage reduction via fast, linear and slow delivery. However, the fWRMP should provide sufficient and convincing evidence explaining why the company selected its preferred strategy. This should clearly present the costs and savings per price control period for each scenario. This explanation and comparison should be clearly set out in the fWRMP. We are concerned that the company has only looked at a narrow set of demand management options. The options that have been assessed are all included in the preferred plan. This suggests that these preferred options were not assessed against any alternative options. The company should provide sufficient and convincing evidence that the preferred plan is optimal and long term best value based on an assessment of a wide range of options in its fWRMP.	In order to achieve the challenging PCC targets, the current plan makes use of all demand options at our disposal, taking account of the state of the supply demand balance. We again reviewed the demand options at our disposal in preparation for the fWRMP.
5.4	We welcome that the company is forecasting to deliver its PR19 leakage performance commitment level by 2024-25. However, we are concerned that based on the dWRMP data tables the company does not forecast to deliver its PR19 performance commitment levels for PCC by 2024-25. The company has stated that its PCC performance target is currently subject to review and that it does not consider appropriate to submit a revised trend at this point but will do so as part of its PR24 business plan. We expect the company to deliver its PR19 and WRMP19 targets. Companies should not expect additional customer funding to address under delivery in the current or previous periods. We expect the company to review its proposals in these areas for its fWRMP.	We understood from Ofwat's published approach to the AMP7 PCC performance commitment in 'Consultation on changes to per capita consumption performance commitments –our decision on reporting performance and ODI timing (November 2021) 'that Ofwat would be considering companies' performance on PCC at PR24 taking into account the information available then on the effects of the Covid-19 pandemic on PCC over time. Our analysis for the PR24 business plan is ongoing and, performance commitment targets are subject to review by senior management and Board, considering progress versus PCC targets in the remainder of this AMP. We will submit PCC data as part of the PR24 business plan submission in October 2023, and a best view in the fWRMP.

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| 5.5 | <p>Although we welcome Hafren Dyfrdwy's proposal to reduce business demand levels by 3% by 2029-30 compared to 2019-20 baseline levels⁵, the company does not discuss its strategy to reduce non-household water consumption in its draft plan. We have previously highlighted the opportunity for companies to deliver non-household demand reductions and our expectations for WRMPs that deliver significantly improved levels of water efficiency in the business sector. We expect the company to clearly justify an ambitious strategy for non-household demand reduction in its fWRMP.</p> | <p>We acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra's water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further.</p> |
| 5.6 | <p>The data provided by the company to date indicates that the company is proposing a marginal three-year average PCC reduction over the 2025-30 period that still results in a PCC level 7.3% higher than the 2019-20 baseline by 2029-30. As the company further develops its forecast PCC performance trend from dWRMP to fWRMP it should include the reasons for changes and explain the impact of any revisions on the optimisation and best value option selection in its preferred plan. We expect the company to provide sufficient and convincing evidence in its fWRMP to justify why its selected targets for demand, in particular increases from the 2019-20 baseline, represents the best value approach to meeting a supply-demand balance or delivering long-term strategic outcomes.</p> | <p>Please see Note 19</p> |
| 5.7 | <p>We welcome that the company is proposing to achieve a more ambitious leakage reduction target of 65% by 2050. However, the company should test this target against less ambitious targets to show that its strategy is best value. Further explanation of decision making and justification for the selected leakage target is required in its fWRMP.</p> <p>Hafren Dyfrdwy did not include leakage options in its dWRMP tables. The company stated that this was due to an error. The company clarified that the only costs in the model to vary across the planning horizon are those for active leakage control and that pressure management and trunk main renewal options were not considered. The company stated that it is in the process of reviewing and refreshing data for the fWRMP and that this may include pressure management options. To provide sufficient and convincing evidence that its leakage strategy is best value, the company should test a wide range of leakage options and present disaggregated costs and benefits for each of these options.</p> | <p>Our leakage target is to halve leakage by 2050 from 2019/20 levels. We have started to generate more options within our leakage plan that will be assessed within our combined Water Infrastructure and Supply Demand Model (WiSDM). This work will be at an appropriate level of granularity and used to inform the fWRMP.</p> |

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5.8	Hafren Dyfrdwy recognises the importance of finding better ways to reduce leakage on supply pipes. It states that it will set out options to deal with this issue (such as the use of smart meters and transfer of ownership) as part of its PR24 adaptive planning process. We are encouraging companies to evaluate the benefits of a common industry approach to addressing leakage on customers' own pipes. We expect companies to provide a view on the benefits of a common industry approach in their statements of response and fWRMPs. We will support companies in the development of a common approach but expect the industry to lead on the development. The Water UK leakage route map to 2050 committed to an informed debate on customer supply pipe strategy by December 2022.	We will work with Dŵr Cymru Welsh Water to see if we can align a Wales wide approach to customer supply pipes. Our approach will look to combine leakage and lead issues. Discussions have already been had at the Wales PR24 Forum where we raised supply pipe ownership with the Welsh Government and other regulators.
5.9	Please see Note 20	Reflecting on feedback from our stakeholders, in our fWRMP we include details of our plans to roll out a smart metering programme from 2025 onwards. We have considered and costed various levels of smart metering coverage, including the technology related common reference scenarios. Our plans do not include universal metering at this stage.
5.10	Please see Note 21	Please see Note 22
5.11	Please see Note 23	We have added a graph to section 6.1 of the main narrative to show the supply demand balance at a company level and to quantify the impact that individual drivers of water need have on this.
5.12	Hafren Dyfrdwy has tested and confirmed that its WRZs deployable outputs are not impacted in a 1 in 500 year resilience scenario, and therefore set out the ambition to maintain a 1 in 500 year resilience target for its customers supply. The company also states it will maintain its current levels of service for temporary use bans (TUBs) and non-essential use bans (NEUBs) and justifies this based on customer views. The company confirmed that no abstraction reductions are proposed by Natural Resources Wales (NRW) for its supply area, and therefore this has not been a driver impacting the supply demand balance. Hafren Dyfrdwy's environmental destination approach will therefore focus on catchment level investigations with no impact on deployable output.	Thank you for your comment.
5.13	Hafren Dyfrdwy has stated it will review covid-19 data and consumption trends between its draft and fWRMPs. In particular, Hafren Dyfrdwy should test sensitivity of covid-19 impacts on the starting position of its supply demand balance in its fWRMP.	We understood from Ofwat's published approach to the AMP7 PCC performance commitment in 'Consultation on changes to per capita consumption performance commitments – our decision on reporting performance and ODI timing (November 2021)' that Ofwat would be considering companies' performance on PCC at PR24 taking into account the information

		available then on the effects of the Covid-19 pandemic on PCC over time. Our analysis for the PR24 business plan is ongoing, and performance commitment targets are subject to review by senior management and Board, considering progress versus PCC targets in the remainder of this AMP. We will submit PCC data as part of the PR24 business plan submission in October 2023, and a best view in the fWRMP.
5.14	Please see Note 24	We note Ofwat's comment on the completeness of data on demand options in WRMP tables and we will ensure that this is corrected for the fWRMP and PR24.
5.15	Please see Note 25	We are developing more demand side options so that we are sure that we have the best value plan to achieve national leakage and per capita consumption targets. As we are in surplus under all plausible scenarios (even without demand side improvements to PCC and leakage) we do not intend to progress supply side options beyond their current level of development. This is because they are not needed under any plausible scenario.
5.16	Hafren Dyfrdwy has not referred to Ofwat's public value principles, although the plan adheres to most of the principles. We would like the company to reference Ofwat's public value principles within its best value planning process in its final plan and provide narrative on how the principles have been used to inform preferred plan decision making. In combination assessments have been included for environment but not for deployable output at the programme level as part of the best value plan assessment. These should be completed in the final plan.	Please see Note 26
5.17	An explanation of the approach to uncertainty has been provided. The adaptive plan addresses known issues and future uncertainties tested against a range of scenarios. The plan provides an explanation of methods used to combine individual scenarios. Hafren Dyfrdwy has tested its supply demand baseline against climate change, drought resilience, growth and environmental destination scenarios and under all these scenarios it states that its supply demand balance is in surplus, i.e., it is resilient to a 1 in 500 drought resilience standard now.	Please see Note 27
5.18	Please see Note 28	We agree with this statement and would like to reiterate that our supply demand balance is in surplus and therefore is resilient to a 1 in 500-year drought.
		Please see Note 29

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5.19	<p>While we recognise that plans will develop over time and that costs and benefits may be refined, we are concerned that the company is not demonstrating sufficient evidence that it has a confident and accurate understanding of the efficient costs and benefits associated with the delivery of its plan. If the costs and benefits of options are to change significantly this will impact the decision-making process and therefore the justification for the optimised preferred programme consulted upon in the dWRMP. For its fWRMP we expect the company to clearly explain any changes to costs and benefits presented for the preferred plan from those presented in its dWRMP. The company should provide sufficient and convincing evidence explaining the reasons for changes and how these have impacted the decision-making and optimisation process that produced its fWRMP preferred programme.</p>	<p>We note Ofwat's comments and will review demand side scheme costs and benefits to ensure that they are efficient and robust</p>
5.20	<p>The company has identified £2.1 million of enhancement expenditure relating to the delivery of its dWRMP in the 2025-30 period. Over the 2025-50 period the company has identified a requirement for over £10.8 million of enhancement expenditure. For this investment Hafren Dyfrdwy plans to deliver 1.4 Ml/d of supply demand benefit in 2025-30. The company's proposed investment is split between demand-side improvements, leakage improvements and metering improvements. No breakdown of cost data for feasible options is presented and this is expected for the final plan.</p> <p>The company should ensure that its costs are sufficiently evidenced in its fWRMP and provide convincing evidence that the preferred options being selected, across all areas of its plan, are best value in its fWRMP24 and ensure costs are reliable, efficient, and appropriately allocated.</p>	<p>We note Ofwat's comments and will provide an improved breakdown of costs in the fWRMP.</p>
5.21	<p>Extensive stakeholder and customer engagement has been undertaken. Customer engagement focused on topics including levels of service, leakage, smart metering and transfers. Hafren Dyfrdwy stated that customer preferences were used in the best value decision making to select a least cost, no regrets plan, however it is not clear how customer views influenced the best value decision making. The final plan should explain clearly how customer preferences informed best value decision making.</p>	<p>We include further information on how our customers influenced the best value plan decision making in our fWRMP.</p>
5.22	<p>Future customer engagement should seek to understand customer preferences on the scale and timing of investments, and the final plan should show how customer views on investment have been considered and include more detail around bill impact.</p>	<p>At the time we conducted our dWRMP customer research, we didn't have the full picture of the bill impacts for our customers. The other investment needs and regulatory requirements for workstreams other than water resources need to be factored in - without this it's difficult for customers to see the full picture and make a judgement. Therefore, we will be testing this as part of our PR24 affordability and acceptability</p>

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		customer research, following the Ofwat and CCW guidance.
5.23	There has been limited engagement with retailers and non-household customers ahead of developing the dWRMP. Hafren Dyfrdwy should provide evidence in its final plan to demonstrate how the views of retailers and non-household customers have been considered.	We absolutely agree that retailers and non-household customers are important in helping to reduce demand and as such we have been engaging with them more since the draft plan. A series of workshops has been set up to start to work together on water efficiency activities and to see how else we can work together going forwards.
5.24	Engagement with neighbouring water companies has been carried out through the River Severn Working and Modelling Group, and Hafren Dyfrdwy has engaged with Natural Resources Wales to ensure its plan meets the environmental destination requirements for Wales. Hafren Dyfrdwy has engaged with the WRW regional group to align planning and methods, and to share data. Effective engagement with regulators has been undertaken and has been used to refine the dWRMP.	Thank you for your positive feedback on our dWRMP. In response to a comment from Natural Resources Wales, we have added more detail to Section 5.1 of our fWRMP main narrative document. Within this we have provided an overview of how our discussions with our regulators shaped our WRMP.
5.25	No details of opportunities to enable co-funding or co-delivery have been identified. Further investigation of partnership opportunities for co-funding and co-delivery with stakeholders, including consideration of commercial models, should be undertaken and set out in the fWRMP.	We will continue our endeavours to find partnerships to help deliver our demand side and leakage reductions. We will set these out in the fWRMP.

6. Water Resources West

No	Stakeholder Comment	Our Response
6.1	Please see Note 29	Thank you for responding to our consultation. We will continue to work with Water Resources West to develop the final Regional Plan and we look forward to continuing our work together on developing multi-sector regional plans in the future.
6.2	Please see Note 40	All members have continued to work collaboratively to develop their WRMP in a regional context and their revised WRMPs are consistent with the regional Statement of Response. A table showing our regional plan alignment in key areas is shown in Note 41.

7. Waterwise

No	Stakeholder Comment	Our Response
7.1	Overall, we are pleased to see a good level of detail in the draft plan on how future demand has been calculated and the demand management options that have been considered when it comes to household demand and leakage. The approach Hafren Dyfrdwy has taken of showing each resource zone with PCC figures is useful for understanding the varied nature	Please see Note 32

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of your region and future tracking on progress. It would be good to see the final plan reference the new UK Water Efficiency Strategy to 2030 which the company helped develop - this could be included for example in the table on page 13.

7.2	<p>We understand that Hafren Dyfrdwy has less of an urgency for demand reduction but are pleased to see you are targeting a long-term reduction to 118 litres per person per day with a focus on water efficiency. While you are not proposing to universally meter customers at this stage, we strongly advocate that you do include in your final plan a trial of smart meter technology. Our research coupled with the experiences of Anglian and Thames Water to date have shown that smart metering is a game changer when it comes to reducing leakage and engaging with customers on water use and water wastage. We note that some organisations are including smart metering plans for non-households and would encourage Hafren Dyfrdwy to consider this within your plans, especially as your customer research shows strong support for working with businesses and schools on water efficiency.</p>	<p>Reflecting on feedback from our stakeholders, in our fWRMP we include details of our plans to roll out a smart metering programme from 2025 onwards. We are not considering universal metering at this stage. However, to achieve our revised PCC target (110 l/p/d) and accelerated leakage programme we believe we will need to use smart metering. We will link our smart meter roll out with water efficiency messaging to our customers.</p>
7.3	<p>We support the water efficiency activities presented although feel the plan could more clearly detail the water efficiency activities and benefits and timescales for delivery. For example, a table of activities with dates for implementation and the projected benefits. The plan has a small reference to total cost, but it would be useful to clearly see the cost breakdown of the plan for the different activities. It is good to see a planned programme working with housing associations and your education activities. We would encourage for the final plan to look to include a planned programme of targeted home and business water saving visits (Thames Water's smarter home visit programme which targets high users is delivering sustained savings of 70 litres per property per day).</p>	<p>Our fWRMP has a PCC target of 110 l/p/d by 2050, and we acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra's water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further.</p>
7.4	<p>Please see Note 30</p>	<p>We run home water efficiency checks with high consumption users and if we find issues like leaky loos, we fix them. We are actively promoting free water saving devices through Get Water Fit to our vulnerable customers (this is available to all customers). We continue to build on these areas and participate in industry wide campaigns and new innovative approaches to water efficiency communications and delivery.</p> <p>We haven't specifically explored innovative tariffs as part of this WRMP, however, as part of our wider business planning, we will look to take learnings from other companies in the sector who are undertaking trials.</p>

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| 7.5 | We are pleased to see that Hafren Dyfrdwy recognises the potential contributions to demand reduction from government policies such as water labelling of products and have included this in the plan. We are asking all companies to include a budget in their final plans to support/promote the roll-out of water labelling in AMP8 helping to explain to their customers why it is important and how they can use the label. The trial of an incentive scheme could also be considered. There are further opportunities to secure additional savings through more ambitious policy-led solutions with regards to new build development and retrofit and we value Hafren Dyfrdwy's ongoing work with Waterwise to advocate for more supportive policies. | Water labelling is a government led program, we will support it as appropriate, promoting it to our customers to raise awareness and to encourage them to adopt efficient devices. |
| 7.6 | We encourage Hafren Dyfrdwy to include more proactive activities for non-household customers (something customers highlighted in your engagement). The plan could be improved with clearer explanation of what future non-household PWS needs are and options to reduce NHH water demand. Hafren Dyfrdwy can lead by example by achieving a Waterwise Checkmark for its offices. This is important, especially in light of Ofwat's planned performance commitment (including NHH demand reduction). | We acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra's water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further. |
| 7.7 | We encourage the inclusion of work with the housebuilders to incentivise activity to improve new developments to ensure water efficiency. Areas we have seen others reference that could be taken forward by Hafren Dyfrdwy include: - Trialling and roll-out of flow controllers in new build properties. Numerous trials across the UK have shown that they can work well and save circa 30-65 litres per property. Hafren Dyfrdwy could also work with local authorities and housing associations as part of the planned social housing water efficiency checks. | Welsh Government has shown they would adopt similar approach to the proposed English Government plans for water labelling and improved building standards to address efficiency of new builds and existing properties. Our Developer Services Team have started checking 110 l/p/d applications for infrastructure charges refund incentive to ensure developers are fitting the right products and building to the correct standards. We are also looking at how to encourage more developers to take part in the incentive scheme. |
| 7.8 | The summary consultation document was clearly written and helped explain the plan simply for a non-technical audience which we welcome. It could have been improved with the addition of signposting readers to Hafren Dyfrdwy's existing water efficiency information and opportunities to save water for their customers. At the point of engaging on these plans and drawing interest in the subject of water resources is an excellent opportunity to engage people with water efficiency. It would be great to see Hafren Dyfrdwy use the opportunity of the final plan promotion to do this. | Thank you for that idea - we will of course take that on board and make sure that in the final plan we make the most of the opportunity and signpost to our water saving pages on our website (Here), where you will find all our great hints, tips and advice, along with free and subsidised water saving products. |

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- 7.9 At Waterwise, we're committed to driving equity and preventing discrimination at work and in the work we do. A great deal of our impact is delivered through challenging others through consultations such as this to ensure equity, diversity and inclusion has been considered in all policy and planning decisions. We encourage as you develop the final plan to consider the impacts on social wellbeing and how you will understand impacts of decisions, including in the long-term following trade-offs, on the diverse members of the Hafren Dyfrdwy customer base.
- Please see [Note 31](#)

8. Welsh Dee Trust

No	Stakeholder Comment	Our Response
8.1	<p>At Welsh Dee Trust we have concerns about the current levels of water abstraction from the River Dee. The storage of water within reservoirs, combined with the resulting flow regime, is damaging the river Dee's wildlife, including species designated as unfavourable in the Special Area of Conservation. A report setting out our concerns can be found here: https://www.welshdeetrust.com/environmental-flows/</p> <p>At Welsh Dee Trust we want to see the overall levels of abstraction from the River Dee reduced, leaving more water in the river to benefit its ecology. To accomplish this, a reduction in demand is needed, particularly when climate change, population increase, and water transfers out of the region are considered. Creating new sources of water elsewhere will provide additional water, but these are likely to have an environmental impact, swapping environmental damage in one place for damage in another. Preference therefore should always be on reducing demand.</p> <p>In general, at Welsh Dee Trust we would like Hafren Dyfrdwy to go further and faster on their demand reduction targets.</p>	Please see Note 33
8.2	<p>Currently, 22% of drinking water from Hafren Dyfrdwy is lost. The current target is to reduce leakage by half by 2050 including a target to reduce leakage by 10% by 2030 (A reduction of 5% from the previous WRMP target). At Welsh Dee Trust we would like water companies to have a rate of reduction of 15% every 5 years until 2050. This will ultimately lead to a reduction of leakage by 90% by 2050 from 2019 levels.</p>	Please see Note 33
8.3	<p>Non-domestic customers of water companies are some of the largest single users and individual companies making efficiency benefits here can greatly improve demand reduction. At Welsh Dee Trust we would like to see more specific targets and plans for reducing non-domestic use of water,</p>	We acknowledge from the feedback we received that there are greater opportunities to deliver demand savings through working with our non-household customers. The new Water Resources Planning Guidelines published in

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	including funding from water companies to support businesses to become more efficient.	March 2023 ask water companies in England to include additional options to deliver non-household demand reductions in line with Defra's water demand target and associated Environmental Improvement Plan. Whilst this does not apply to water companies in Wales, we are exploring for our final plan additional non-household activity that will drive down demand further.
8.4	On average an individual in the UK uses 142 litres per day. At Welsh Dee Trust we would like to see Hafren Dyfrdwy set a target to reduce per capita use to 110 litres a day in line with other water company targets. The most effective tool for reducing demand is the installation of smart meters within homes, which help reduce total usage as well as help identify leakages. At Welsh Dee Trust we would like to see water companies expand their initiatives for using smart meters. To support this, we would also like to see more supportive legislation from governments. Smart meters alongside education should be the primary processes used to reduce per capita use as these are the most effective interventions.	Please see Note 34
8.5	At Welsh Dee Trust we are concerned that the proposed plan to transfer water from Vyrnwy into the River Thames will put extra demand on the abstractions from the River Dee. We believe the Wildlife of the Dee is being damaged by current abstraction levels and that surplus water from the region should be used to reduce this damage, not to support water transfer to other areas.	Please see Note 35
8.6	Overall, at Welsh Dee Trust, we see reducing demand as the most important way of reducing the impact abstraction is having on the river Dee. Our replies to the various water resources management plans are asking for water companies to go further and faster on targets to reduce demand, particularly on reducing leakage, supporting non-domestic customers, and reducing per-capita usage via smart meters and education. We hope these recommendations are taken onboard and put into the final plans.	Please see Note 34

Notes

Note	Ref	Comment/Response
1	1.2	We are disappointed by the view taken by Hafren Dyfrdwy that "in the current economic climate we don't believe smart metering is a priority for our customers." This does not account for the wide-ranging benefits of smart metering as a technology enabling significant reductions in leakage, and improved engagement with consumers around their water use to reduce per capita consumption. Through reducing water demand, smart metering reduces costs associated with treating and distributing drinking water. Further, the insight smart metering provides empowers customers to reduce their usage and household bills. Taking action to reduce water demand and empower consumers with data on their usage will continue to grow as an expectation, as public water supplies come under increasing strain in the future due to climate change and population growth.

We believe it is highly important that Hafren Dyfrdwy build in smart metering, and specifically AMI, as a key component of its water resource management plan. There is a growing body of evidence of the benefits of AMI from water companies, which is outlined in further detail below. Overall, research from Frontier Economics and Artesia has found that a full rollout of AMI across England and Wales would deliver up to £2.2 billion in net benefits.² Accelerating a rollout of AMI from 2025 would ensure the realisation of these benefits is not delayed. It is critical that the right investment decisions are made now to address the challenges faced by the water industry. AMI has an important role to play in providing data that puts companies on a trajectory to achieve targets for water security and resiliency.

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- 2 [1.3](#) Government and the regulator also have important roles to play in enabling companies to deliver the benefits of smart water metering. DEFRA in its recent Environmental Improvement Plan 2023 (EIP23) stated that it was ‘working to develop additional policy options...including...increased smart metering for households and businesses through accelerated investment between 2020 and 2030...[and] reducing non-household water demand by 9% by 31 March 2038 through smart metering.’ Collaboration between industry and government to deliver policies that support smart water metering will be important to realising the technology’s full benefits.

As the regulator, it is essential that Ofwat supports water companies roll out AMI technology in the next regulated asset management period. Its final PR24 methodology highlighted the need for companies to ‘embrace the opportunities to improve performance through smart technology’ and ‘consider the benefits of increasing detailed demand data that can be read without directly accessing the meter and provided on a near real time basis’. It is critical that this is translated into support for companies’ investment in the delivery of new AMI smart meters and upgrading of old and less advanced metering types within forthcoming business plans for 2025-2030.

The faster AMI data is available and effectively used, the faster its benefits can be realised. Arqiva is ready to support UK water companies to take the steps and together to transform the UK’s water industry into a leader in efficient water demand management.

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- 3 [1.4](#) The importance of advanced smart metering in water resource management
We believe that Hafren Dyfrdwy must deliver a greater focus on an AMI rollout within its water resource management plan. AMI provides water companies with hourly data on the amount of water delivered to a property, 24 hours a day, 7 days a week, with data transmitted securely from water meters to water company data centres. This level of insight enables water companies to deliver a range of benefits.
Companies that do not deliver AMI risk delays to delivering these benefits, or not realising them at all.

- AMI enables companies to detect more leaks across their network and respond quickly

More rapid leak detection is essential to bring down the amount of potable water wasted each day. The hourly data provided by AMI enables faster detection of leaks. In 2013-14, before adopting AMI, Anglian Water reported that it identified about 6,000-7,000 leaks per year. In 2021-22, driven by Arqiva’s gold-standard AMI smart metering network, the company identified about 65,000 total leaks.⁴ By using AMI, companies can identify leaks across their networks quickly, including common leaks such as toilets, which have been found to impact a substantial number of homes and waste about 450 litres of water a day.⁵ A wider deployment of AMI would enable millions more litres to be saved and help secure the UK’s future water supplies.

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- 4 [1.8](#) The importance of government and regulatory support to unlocking the benefits of smart metering
As the regulator, Ofwat has a critical role to play in enabling the delivery of AMI through its settlements for the next regulated asset management plan period. It is important that Ofwat encourages water companies to put forward ambitious smart water metering proposals and enables investment in advanced metering technology. This should include the rollout of new AMI meters and replacement of old, less advanced meters.

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Ofwat recently released its final price review 2024 methodology. It outlined its expectation that companies ‘embrace the opportunities to improve performance through smart technology and better use of data’. Further, Ofwat outlines that water companies should consider smart meter solutions the ‘standard meter installation type for residential and business customers’, and that compelling evidence is needed to otherwise justify proposals to install ‘older visual read meter technologies’.

Importantly, the methodology stated that Ofwat will ‘support smart metering enhancement requests where these form part of best value programmes justified by fWRMPs and are supported by sufficient and convincing evidence in business cases’.¹⁶ Enhancement allowances for the costs of upgrading meters are also addressed, with Ofwat stating ‘we will consider enhancement allowances for the costs associated with upgrading to a smarter technology when meters are replaced.’

The final price review 2024 methodology is a step in the right direction. As companies draw up their fWater resource management plans and business plans for 2025-2030, the regulator must ensure that it is supporting water companies with the right financial settlement to deliver smart water metering as one of the key tools enabling companies to meet water demand reduction targets.

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- 5 [1.9](#) Arqiva is ready to partner with companies to deliver smart metering’s benefits. We are the UK’s only large-scale provider of gold-standard smart water meter infrastructure, having installed over 1.9 million advanced smart meters to date for customers including Thames Water and Anglian Water. We know from experience the impact of installing AMI smart metering: greater water efficiency and better outcomes for consumers. Examples include:
- Since ramping up its AMI implementation programme in 2020, Anglian Water has increased the number of leaks it detects by about ten-fold, with Anglian now capable of spotting as many as 70,000 incidents in a 12-month period. Speaking on a webinar hosted by the Chartered Institution of Water and Environmental Management (CIWEM), Doug Spencer, head of Anglian Water’s Smart Metering programme, noted that the company has been able to ‘reduce leakage by 85 – 90% on the customer side’ as a direct result of AMI in its trial areas in Norwich and Newmarket
 - Thames Water has used AMI to improve leak detection in residential and non-residential properties alike. On that same CIWEM webinar, the company shared statistics that showed an 8% ‘continuous flow’ rate for its household customers, rising to 26% amongst business users.
 - The insight AMI provides has enabled Thames Water to zero in on high-use properties and prioritise them for an in-home visit from its Smarter Homes team. The result of this laser focused programme is a per household reduction of around 10%.
- We are at a critical moment. As climate change worsens and our demand for water increases, the UK faces a generational challenge to the long-term security and resilience of our public water supplies. Meeting this challenge requires concerted and decisive action. We must take the right decisions now to empower us to make a difference in the years ahead. Smart metering and the digitisation of water networks, which can transform the management of water supplies through near real-time data and insight, are essential tools to success. As a leader in smart metering, Arqiva can help companies to unlock the benefits of smart water metering data and thereby deliver the step change needed to ensure the long-term security and resiliency of public water supplies.

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- 6 [2.1](#) The cost and bill impact of the “best value plan” has not been included in the dWRMP. The dWRMP reflects Natural Resources Wales’s guidance, Welsh Government legislation and regulatory requirements, Defra’s guidance and the Water Resources West Regional Plan. There is a clear strategy that focuses on reducing demand for water by educating on and promoting water efficiency, affecting behaviour change and reducing leakage. The company has stated that it has enough water to meet demand up to 2085 and does not need to take any action to increase supply, therefore the dWRMP focuses on reducing demand for water. This is the first time that the company has worked with other companies and sectors to consider the wider impacts in the Water Resources West draft regional plan. The company has identified the following five key challenges:

1: The climate emergency. The company is seeing a trend towards hotter, drier summers and warmer, wetter winters across Wales. In response to this and in line with Welsh Government Guidance, it has used a higher climate change impact of 4°C warming when developing its plans.

2: The nature emergency. The company has a duty under section 6 of the Environment (Wales) Act 2016 to maintain and enhance biodiversity. 60% of the area they serve is on land that is protected as either Sites of Special Scientific Interest (SSSI) or Special Areas of Conservation (SAC).

3: Population and demand. The company is not expecting population growth to put a significant strain on their water supply networks over the coming decades. However, it is expecting demand for water by households and businesses may change in line with Welsh Government's strategy that aims for 30% of the population in Wales to adopt to working from or near to home.

4: Reducing leakage. In line with sector commitments, in response to customer priorities and in order to benefit the environment, the company needs to reduce leakage.

5: Delivering best value for customers. The company has considered the current cost of living crisis and affordability challenges for its customers. In response to this, it recognises the need to deliver its core commitments as efficiently as possible

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- 7 [2.3](#) In the dWRMP, there is significant reliance on demand side options. The dWRMP outlines that this will be gained through water efficiency products, education, behaviour change programmes and leak detection technology.
- Demand management should be looked at in a holistic way, and as a combination of measures. We consider that the options highlighted in the dWRMP are the likely ones to help reduce demand but do consider that the company should reconsider its stance on smart meters and encourage wider meter penetration.
- The company has decided not to pursue an optant smart metering programme. Many other water companies have chosen smart meter programmes as a means to help encourage behaviour change and reduce per capita consumption. Whilst the company has said customers had mixed views on smart meters, if the company had a programme of works to change how people value water, and how they can see the results of their efforts to use less water, we believe this would shift more people to supporting smart meters.
- Between 2025 and 2030, the company is considering a limited trial of smart meter technology, in Wrexham, to understand what might work in upland rural areas with limited access to power and telecoms. The focus of this pilot appears to be to see if the smart meters will be smart capable or smart active. We would prefer that the trial is focussed more on how a smart meter, together with education and a programme of works on behaviour change can result in people valuing and using less water in both Powys and Wrexham.
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- 8 [2.11](#) Although customer supply pipe leakage can be around a quarter of all leakage, the company intends to postpone addressing this (alongside possible optant smart metering) until some point in the future. We are concerned that the decision to postpone addressing this issue will have a negative impact on the behaviour changes (around valuing and using less water) that the company wants to see from customers. We want to see action on this now instead of saving the potentially most difficult leakage reduction programme to the end.
- Addressing leakage, is a top priority for customers. Leakage is an emotive subject, it is seen as being wasteful and can affect companies' efforts to encourage customers to reduce their own water use.
- Customers also need to be educated on what to do when they spot a leak. Companies should make it easy for customers to report a leak and also have a transparent process for keeping customers updated on the progress of the actions the company is taking in response to the report. This will build trust and provide confidence to customers that Hafren Dyfrdwy are acting on customer efforts to help tackle leakage on its network.
- It is disappointing that a commitment to collaboration with other water companies to develop new ways of working doesn't feature in your plan, we would like this commitment to be included.
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- 9 [2.15](#) The Non-technical summary document should be accessible and informative to the public as a helpful document for setting the scene of the Water Resource Management Plan. Some of the language and terminology used in the non-technical summary would be difficult for most customers to understand. We believe it could be improved in order to engage those readers who are new to the subject. It would benefit from simpler language, less terminology, the use of more infographics to help to enhance comprehension and understanding within all sections

of the document, for example, illustrating what proportion of the predicted demand reduction will be achieved by water saving products driving a change in peoples' water consumption etc. We would also recommend the use of video clips for engagement with a much wider audience. This is particularly important when it comes to issues that both directly impact on customers such water saving or their priorities such as leakage reduction.

For those readers who choose to take a deeper look into the plan, it would be helpful to include footnotes, page numbers or preferably direct links directly within the non-technical summary highlighting where in the main documents they can find the underlying information.

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- 10 [2.7](#) Achieving long term PCC reductions will require successful Hafren Dyfrdwy led and Government led demand management initiatives, and there is a clear need for a successful water labelling programme to achieve the deep reductions in PCC in the Hafren Dyfrdwy area. We will support the Government led programme as appropriate, promoting it to our customers to raise awareness and to encourage them to adopt efficient devices. Alongside this, having reflected on feedback we have received through this consultation, we are also planning to roll out a smart metering programme. As well as helping us to reduce leakage by identifying more leaks on customer supply pipes it will also give our customers more visibility of how much water they are using on a daily basis, providing us with further opportunities for encouraging and embedding long term behavioural change through our water efficiency programme.

We will review our progress against our PCC targets on an annual basis and will adapt our long-term approach when we develop our 2029 WRMP.

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- 11 [4.1](#) We have undertaken a full technical review of Hafren Dyfrdwy's draft plan and assessed it against the relevant legislation, our guidance¹ and the policies and objectives of the Welsh Government. We are looking for a clear plan that shows how the company will maintain a secure public water supply as well as protecting the environment.
This plan builds on the company's previous plan (WRPM19 final plan). Hafren Dyfrdwy has incorporated the recommendations that we made in relation to its WRMP19. Hafren Dyfrdwy has since improved on technical areas including hydrological inflows, water resource system modelling and have assessed the impacts of climate change.
We consider that Hafren Dyfrdwy's draft plan seeks to provide a secure supply of water to Wrexham and Llandinam & Llanwrin water resource zones (WRZs) within Wales during the planning period under the 1:500-year (0.2% chance in any year) level of drought resilience. The Saltney and Llanfyllin WRZs are wholly supplied by imports from Severn Trent Water via a bulk supply agreement and expected to meet 1:500-year drought resilience. We acknowledge that the draft plan should not present a significant risk to the environment.

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- 12 [4.9](#) For our groundwater sources, we have determined the deployable output under a 1 in 500-year drought severity to establish the DO baseline and have then considered the impact of UKCP18 climate change scenarios on this baseline. This assessment has been completed for our borehole sources in Llandinam and Llanwrin water resource zone and Oerog spring in Wrexham water resource zone. The climatic data used in this assessment was derived from Water Resources West (WRW) and comprises the stochastic rainfall and potential evapotranspiration data (48 years x 400 series, giving a total of 19,200 years' worth of data). We analysed the data from this stochastic series to conclude that less than 2% could be classified as a dry-winter sequence (based on the climate data) and so therefore we are confident that our analysis has included consideration of consecutive reduced recharge events. The results show that both Llandinam and Llanwrin are not predicted to be affected under the 1 in 500-year baseline plus the maximum probabilistic climate change scenario. Oerog spring is expected to have zero output under a 1 in 500-year scenario and this has been factored in to the deployable output calculations for Wrexham water resource zone.

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- 13 [4.12](#) We have included our experiences from 2018 and 2020 prolonged dry weather and drought events in our groundwater supply assessment for our dWRMP. For the final plan we will assess how the 2022 groundwater data compares to our dWRMP assessment. We have assessed surface water resilience utilising stochastic data (19,200 years) to ensure that we are resilient to a level of 1 in 500 years (0.2% annual chance of standpipes and rota cut implementation). Our stochastic data includes dry weather and droughts more severe than 2018, 2020 and 2022. In the final plan, we will provide information on our experiences of these events and benchmarking demonstrating how they compare to our stochastic dataset.

Our demand assessment includes data up to 2020. The conditions of 2018 resulted in household consumption reaching dry year levels. The 2020 hot and dry weather combined with the impacts of COVID-19 resulted in some of the highest peaks in water demand water companies have ever seen. As the 2022/23 reporting year was still in progress when we published our dWRMP, the observed 2022 conditions were not included in our plan. In the final plan we will include a comparison of the 2022 critical period factors to those of 2018 to assess the relative impact of 2022 on our demand baseline assessment.

14 [4.16](#) We acknowledge that the Welsh Government has not set out a specific Per Capita Consumption (PCC) target for water companies wholly or mainly within Wales. Water companies are expected to set out challenging targets to reduce demand (under dry year planning scenario).

Hafren Dyfrdwy has set a company level target of reducing PCC to 118 litres per head per day by 2050. The company states that its PCC targets will be achieved through savings from customer side demand management measures including the promotion of water efficient behaviours from education initiatives and water saving devices. The plan is reliant on uptake of water efficiency measures such as changes to legislation (introduction of water labelling) and compliance with Welsh Government Building Standards to reduce demand. Note the company has also stated that they have accounted for government water labelling scheme being in place during the latter part of planning period.

Whilst we support the company's ambition to reduce PCC, we are concerned that the bulk of the demand savings are not being realised. We expect to see within its final plan the company actively seeking to achieve these savings through demand management earlier in the planning period. Given that the suite of demand management options selected (as above) are appeared to not be achieving the bulk of savings until the latter part of the planning period, the company should provide further evidence as to whether other demand measures should be considered to achieve further PCC reductions earlier until after 2048-49. For example, the water company level data tables show a gradual reduction PCC from 146.3 l/h/d to 130.7 l/h/d by 2048, only reaching target PCC for the last two years.

15 [3.1](#)
[4.20](#) Following consultation with our stakeholders we have further developed our plans to support people and communities on private water supplies in our area. Over the next five years we will develop a longer-term strategy. Activities we will carry out to do this will include:

- Working with Powys Council – we will develop our links with the team at Powys Council who work with people on private water supplies so that we can share useful data and information.
- Reviewing hot spots of customer consumption – our Llandinam and Llanwrin water resource zone, which covers a large part of the Powys area, is currently where we see the highest levels of water use by our customers. This is also geographically where there is a high number of private water supplies. We will carry out analysis to understand whether any areas within this zone are particular hot spots for demand and whether we could offer any additional help to private water supply users in times of hot weather. If we are able to support private water supply users in these areas, it could help reduce water use by our customers who may currently be using their mains water to fill up tanks and bowsers for their neighbours.
- Investigating whether our network can be adapted to provide more back up supplies – we currently have around 700 customers on dual supplies. We will carry out investigatory work to see if there is any potential to extend this offering.
- Surveying opinions of the private water supply community – we aim to engage with communities relying on private supplies to understand their experiences, aspirations and whether we can learn anything for our water efficiency work.
- Considering a non-public water supply support scheme – at one of our stakeholder engagement sessions a suggestion was made that we could set up an insurance scheme where people on private water supplies could pay into an insurance style scheme which would then be used to pay for tankering and access to water at periods when private water supplies are running low. We will consider the feasibility and practicality of running such a scheme.

- Providing support with alternative supplies – tanks, access to raw water reservoirs for the farming community to use in times of agricultural drought.

We will continue to work with the other organisations in Water Resources West to better understand the needs of non-public water supply abstractors and to identify ways that we can work together within catchments to make sure that the needs of abstractors, the environment and other recreational users can all be met in a sustainable way.

16 [4.21](#) We have included an uncertainty allowance in our target headroom modelling for demand management measures. An explanation can be found in Appendix C – Managing Uncertainty. Our forecasts are reliant on customer behaviour which is hard to accurately predict and changes over time. Also, if a customer chooses to remove devices, this removes the benefit. Uncertainty of savings from product related demand management has been modelled with an uncertainty of +/- 10% which includes water efficiency take up and demand reduction uncertainty.

Our supply demand balance is in surplus for all zones and under our preferred plan, which includes our long-term targets to halve leakage by 2050 and to help our customers to reduce PCC to 110 litres per person per day by 2050, the surplus increases over time. We estimate that the impacts of the water efficiency uptake being lower than expected are up to 0.16ML/d (for every ML/d of the programme). Our sensitivity analysis has shown that the effect of this is to reduce the surplus slightly. We will include the impact as part of our preferred plan assumptions in our fWRMP.

17 [5.1](#) Long term water resources planning is a key business planning activity and essential for the efficient delivery of resilient water services for customers and protecting and enhancing the water environment. Ofwat has a key role to play in enabling this by funding through the 2024 price review (PR24). Therefore, it is vitally important that we consider whether water companies are identifying the best value approaches and delivering these, to ensure the best outcomes in terms of targeted investment to address challenges. The water resource management planning process is essential to helping Ofwat and water companies get this right. As a statutory consultee, we welcome the opportunity to comment on Hafren Dyfrdwy's draft water resource management plan (WRMP), which it published in November 2022. This letter should be read alongside our letter setting out the wider context of our review and the general approach to the assessment of companies' dWRMPs.

Hafren Dyfrdwy provide clean drinking water to 100,000 homes and businesses, abstracting water from sources in north and mid Wales. Two thirds of Hafren Dyfrdwy's water comes from the River Dee and the remaining third from boreholes, streams and reservoirs in Wales. Its water resources are planned on the basis of four water resources zones (WRZ), which it forecasts to remain in surplus across its planning horizon. However, Hafren Dyfrdwy has also set out key challenges in its water resource forecasts that require action to reduce demand.

Overall, there are several areas of Hafren Dyfrdwy's plan that are in line with our expectations for this stage of a dWRMP. In particular, Hafren Dyfrdwy's draft plan delivers on our expectations to:

- set out WRZ level supply demand balances, including the resilience and levels of service each meets.
- undertake a best value assessment that follows best practice and links across to strategies in regional plans.

18 [5.2](#) One of the Welsh Government's strategic priorities for Ofwat is resilience. Ofwat must challenge companies to anticipate, cope with, and recover from, disruption and maintain services for people and protect the natural environment, now and in the future. Reducing demand for water can relieve pressures on water supply and increase our resilience to extreme drought. Water companies must act to reduce demand for water in a way that represents value for money in the long-term. In line with the Welsh Government's Guiding Principles for developing WRMPs and Ofwat's final PR24 methodology, we expect all companies to use their WRMPs to show how they will meet long term water demand targets including:

- halving leakage across the industry by 2050, in comparison to 2017-18 levels.
- reducing per capita consumption (PCC) to 110 litres per head per day (l/h/d) by 2050.

The Welsh Government's Guiding principles for developing WRMPs also sets an ambition to reduce demand as a whole. Welsh companies must set out strategies for reducing demand in the domestic and business sectors and to promote efficient water use. This includes considering a wide range of measures to help reduce demand for water including physical interventions.

We welcome that Hafren Dyfrdwy plans to deliver a 50% leakage reduction by 2038, which is 12 years sooner than the national target. The company is proposing to reduce PCC to 118 l/h/d by 2050. The company does not explain why 110 l/h/d is not presented or not achievable nor does it present a scenario that shows the costs and benefits of achieving this target. The company should present this scenario in its fWRMP and provide sufficient and convincing evidence to justify its selected target.

19 [5.6](#) We understood from Ofwat's published approach to the AMP7 PCC performance commitment in 'Consultation on changes to per capita consumption performance commitments – our decision on reporting performance and ODI timing (November 2021)' that Ofwat would be considering companies' performance on PCC at PR24 taking into account the information available then on the effects of the Covid-19 pandemic on PCC over time. Our analysis for the PR24 business plan is ongoing and, performance commitment targets are subject to review by senior management and Board, in light of progress versus PCC targets in the remainder of this AMP. We will submit PCC data as part of the PR24 business plan submission in October 2023, and a best view in the fWRMP.

In response to feedback, we have received from our consultees we have revised our PCC target from 118 litres per person per day to 110 litres per person per day by 2050. To help us achieve this target we will be rolling out a programme of smart metering. We have also revised our planning assumptions for the impacts of water labelling. Bringing us in line with other companies in Water Resources West, we have assumed the benefits will start in 2025 with an incremental increase in benefit over time. Our WRMP tables and narrative will reflect the changes in these assumptions and our best view of our AMP7 PCC performance.

20 [5.9](#) Meter penetration is forecast to increase from 67% in 2025 to 76% by 2035 and to 81% by 2045. During this period the company is planning to upgrade basic meters to automated meter read (AMR) meters. AMR meter penetration is planned to increase by 5% from 2025 to 2035 and a further 5% up to 2045, reaching a 32% penetration by this year.

The company does not propose to adopt universal smart metering. The plan explains that the company does not operate in a water stressed area and therefore cannot implement compulsory metering. It also states that its customer research shows limited customer support for universal metering. The company proposes to continue to offer customers a free meter option and to upgrade meters over time to automated meter read (AMR) meters. However, we are concerned that the company has not tested the adoption of advanced metering infrastructure (AMI) meters. This does not give us confidence that the selected option is best value. The company has stated that it will consider the cost and benefits of a smart meter programme for final plan. The company should test different metering options and clearly describe and justify the choice of meter technology. It should also set out how common scenarios were used to test robustness and inform the company's metering strategy in its final plan.

21 [5.10C](#) A robust assessment of current and future water needs is critical as it drives the gap between supply and demand and therefore drives the scale of investment required for the 2025-30 period and beyond.

We provided detailed feedback on Hafren Dyfrdwy's assessment of water needs in our pre-consultation feedback in 2022. Some of our feedback has not been appropriately or fully addressed in the dWRMP and has been raised again in amongst points in this section. Hafren Dyfrdwy should provide sufficient and convincing evidence that the feedback has been addressed in the fWRMP.

We welcome that the company's supply demand balance starting point for the dWRMP24 is similar to its forecast for the same point in the fWRMP19. This means that the overall outcome of the WRMP19 as funded at PR19 has been delivered in the round. However, some components of the supply-demand balance have changed, including those that reflect underperformance.

Where a step change in supply-demand balance between WRMP19 and WRMP24 is not sufficiently justified by scenario drivers and may instead be as a result of non-delivery or underperformance, this will be taken into account at PR24 in the assessment of enhancement funding.

22 [5.10R](#) We still aim to deliver our AMP7 performance commitments and will review our AMP7 exit forecasts for the components of the water balance for the fWRMP. Specifically, regarding PCC, we understood from Ofwat's published approach to the AMP7 PCC performance commitment in 'Consultation on changes to per capita consumption performance commitments –our decision on reporting performance and ODI timing (November 2021)' that Ofwat would be considering companies' performance on PCC at PR24 taking into account the information available then on the effects of the Covid-19 pandemic on PCC over time. Our analysis for the PR24 business plan is ongoing and performance commitment targets are subject to review by senior management and Board, in light of progress versus PCC targets in the remainder of this AMP. We will submit PCC data as part of the PR24 business plan submission in October 2023, and a best view in the fWRMP.

23 [5.11](#) Hafren Dyfrdwy has used methods and data appropriate to the scale and complexity of the problem that it needs to address and has recognised the different problems across its area. The company's problem characterisation that influences this method selection is presented. Hafren Dyfrdwy has also provided information on its demand forecast and deployable output assessment methodologies, in line with the Water Resources Planning Guidance (WRPG). Hafren Dyfrdwy has used a 65-year planning horizon in its data tables. This is consistent with Water Resources West and exceeds the minimum requirements set out in the water resources planning guideline.

Hafren Dyfrdwy remain in surplus through the planning period as it did at WRMP19. The draft plan includes confirmation that, following improved modelling and information after our January 2022 pre-consultation with the company, Wrexham WRZ is now forecast to remain in surplus. The final plan should set out the supply demand balance and quantify the impact that individual drivers of water needs have on this at the company level. Without this, a fWRMP would not clearly justify the investment proposed in the company business plan. Setting out the supply demand balance and drivers at a company level in the final plan will also help justify the starting positions for WRMP24.

24 [5.14](#) The company's preferred plan has identified a range of demand management options to maintain a surplus across the planning horizon.

Hafren Dyfrdwy's supply demand balance, based on WRMP tables, is in surplus by 13.5 MI/d in 2050. Its feasible options list proposes a total of 39 options spread over 23 types of supply options and 16 types of demand options. The total gained water available for use (WAFU) would be 58.1 MI/d, which is not required to address a deficit.

In the preferred plan Hafren Dyfrdwy has proposed a total of 16 demand options. Together, the demand options are able to contribute 11.5 MI/d WAFU. These also address national leakage reduction targets and the proposed reductions in PCC. These options include water efficiency measures and leakage reduction through mains replacement and active leakage management.

We have noted some options information in the WRMP tables has been blank, incorrect, or resubmitted. For the final plan WRMP, and to carry through to PR24, we expect all options to be worked up to the same level of detail to allow the decision-making tool to select a suitable best value option portfolio in the preferred plan. This is particularly important to carry through to business plans, to justify level of investment is appropriate to the challenge and for customers.

Hafren Dyfrdwy set out the methods it has used on options screening, including high level and detailed screening criteria. Reasons for screening out some options at the high-level screening stage are set out. The company explains that the options screening process was paused at this point as updated modelling showed a surplus across all the WRZs.

25 [5.15C](#) Hafren Dyfrdwy has demonstrated how its WRMP is informed by the relevant regional plan. The objectives, decision making criteria and recommendations made in its dWRMP are consistent with those in the wider regional plan. The decision-making approach as presented is robust in relation to the guidelines. The explanation around decision making is clearly set out and standalone at the company level.

Hafren Dyfrdwy's decision-making approach follows the principles set out in the Water Resources Management Planning Guidelines (2021) and has applied complex decision support methods that consider the costs and benefits of options. In its best value analysis, the company has also considered natural capital and other environmental factors including quantifying the impact of greenhouse gas emissions.

The identification and consideration of best value metrics has a line of sight to the dWRMP objectives. However, it would be beneficial to maintain a line of sight to sub-metrics and to the relevant outcomes to structure and justify the preferred plan.

26 [5.15R](#) We have produced an unconstrained list of options, which we presented in WRMP Table 4. We identified and formulated 22 new supply options. They are high level conceptual solutions that, if we were in a supply demand deficit, we would have developed and refined using the agreed Water Resources West screening criteria and produced metrics to enable optimisation of best value plan. Any new supply option will have an impact to the environment. The WRW process helps assess the least impactful for most benefit. For this WRMP there is no deficit under the range of scenarios considered, therefore we will not be pursuing the development and assessment of these options at this stage.

Although not in deficit, feedback from our stakeholders and customers has indicated a need for greater ambition on demand. As a result, we have set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their per capita consumption). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day as published in our dWRMP). Our fWRMP sets out a strategy that delivers this target, via Hafren Dyfrdwy led water efficiency activity, a new smart metering initiative, and the spill over benefits from the UK Government's Water Labelling programme that they state will be introduced in 2025.

27 [5.16](#) We will make more references to the Public Value Principles in our final plan. All of our customer research was carried out making sure that people from all ages, backgrounds and socio-economic groups were included to ensure we heard voices from all walks of life. When producing our WRMP, we made sure that the following key issues were taken into account in our modelling and assessments:

- The need to ensure that the WRMP has a positive economic impact.
- The need to ensure that the water requirements of people, visitors and other users such as energy and agriculture can be met at all times, in a sustainable way, including in the seasonal peaks associated with tourism.
- The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities.
- The need to accommodate an increase in population, households, dwellings and development associated with other uses that might impact on demand for water whilst ensuring the continued provision of essential services including water supply. Health inequalities exist in many communities. This is due to a number of factors (and the interplay between them) including housing quality, economic wellbeing, employment, lifestyle, heredity factors, cultural and environmental factors.
- Sustained exposure to elevated air pollution levels (including exposure to elevated concentrations of particulate matter, oxides of nitrogen and sulphur) contributes to respiratory illness.
- The need to ensure continuing safe, reliable and resilient provision of water services to maintain health and wellbeing of the population.
- The need to ensure that our WRMP measures do not adversely affect the health and wellbeing of any member of the community.

- The need to ensure that our WRMP minimises impacts on the ability of people to access facilities for sport, recreation and leisure purposes.
- The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.

Although not in deficit, feedback from our stakeholders and customers has indicated a need for greater ambition on demand which has shaped our plan. As a result we have set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their per capita consumption). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day as published in our draft WRMP). Our final WRMP sets out a strategy that delivers this target, via Hafren Dyfrdwy led water efficiency activity, a new smart metering initiative, and the spill over benefits from the UK Government's Water Labelling programme that they state will be introduced in 2025.

The Habitats Risk Assessment (HRA) of the demand management options included in the draft WRMP24 concluded that no likely significant effects on any European sites are anticipated. It was also concluded that decreased consumer demand will have a net positive effect in combination with existing abstraction and/or drought measure sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source. As such, no in-combination effects of the demand management options are likely with any other plan, programme or project.

28 [5.18](#) Hafren Dyfrdwy states that it has tested the supply demand balance against all Ofwat common reference scenarios, and its supply demand balance remains in surplus. There are no supply options proposed due to this expected surplus and the plan only uses limited demand management options. It states therefore that no adaptive plan is necessary. As a result, there is no difference presented between the core and most likely pathways. We expect the company to present a core pathway in line with the WRPG definition, which includes low-regret investment to meet future uncertainties and additional option value to allow further flexibility in the future.

Even if it concludes that alternative pathways are not required, Hafren Dyfrdwy needs to demonstrate in its final plan that scenario testing, including the common reference scenarios, has been used to identify low-regret investment that is required in all or most plausible futures.

The company should clearly set out the impact of the Ofwat common reference scenarios compared to the 'most likely' scenarios on which the preferred plan is based. This should include quantifying the impact on demand of the low and high scenarios for climate change and demand across the planning period. The company should also quantify the estimated impact on the expenditure requirement of:

- 1) planning based on the high scenarios for climate change and demand, and the slower scenario for technology; and
- 2) planning based on the low scenarios for climate change and demand, and the faster scenario for technology.

This will allow for improved understanding of the drivers of investment, the sensitivity of the plan to future scenarios and confidence in the investments being proposed. The company should use the results of this testing to identify and justify, with sufficient and convincing evidence, low regret investments, rather than just those that meet both high and low planning needs in a non-adaptive way.

The fWRMP should refer more explicitly to how this plan is a continuation of WRMP19 and explain more clearly what data was used in the interpretation of common reference scenarios.

29 [6.1](#) **WRW RESPONSE TO HAFREN DYFRDWY DWRMP CONSULTATION**

Background

Water Resources West is one of the five regional planning groups working to develop plans for long-term water resources needs. We are a group of water companies and other abstracting

sectors working together across the North West, the Midlands and the cross-border catchments with Wales. Hafren Dyfrdwy is one of the five core members of Water Resources West and we therefore welcome opportunity to engage with this consultation.

As a core member of Water Resources West (WRW), Hafren Dyfrdwy has made a commitment to align its water resources planning activity within the WRW boundary with the other core members of the group.

Collaborative Working within Water Resources West

We wish to thank Hafren Dyfrdwy for working collaboratively with the other members of Water Resources West (WRW). This is the first time that water companies have worked together to produce joined-up plans in this way, and the publication of our draft regional plan is a substantial achievement which should be recognised. It is especially welcome that Hafren Dyfrdwy has chosen to do this because expectations for regional planning are set out in the National Framework for England only. We are encouraged that Hafren Dyfrdwy has decided to work in this way and has been supported by Welsh Government and Natural Resources Wales in doing so. The cross-border catchments are important sources of water for communities on both sides of the border. A joined-up approach can therefore add value to the sustainable management of natural resources and the wellbeing of these communities. We therefore wish to thank Hafren Dyfrdwy for its active engagement in WRW and encourage the company to continue working collaboratively with us. We are happy that Hafren Dyfrdwy has confirmed that its WRMP reflects the WRW regional plan and that it has developed its WRMR in line with WRW methodologies, the National Framework, guidance and policies and has stated clearly justifications for any differences. We are also very thankful for the efforts Hafren Dyfrdwy has taken to produce evidence and take decisions following the common timetable agreed in the WRW programme plan. We expect that, following the consultation on both the draft regional plan and the dWRMPs, Hafren Dyfrdwy will continue to adapt its plan in accordance with WRW methodologies so that we are able to produce a consistent and coherent final regional plan that is reflected into the Hafren Dyfrdwy WRMP.

Multi-sector planning

WRW's membership includes representatives of a range of other abstracting sectors. The WRW regional plan is therefore a multi-sector plan. Our methodologies set out how we are integrating public water supply (PWS) and non-PWS needs in the plan. Our Strategic Environmental Assessment and best-value decision support metrics provide evidence on how water company decisions may affect the quality and quantity of water available to other users. We recognise that because the Hafren Dyfrdwy dWRMP24 is not likely to have any significant environmental effects it does not require an SEA. However, we are pleased to see that Hafren Dyfrdwy has used a Best Value Planning (BVP) approach to developing its preferred plan.

Water transfers and reconciliation

Regional planning is also the mechanism for reflecting national needs into the companies WRMP. This is of particular relevance to the water transfers that are being considered. WRW has worked with the other regional groups, through a process of reconciliation, to identify which transfers of water might be needed. These were reported in the emerging draft regional plans. Hafren Dyfrdwy has not put forward any transfer options into the regional plan or reconciliation. Following a second regional reconciliation, this position has not changed. They will review their position in five years' time as part of the water resources management plan cycle. As WRW we will continue to facilitate collaboration with the other regions, but this is dependent on the active involvement of the water companies. We therefore request that Hafren Dyfrdwy inform us if transfers between Hafren Dyfrdwy and other water companies become available in the future. This means that, should transfers to/from Hafren Dyfrdwy become available, we would need to work together in reconciliation to develop evidence that any transfers involving Hafren Dyfrdwy can be included in the WRMPs of our members and the members of other regions as part of best value plans that their boards can assure.

The regulatory timetable for producing the statement of response is also relatively tight, so should Hafren Dyfrdwy make the decision to promote an external transfer within their final plan we would ask that you:

- provide us with clear and timely information

- take appropriate evidence based decisions
- include a clear articulation of timing, volumes and utilisation of transfers in your statement of response

We commit to facilitating the same in return from our other members and the other regions.

Consultation Feedback

Water Resources West has received lots of feedback on its emerging plan, and we are pleased that Hafren Dyfrdwy has taken this into account in the production of its dWRMP. Water Resources West is now consulting on its Draft Regional Plan and expects to receive feedback from regulators, councils, trade bodies, environmental and community groups, businesses and individuals. As a core member of WRW, this feedback will be shared with Hafren Dyfrdwy and we expect Hafren Dyfrdwy to take this feedback into account as it develops its fWRMP and contribution to the final regional plan. We also request that Hafren Dyfrdwy ensures that the feedback it receives during its dWRMP consultation is shared with Water Resources West, and any changes Hafren Dyfrdwy plans to make to its WRMP and options selection are communicated with WRW in order to ensure the regional plan remains consistent with the company's WRMP.

Conclusion

WRW welcomes the collaborative working we have had with Hafren Dyfrdwy and the reflection of that in our draft regional plan and your dWRMP. We are committed to the continuation of the collaborative working for the final regional plans and beyond.

30	7.4	<p>Areas where we think additional investment could be considered and do not seem to be included in this plan is for targeted communications campaigns including:</p> <ul style="list-style-type: none"> - Funding to undertake or support a leaky loo campaign. The campaign could be progressed as a collaborative campaign on leaky loos with other water companies, the BMA and Waterwise as recommended in our position statement. - The company could consider offering a leaky loo fix, or a financial incentive to customers to get a leaky loo fixed to sit alongside your existing offerings - We would encourage Hafren Dyfrdwy to also include a campaign to raise awareness on dual flush buttons. Research by ESW has found 20% of people incorrectly identify which is the small flush button in their own homes. - The plan could include recognition of the energy cost impacts currently experienced during the cost-of-living crisis. There is opportunity for the company to use this as part of communication campaigns about the opportunities saving water brings. As well as water savings the company can highlight associated energy (and carbon emissions) savings. - Are there opportunities to test ways to reduce consumption through new tariffs and rewards for customers?
31	7.9	<p>We are also committed to driving equality and preventing discrimination. All our customer research was carried out making sure that people from all ages, backgrounds and socio-economic groups were included to ensure we heard voices from all walks of life. When producing our WRMP, we made sure that the following key issues were considered in our modelling and assessments:</p> <ul style="list-style-type: none"> • The need to ensure that the WRMP has a positive economic impact. • The need to ensure that the water requirements of people, visitors, and other users such as energy and agriculture can be met at all times, in a sustainable way, including in the seasonal peaks associated with tourism. • The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities. • The need to accommodate an increase in population, households, dwellings, and development associated with other uses that might impact on demand for water whilst ensuring the continued provision of essential services including water supply. Health inequalities exist in many communities. This is due to several factors (and the interplay between them) including housing quality, economic wellbeing, employment, lifestyle, heredity factors, cultural and environmental factors.

- Sustained exposure to elevated air pollution levels (including exposure to elevated concentrations of particulate matter, oxides of nitrogen and sulphur) contributes to respiratory illness.
- The need to ensure continuing safe, reliable and resilient provision of water services to maintain health and wellbeing of the population.
- The need to ensure that our WRMP measures do not adversely affect the health and wellbeing of any member of the community.
- The need to ensure that our WRMP minimise impacts on the ability of people to access facilities for sport, recreation and leisure purposes.
- The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.

32 [7.1](#) Thank you for your feedback. We have added the following text to Table 4.1 in the main narrative document to acknowledge Waterwise's 2022 "UK water efficiency strategy to 2030" and how it links with our WRMP:

Sets out Waterwise's multisector strategy of establishing "a UK in which all people, homes and organisations are water efficient". The ten strategic objectives highlighted in Waterwise's strategy include retrofitting water efficiency devices and ensuring water efficiency advice/support is inclusive and is helping people in vulnerable circumstances, including in financial hardship. Our long term strategy of helping our customers consume less water will contribute to the delivery of Waterwise's goals.

33 [8.1](#),
[8.2](#) Abstractions on the River Dee are closely managed through the Dee General Directions and are overseen by the Dee Consultative Committee (DCC). This includes the abstractions made by the four water companies (United Utilities, Hafren Dyfrdwy, Severn Trent Water and Dŵr Cymru Welsh Water) as well as the Canal and River Trust. The DCC is chaired by Natural Resources Wales who also oversee compliance of all abstraction licences.

Thank you for giving us a detailed insight into your concerns regarding the regulation regime on the Dee in the document you shared ('River Dee regulation, unnatural flows and their impact on the wildlife of the Dee and the Llyn Tegid Special Area of Conservation'). We would encourage you to share this with Natural Resources Wales. We would be happy to discuss your concerns and proposals at a future DCC meeting.

Our long-term strategy is to continue to supply high quality water to our customers in a sustainable way, whilst also meeting regulatory policy goals. To do this, our Water Resources Management Plan (WRMP) is focussed on reducing leakage and our customer per capita consumption to help protect the environment and reduce CO₂ emissions. We have developed our long-term strategy with our customers, stakeholders and the environment at the forefront of our plans.

Following the publication of our dWRMP we have continued to review and refine our long-term strategy. At our consultation events we asked our stakeholders for feedback on key parts of our dWRMP including the pace of our leakage reduction plans, whether we should consider rolling out smart metering and whether we had the right focus for our proposed water efficiency programme. We have listened to and reflected on the feedback we received both from the consultation events and from the formal written consultation responses. As a result, we have decided to:

- set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their per capita consumption). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day as published in our dWRMP). Our fWRMP sets out a strategy that delivers this target, via Hafren Dyfrdwy led water efficiency activity and the Government's Water Labelling programme where we are assuming a start date of 2025.
- roll out a smart metering programme to help us achieve both of our leakage and per capita consumption targets.

Our long-term strategy does not include transferring water out of the Dee catchment. Reducing demand for water through increased leakage reduction and reducing our customer per capita consumption will reduce our abstraction from the catchment in the long term. In section 7.4 of our dWRMP we gave a high-level overview of our 'environmental destination' plans for the Dee catchment. We will focus on catchment level investigations and biodiversity improvements, with the aim of bringing water quality benefits and improving the resilience of our water sources. Our PR24 business plan will provide further details of these plans.

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- 34 [8.4](#) Our long-term strategy is to continue to supply high quality water to our customers in a sustainable way, whilst also meeting regulatory policy goals. To do this, our Water Resources Management Plan (WRMP) is focussed on reducing leakage and our customer per capita consumption to help protect the environment and reduce CO2 emissions. We have developed our long-term strategy with our customers, stakeholders and the environment at the forefront of our plans. Following the publication of our dWRMP we have continued to review and refine our long-term strategy. At our consultation events we asked our stakeholders for feedback on key parts of our dWRMP including the pace of our leakage reduction plans, whether we should consider rolling out smart metering and whether we had the right focus for our proposed water efficiency programme. We have listened to and reflected on the feedback we received both from the consultation events and from the formal written consultation responses. As a result, we have decided to:
- set ourselves an even more ambitious target for helping our customers reduce the amount of water they use (their per capita consumption). Our new target will be 110 litres per head per day by 2050 (reduced from 118 litres per head per day as published in our dWRMP). Our fWRMP sets out a strategy that delivers this target, via Hafren Dyfrdwy led water efficiency activity and the Government's Water Labelling programme where we are assuming a start date of 2025.
 - roll out a smart metering programme to help us achieve both of our leakage and per capita consumption targets. Our long-term strategy does not include transferring water out of the Dee catchment. Reducing demand for water through increased leakage reduction and reducing our customer per capita consumption will reduce our abstraction from the catchment in the long term. In section 7.4 of our dWRMP we gave a high-level overview of our 'environmental destination' plans for the Dee catchment. We will focus on catchment level investigations and biodiversity improvements, with the aim of bringing water quality benefits and improving the resilience of our water sources. Our PR24 business plan will provide further details of these plans.

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- 35 [8.5](#) Our long-term strategy is to ensure the sustainability of our abstractions into the future, using a Sustainable Management of Natural Resources (SMNR) approach. Our leakage reduction plans and water efficiency work with our customers will help us to reduce our abstraction from the River Dee.

As discussed in section 6.8 of our dWRMP main narrative, we are not planning any transfers out of the Dee catchment. Lake Vyrnwy is currently under investigation as a potential Strategic Resource Option to provide additional water to the midlands and southeast of England. The details of this option are still being worked through as part of the Severn Thames Transfer (STT) project. The STT will not lead to any extra abstraction from the River Dee, or any extra water to be removed from the Lake Vyrnwy system. This offer to support the Severn to Thames Transfer is made by United Utilities, with their plan to replace the water from Lake Vyrnwy from areas of surplus water from within their network, not from the River Dee.

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- 36 [4.8](#) **Emergency storage for Wrexham and Chester**
[4.10](#) In previous WRMPs, our conjunctive use water resource zone (WRZ) Wrexham and Seven Trent's Chester WRZ were historically modelled using the English and Welsh deployable output (DO) analysis method to estimate DO based on less than 100 years of historical flow data. As a result, emergency storage volumes were used as a buffer to protect supplies against droughts that are more severe than those recorded historically.

The WRMP24 guidelines require water companies in England to assess the resilience of their systems to droughts with a return period of 1 in 500-years. As the River Dee catchment crosses into both England and Wales and is used as a source of water by English and Welsh companies, the river Dee system and thus supply to the Wrexham and Chester WRZs are assessed with a view to accommodate the 1 in 500-year drought resilience target. This makes sure that

exceptional demand restrictions such as Emergency Drought Orders (EDO) are not required due to drought more than once every 500 years on average. This analysis required the use of large stochastic datasets that contain hundreds of droughts with various levels of severity for our DO assessment (including very extreme drought with a 1 in 19200 years return period). The original reasoning of keeping emergency storage as a buffer against droughts more severe than historically recorded is thus considered to be invalid as we now plan for our water resource systems to be resilient to extreme droughts with a 1 in 500 EDO failure frequency. As a result, our dWRMP24 assessment used dead water level as the failure criteria (instead of emergency storage).

However, in light of the feedback received from Natural Resources Wales (NRW) on our dWRMP, we have reviewed our approach on the use of dead water level criteria for EDO failures. We have discussed the approach further with NRW. The following points summarise the approach we have proposed to NRW to be used as a sensitivity test for Wrexham and Chester WRZ's deployable output assessments for our fWRMP.

- The use of existing emergency storage level as a failure point would result in an unrealistic representation of EDO level demands from the River Dee source. Results from modelling work carried out by NRW as part of the WRMP24 safe yield assessment have shown that a 10% cut to safe yield can only achieve a 1 in 266 years return period of crossing the storage reserve (see table below extracted from NRW's "Oct 2021 Interim report Dee V1.doc").

Table: Modelled frequency of dead storage, storage reserve and cutbacks, for batch 8 of 8 of stochastics, at current safe yield and with reductions in net water company demand.

Batch 8 of 8, 2400 years	Dead storage	Storage Reserve ⁴	Stage 3 cutbacks	Stage 2 cutbacks	Stage 1 cutbacks
Current Safe Yield	480-600	45 (54)	67	20	8
-4% reduction	800+	83 (96)	96	24	10
-5%	800+	92 (109)	109	26	11
-6%	800+	109 (133)	120	28	11
-7%	800+	126 (150)	120	31	12
-8%	800+	150 (184)	133	33	13
-9%	800+	218 (240)	171	38	13
-10%	800+	240 (266)	184	41	14
Target	1 in 500	1 in 100		1 in 40	1 in 10

⁴ reserve is adjusted when DO is reduced (recount to remove double/triple counting of multi-year droughts)

- This indicates the scale of high safe yield cut that would be required if existing emergency storage, which is based on 30 days of all abstractors licence volume plus an allowance for meeting environmental needs of the River Dee, is used as the failure point. Thus, a significant reduction in the deployable output of these WRZs could be caused, which would lead to high over-investment to protect abstractions at the licenced amount.

- During severe drought events where an EDO failure occurs and standpipes, for example, are required, demand is likely to be very low. Low EDO level demands in Wrexham and Chester WRZs can be reasonably assumed to be met by running the major water treatment works (WTWs) in these zones at minimum capacity, reducing our and Severn Trent's abstraction from the river. Therefore, for our DO assessment, we are testing the sensitivity of including emergency storage in the Dee storage system with volume that is sufficient to supply water to run the major WTWs in the Wrexham and Chester zones at minimum capacity for 30 days. This helps to address any concerns regarding how we can supply water to our customers during EDO failures (during extreme droughts that are likely to occur once every 500 years on average) while avoiding over-investment in these zones. We will also account for the needs of other major

abstractors in the catchment that are likely to depend on supplies from the Dee during 1 in 500 droughts.

- The proposed approach requires further analysis of NRW's River Dee model safe yield outputs, applying the above-mentioned emergency storage level as the new failure criteria. This would help to assess if any changes are required to the safe yield level used for the baseline stochastic runs.
- If a reduced level of safe yield is required (to comply with the 1 in 500 resilience or existing standard of service levels), we will re-run DO analysis of Wrexham and Chester WRZs using the new safe yield level.
- We would then consider whether an adaptive pathway would be required in our fWRMP 2024 or whether further modelling is required before we commit to any additional investment.

NRW have carried out the required analysis and the results show that introducing emergency storage as proposed above will not impact the 1 in 500 DO for both Wrexham and Chester WRZs. Details of the analysis results will be included in our fWRMP.

37 [4.2](#) This is an excerpt of our WRMP appendix. The changes that will be made as a consequence of the feedback received are highlighted in green below.

Appendix A: How much water we have

A1 Defining our Water Resource Zones

Water resource zones, often referred to simply as WRZs, are the building blocks of our draft Water Resource Management Plan (dWRMP). They provide a strategic framework for water resources supply-demand management and investment. The full definition of a WRZ is **“an area within which, managing supply and demand for water is largely self-contained (apart from defined bulk transfers of water); where the resource units, supply infrastructure and demand centres are linked such that customers in the WRZ experience the same risk of supply failure”**.

Following the formation of Hafren Dyfrdwy in 2018, a detailed analysis was carried out of the new Hafren Dyfrdwy supply area. This included a review of the company boundaries, the original water resource zones (WRZs), sources of supply and customer connections. Changes (as presented in our WRMP19) were made to the WRZs to reflect the national boundaries. Four water resource zones were created, as shown in Figure 1.1.

During preparations for our draft 2024 WRMP (dWRMP24) we reviewed those four WRZs and concluded that they continue to meet the WRZ definition. All customers with the WRZs face the same risk of supply failure and the same level of service for demand restrictions. We have therefore maintained the same four WRZs as our WRMP19. These are:

- Saltney
- Wrexham
- Llanfyllin
- Llandinam and Llanwrin.

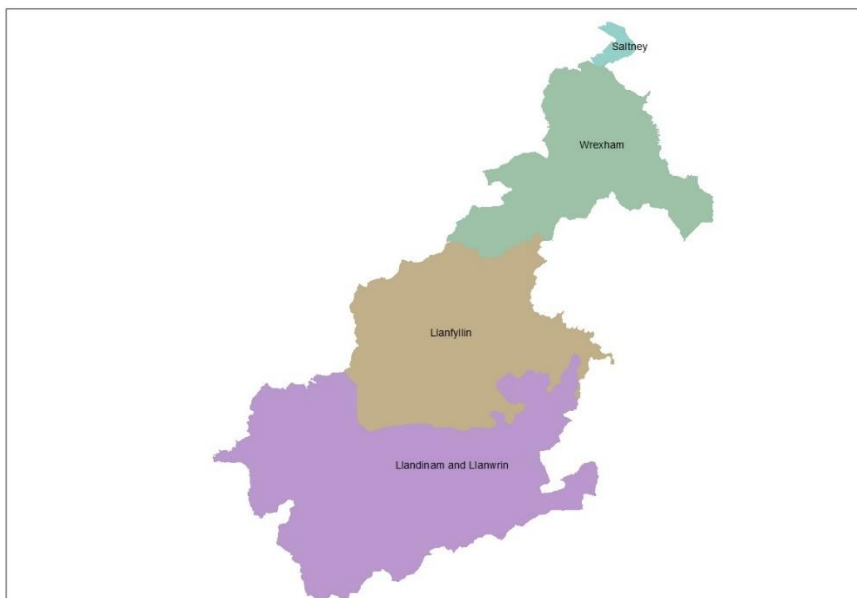


Figure A1.1: Our water resource zones

We have reviewed our cross border supplies and have installed metering on the new cross border supplies created when Hafren Dyfrdwy was formed. This means we can accurately measure the flow we are sending to or receiving from each of our neighbouring water companies with whom we have bulk supply agreements. Data from these meters has been used to update the bulk supply agreement with Severn Trent (more detail on this can be found in section A3.1)

38 [4.3](#) This is an excerpt of our WRMP narrative. The changes that will be made as a consequence of the feedback received are highlighted in green below.

6.5 Making a best value plan for our customers

One of the main changes in the Water Resources Planning Guidelines (2021) from previous WRMPs is that companies should move away from least cost, no regrets planning to creating plans that deliver the best value for their customers. It is important that we adopt the appropriate but proportionate decision-making approach to develop a best value plan for customers. More complex approaches are needed depending on the significance of the risk to the balance of water supply versus demand in the context of future pressures from growth, climate change and environmental issues. We used the UKWIR problem characterisation approach to determine the size and complexity of the supply demand situation. The assessment for our WRMP19 showed that we were in surplus across the company and had a Low complexity problem to solve.

Our assessment in January 2022 for the pre-consultation phase of this plan considered a range of different scenarios to understand how different potential “futures” could affect our supply and demand. Some aspects of our modelling were more progressed than others, meaning that the initial assessment for the pre-consultation discussions used a combination of updated modelling and old data and information from WRMP19. The initial assessment indicated that, under the most extreme climate change impacted drought scenario, there was a reasonable risk that our Wrexham WRZ would go into deficit in the 2070s. Figure 6.6 shows the supply demand balance for each of our water resource zones under this scenario. A supply demand balance above zero indicates a surplus, below zero indicates a deficit. The yellow line shows the supply demand balance for Wrexham, which remained in surplus until 2071-72 when it moved into a small deficit. This initial assessment increased our problem characterisation size to a ‘small deficit’ with complexity remaining at Low.

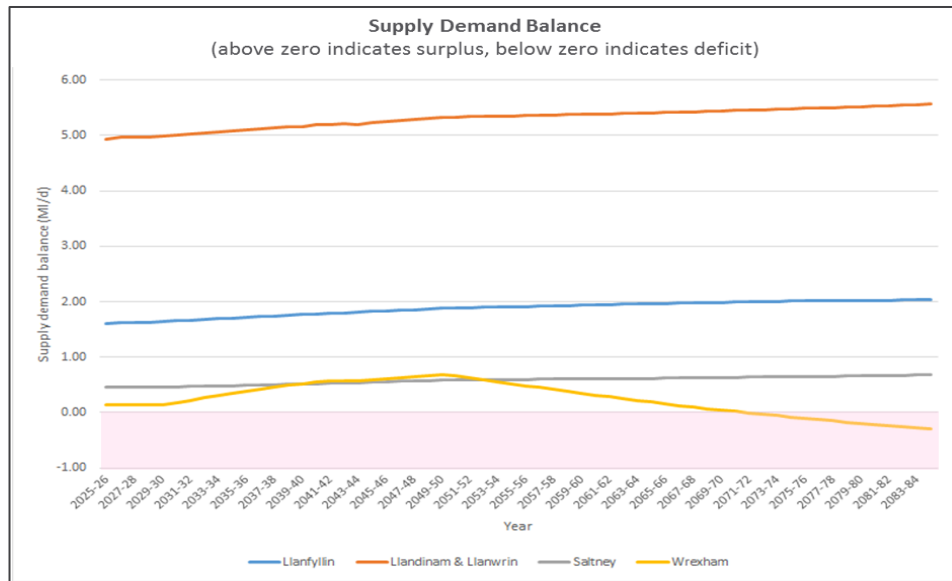


Figure 6.6: Extreme climate change plus drought initial supply demand balance assessment as used in the pre-consultation discussion

Further modelling, improved data, and clarification of how the Dee General Direction rules should be applied under climate change scenarios, indicated that Wrexham WRZ would in fact remain in surplus, thus reducing the complexity back to Low. The most significant changes to our assumptions were:

- Discussions with NRW and the Dee Consultative Committee about the modelling approach resulted in a change to baseline licence cutback assumptions for the 1 in 500 drought scenario. This increased our baseline deployable output by 2MI/d compared to the initial assessment.
- New metered data on the bulk supplies between our Wrexham WRZ and Severn Trent's Chester WRZ revealed that we are supplying approximately 1MI/d less than the original bulk supply agreement calculated at WRMP19. We have updated our Bulk Supply Agreement to reflect this more accurate position.
- Using the latest Welsh Government growth data reduced Distribution input by 2.5MI/d by the end of the planning period.
- We have used a more sophisticated target headroom methodology, which has enabled us to carry out sensitivity analysis on the level of risk we are willing to accept in relation to uncertainty in our supply and demand forecasts. Our 'glidepath' strategy is to maintain a 95% level of certainty in the first five years of the plan then the level of certainty reduces and we accept greater risk in later years. In Wrexham we have adopted a 'glidepath' that gradually reduces from 95% in 2029 to 85% from 2040 onwards. In Llandinam and Llanwrin our 'glidepath' changes from 95% in 2029 to 90% from 2030 onwards. This change maintains a high level of confidence in the short to medium term ensuring that we can meet our planned levels of service while coping with the range of planning uncertainties. In the longer term, uncertainties around climate change can be managed via the five-yearly update of our water resources management plan, using flexible adaptation responses. More detail on target headroom and how it is calculated can be found in appendix C.

The combined effect of these changes was to move the supply demand balance in the Wrexham zone into surplus throughout the planning period. Figure 6.7 shows the supply demand balance for all four of our WRZs as presented in the WRMP tables.

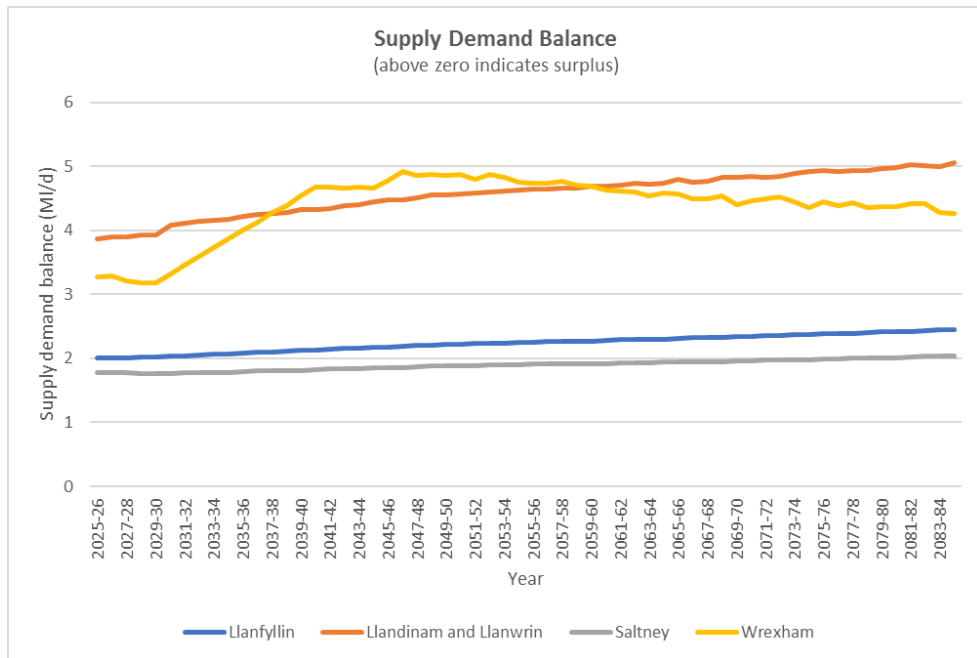


Figure 6.7: Baseline supply demand balance as presented in our WRMP tables

The stages of our problem characterisation assessment are shown in Figure 6.8).

Problem Characterisation		Strategic Need Score (How big is the problem)				
		0 (No deficit)	2 (Small deficit)	4 (Medium deficit)	6 (Large deficit)	
Complexity (How difficult it is to solve)	Low	★ ★	★			★ WRM P19 ★ dWRMP24 ☆ dWRMP24 (pre-consultation)
	Medium		★			
	High					

Figure 6.8: Our problem characterisation

Given the expected change in problem characterisation at pre-consultation, we committed to develop an enhanced decision support capability to help us develop a best value plan. Our change in decision making approach is shown in Figure 6.9. Our new decision support tool, WiSDM (Water Infrastructure and Supply Demand Model), allows us to test a wide range of future scenarios (including Ofwat common reference scenarios) and to have an integrated investment plan informed by system wide view of water supply, resilience, and leakage reduction.

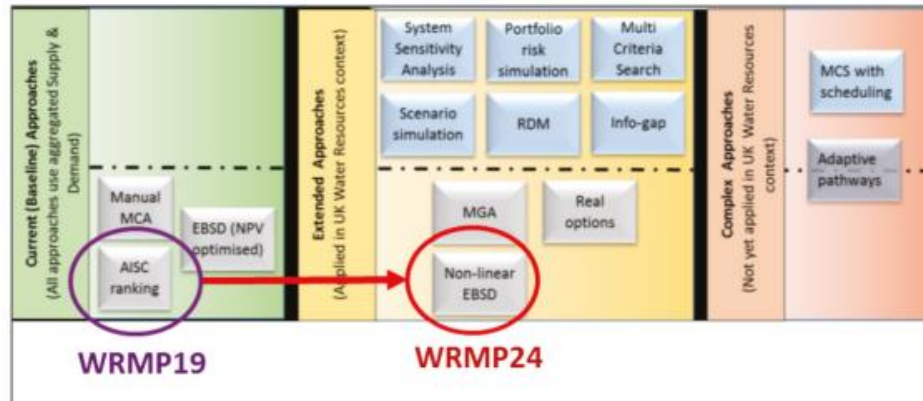


Figure 6.9: Assessment of investment modelling approaches

We believe that an enhanced investment modelling capability is essential over the longer term and therefore continued its development despite further analysis confirming that all zones are in surplus.

Our new WiSDM model (shown in Figure 6.10) allows us to determine the least cost programme, incorporate multi-criteria metrics to align with Water Resources West, and derive a series of best value programmes to enable us to consider possible adaptive pathways.

WiSDM can be used to assess and trade off supply and demand options using a multi-criteria assessment. However, without a supply demand deficit to close, supply options were not loaded into the system (see Section 6.6) and its primary usage for this dWRMP was to find the optimum glidepath to a 50% leakage reduction.

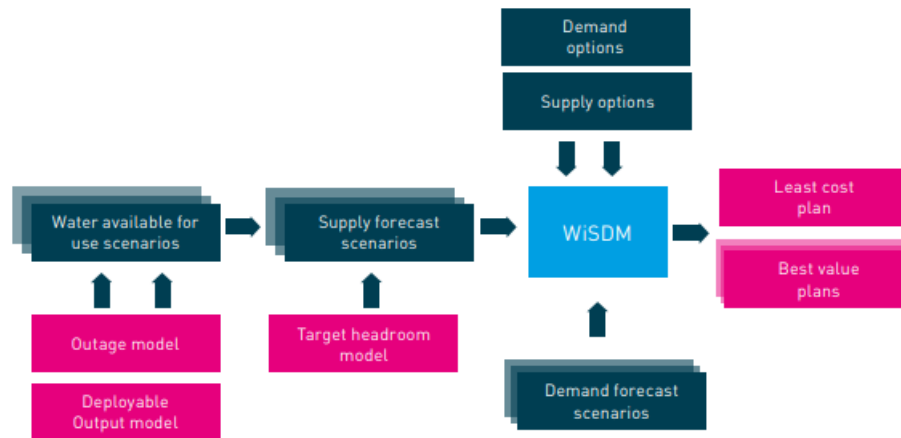


Figure 6.10: Our new WiSDM (Water Infrastructure & Supply Demand Model) system

For this dWRMP, we believe that the least cost, no regrets plan is the best value for our customers. Keeping bills as low as we can will ease pressure on our customers, particularly during the continuing cost of living crisis. We have avoided unnecessary spend on water resource schemes and have opted to concentrate our efforts on leakage reduction, innovation in water efficiency and demand management activities and our environmental destination programme. There are multiple benefits of these activities, as shown in Table 6.3.

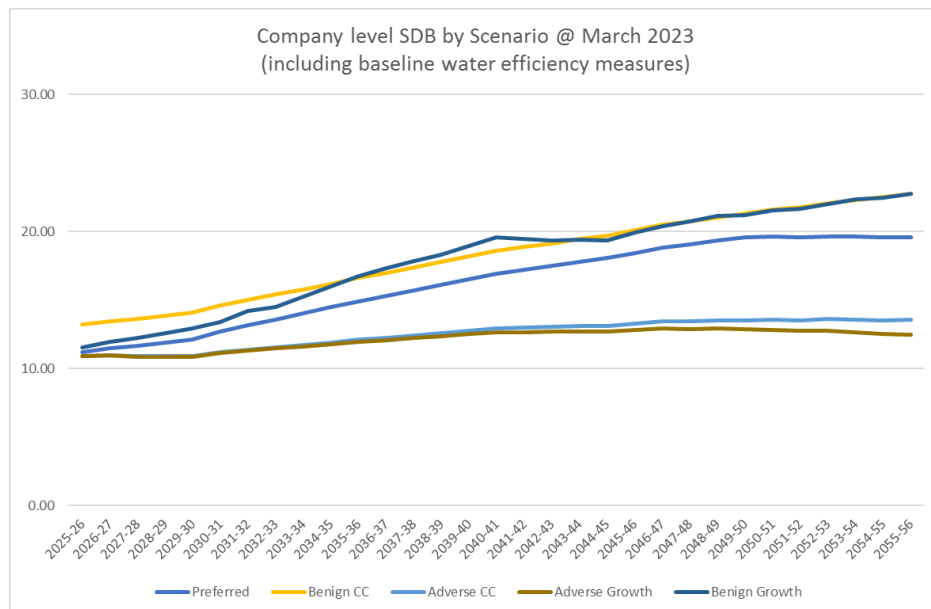
Table 6.3: Benefits of our proposed plan

Benefit	Demand side measures		Environmental improvements
	Leakage reduction	Increased water efficiency and demand management	
Takes less water from the environment	✓	✓	
Reduces carbon footprint	✓ ✓	✓ ✓	✓ ✓ ✓
Improves biodiversity			✓ ✓
Creates investment in the Welsh economy		✓ ✓ ✓	✓ ✓
Improves resilience of supplies	✓		✓
Improves water quality within catchments			✓ ✓
Helps meet other wellbeing goals	✓	✓	✓ ✓

39 [5.18](#) We have tested the supply demand balance against the Ofwat common reference scenarios for climate change and growth. In agreement with NRW our Environmental Destination scenario does not include any reduction to abstraction licences but rather effort to make direct improvements to catchment habitats and biodiversity.

Technology scenarios are yet to be fully assessed but will be completed for PR24 and the final WRMP.

The chart below shows that the supply demand balance remains in surplus for the climate change and growth Ofwat Common Reference Scenarios.



Due to the surplus, no supply options have been proposed, and we are presenting demand management options to ensure that we can achieve national policy goals and reduce carbon emissions.

Our core pathway (or 'preferred plan'), in line with the Water Resource Planning Guidance includes an appropriate level of low-regret investment to meet future uncertainties. These are all demand side options.

In the final WRMP we will include more scenario testing of our preferred plan against plausible futures. We will also set out data used for the assessment of the common reference scenarios.

The Main Narrative of our dWRMP links to WRMP19 and regularly refers back to it demonstrating continuation. In section 6.1 of our Main Narrative entitled "Changes since WRMP19" we explicitly state some of the key changes since WRMP19; this facilitates understanding of our progression from WRMP19 to WRMP24.

40 [6.2](#) All members have continued to work collaboratively to develop their WRMP in a regional context and their revised WRMPs are consistent with the regional Statement of Response.

WRW and core members position on commonality	
Environmental destination (ED)	<p>Wales</p> <p>WRW has continued to develop the plan for Wales including further meetings with NRW and stakeholders. Each of our member companies with operations in Wales have committed to investigations and schemes in their 2025-30 National Environment Programme (NEP) relating to Environmental Destination in Wales. There are also opportunities identified from the development of new water resource options.</p> <p>England</p> <p>Early in the planning period the latest position agreed with the EA on licence capping, to protect the environment from deterioration due to sustained increases in abstraction, has been included for their preferred plans.</p> <p>All members in England are using the latest best estimate of the 2050 BAU+ locally verified scenario (referred to as BAU+ in the plan). This scenario uses existing policy and regulatory approaches now and into the future. It also includes applying flow targets required for European designated riverine sites by 2050 at the latest. Locally verified refers to the analysis that the regional group has done to refine the scenario data developed at national scale by the Environment Agency for the National Framework. This incorporates the discussions held locally with stakeholders and regulators plus work that has already happened or is in progress to ensure the right level of protection and enhancement is being applied.</p> <p>There is a consistent approach across the region with regards to sustainability changes and scenarios. Further scenarios have been developed to evaluate undertaking licence reductions earlier to accelerate the achievement of current regulatory needs and bring resilience to the water environment.</p>
Drought resilience position	All members are planning to achieve 1 in 500-year level of drought resilience by 2039/40, despite Hafren Dyfrdwy and Welsh Water not being required to meet a 1 in 500 level of resilience by 2040.
Demand management policy	All members in England are planning to achieve the government policy objectives, part of the Environmental Improvement Plan, for demand reduction:

	<ul style="list-style-type: none"> • 20% reduction in Distribution Input per head of population by 2038 • Non-household demand reductions of 9% by 2038 and 15% by 2050 • Per Capita Consumption (PCC) reduction to 110 litres/head/day by 2050 and are using the dry year annual average position. <p>All members in England have adopted the leakage reduction targets of 20% by 2027, 30% by 2032, 37% by 2038 and 50% by 2050 (at the latest) from 2017/18 levels.</p> <p>Hafren Dyfrdwy has adopted the leakage target of 50% reduction from 2019/20 baseline levels by 2050, with a leakage reduction target of 10% in AMP8, and 110 litres/head/day PCC target in a dry year by 2050.</p> <p>Welsh Water has adopted the leakage target of 50% reduction from 2017/18 levels by 2050, 110 litres/head/day PCC target in a dry year by 2050 and the non-household reductions of 15% by 2050.</p>
Supply resilience	<p>All members have adopted the intermediate scenario of climate change (RCP 6.0) in their preferred plan.</p> <p>All members have generated regional-level hydrological and climate change datasets, collaborated on extensive water resources model development, and undertook in-depth analysis on outputs.</p> <p>United Utilities, Severn Trent and Welsh Water are proposing investment in new supplies and/or increased network connectivity across WRW from early on in the planning period to further bolster supply resilience. South Staffs and Hafren Dyfrdwy only have demand options selected and therefore are not.</p>
Reconciliation – Scheme selection	<p>All members have worked collaboratively through a reconciliation workstream to ensure the transfer scheme selection aligns across the region and with other regions. The preferred plan transfers are:</p> <ul style="list-style-type: none"> • 25 MI/d Vyrnwy raw water from United Utilities to Severn Trent in 2030; • Grand Union Canal transfer from Severn Trent to Affinity Water selected in 2031 at 50 MI/d, increasing to 100 MI/d in 2040; • Cessation of the Derwent Valley export from Severn Trent to Yorkshire Water in 2035. <p>The adaptive pathways for the STT have also been aligned with WRSE.</p>