

Water Resources Management Plan 2019

September 2019

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WONDERFUL ON TAP



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1 About Hafren Dyfrdwy

In February 2017, Dee Valley Water became part of the Severn Trent group. In May 2018, Ofwat approval was received to align the boundaries of Severn Trent and Dee Valley Water to the national boundaries of Wales and England. In line with this approval, we launched our new name, Hafren Dyfrdwy on 1 July 2018.

Both Severn Trent and Hafren Dyfrdwy customers should expect their respective Water Resources Management Plans (WRMPs) to continue to ensure there is sufficient water to meet demand over the long term. We recognise that the draft WRMPs were published based on the old licence boundaries with the subsequent consultations carried out on this basis. The final WRMPs have responded to feedback received and are based on the new boundaries.

Hafren Dyfrdwy is a water and wastewater company which provides around 58 million litres of water per day, to a population of approximately 220,000 in the area of mid and north east Wales (Figure 1). Our customers comprise approximately 97,000 households and 8,000 business customers.

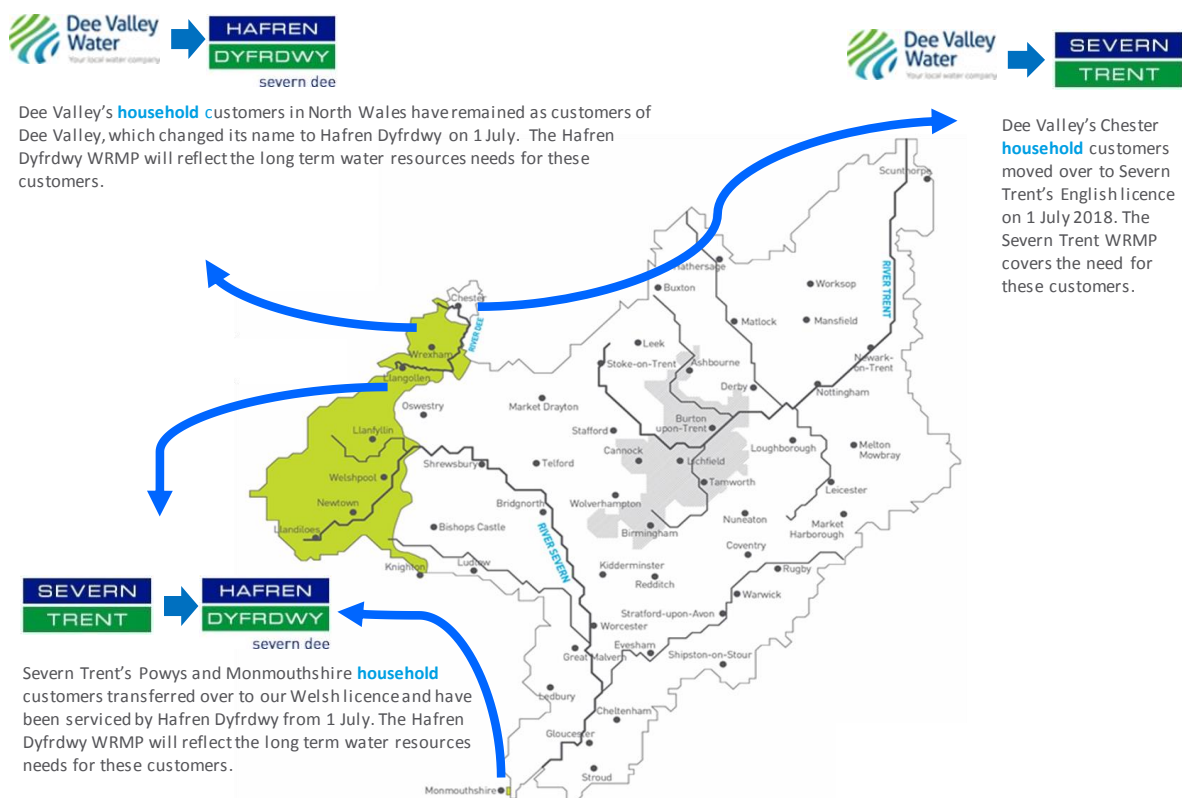


Figure 1 - Severn Trent and Hafren Dyfrdwy boundary changes

Typically, around 61% of our raw water comes from the River Dee, 5% from a series of impounding reservoirs, 30% from boreholes and the remaining 4% from a spring source.

Water is treated at five treatment works and is then supplied to customers through a network of approximately 2,600 km of water mains, 100 pumping stations and 85 clean water storage reservoirs.

2 About the Water Resources Management Plan

This is Hafren Dyfrdwy's first published Water Resources Management Plan (WRMP). It is a statutory requirement that every five years water companies produce and publish a WRMP. The WRMP should demonstrate that we have long term plans in place to accommodate the impacts of population growth, drought, our environmental obligations and climate change uncertainty in order to balance supply and demand.

The Water Industry Act 1991 sets out the basis under which all water and wastewater companies (referred to as 'undertakers' in the Act) in England and Wales must operate. The most fundamental of our duties is to develop and maintain a safe, efficient and economical system of water supply within our area of operation. As part of this process we produce a water resource management plan (commonly referred to as a 'WRMP') which sets out how we will manage and develop water resources to ensure that we can continue to meet our fundamental water supply duty.

We are required to produce a WRMP every five years – reviewed annually – which forecasts how much water we can provide ('supply') and how much water our customers require ('demand') over a 25 year period. We must prove to our regulators that we will be able to meet our customers' needs during a drought – when demand is at its highest – while still protecting the environment.

This is the first time that Hafren Dyfrdwy has produced a WRMP; Dee Valley Water previously published a WRMP in 2014, which covered the Wrexham and Chester supply areas – Chester now forms part of the Severn Trent supply area and is included in their WRMP19 document. The part of Powys now included in this plan was previously included in Severn Trent's WRMP14.

Dee Valley Water and Severn Trent last published WRMPs in 2014, which covered the period 2015 to 2040. In 2016, Welsh Government issued the Water Resources Management Plan (Wales) Directions 2016 which directed all water companies operating wholly or mainly in Wales to update their WRMP for 2020. This new WRMP is our response to this direction and sets out how we propose to ensure we can meet the demand of our customers for the period 2020 to 2045.

3 Water resources in Wales

This is an interesting and exciting time to be a water company in Wales. Welsh Government have, over the last five to ten years, been developing a clear vision for the well-being of the people of Wales and for the future management of natural resources. Moreover, they have made a strong link between these two policy areas and set out their expectations for organisations working in Wales, as to the part they will play in delivering this vision.

Well-being of Future Generations (Wales) Act 2015

The Well-being of Future Generations (Wales) Act 2015¹ is a unique piece of legislation which is about improving the social, economic, environmental and cultural well-being of Wales. It is intended to make public bodies working in Wales think more about the long-term, work better with people, communities and each other, look to prevent problems and take a more joined-up approach.

The definition of public bodies within the Act does not include water and wastewater companies. However, in 2015 Welsh Government also published their Water Strategy for Wales², the priorities of which were strongly underpinned by the well-being goals (see Figure 2) as set out in the Act. As we strive to meet the expectations for water companies set out in the Strategy, we will work to embed the principles of the well-being goals into our water resources planning and business planning processes, and from there into our day-to-day working practices.

While there is potential for us to contribute to most, if not all, of the well-being goals, there are some that are particularly relevant to us in the context of the WRMP.

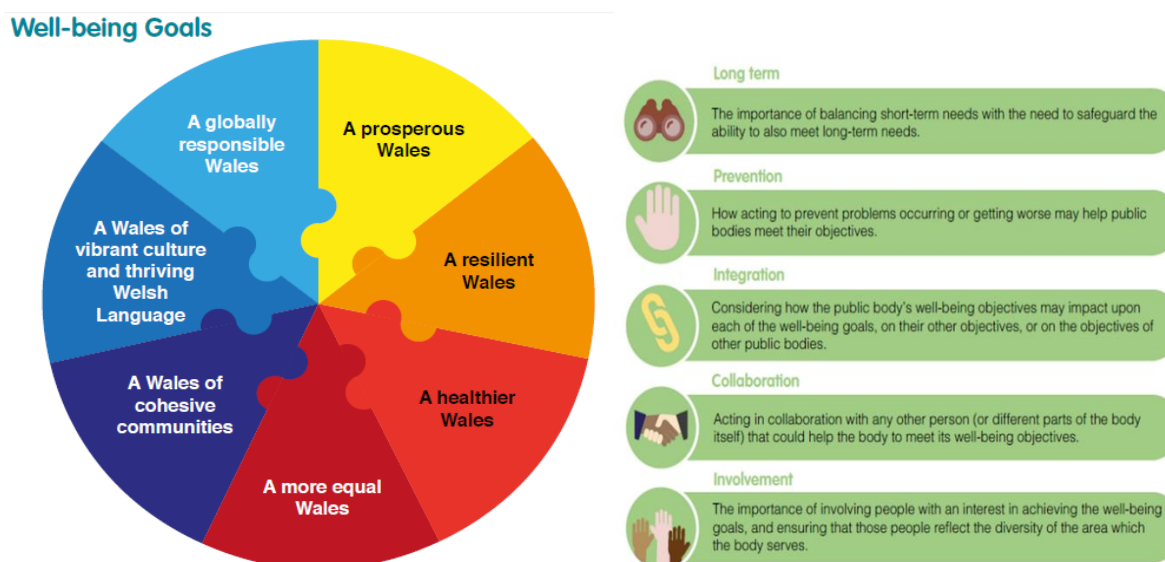


Figure 2 - The seven well-being goals and five aspects of the sustainable development principle³

¹ <http://gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en>

² <http://gov.wales/topics/environmentcountryside/epg/waterflooding/publications/water-strategy/?lang=en>

³ *Well-being of Future Generations (Wales) Act 2015: The essentials* – Welsh Government, May 2015

A prosperous Wales – an innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including action on climate change); and which develops a skilled and educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.

Welsh Government have clearly indicated that there needs to be a move towards a more integrated management of our water resources. As one of the largest abstractors of water in Wales, we have a responsibility to help shape what that approach looks like, for example through the expansion of our current catchment management programmes, and seeking opportunities for collaboration with neighbouring water companies, NGOs, land owners, local industry etc.

By working more closely with our customers to explore opportunities for increasing and understanding water efficiency and demand management messages, we can help Welsh Government achieve their objective that the people of Wales recognise how valuable water is to Wales as a resource and to their daily lives.

Welsh Government recognise that a reliable source of water is essential to a thriving economy in Wales. By building a resilience and flexible WRMP for the future, and continuing to review how we interact with local authorities, developers and industry, we can ensure that access to a reliable water network is not a barrier to encouraging new industry into our supply area.

A resilient Wales – a nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).

As a new business we have a unique opportunity to take stock of the shocks and stresses that could affect our ability to provide services and to listen to and understand the expectations of our customers and stakeholders. Through development of this WRMP and our latest business plan, this has allowed us to identify gaps between the level of resilience inherent in our business today and the optimum level to meet future needs. Our overall aim is to make decisions that would have been taken with the benefit of hindsight.

In 2016, the National Assembly for Wales passed the Environment (Wales) Act 2016 which put in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. The Act introduces a new duty on water companies in Wales, to maintain and enhance biodiversity, and promote the resilience of ecosystems; we will work with all relevant parts of the business to ensure this duty is delivered through our investment programmes and responsible management of our land assets.

We will build on our current catchment management programme and explore opportunities for achieving wider environmental benefits by working with landowners and other partners to encourage more sustainable working practices. By reducing the risk of pollution to water courses and addressing problems at source, we can reduce treatment costs and have year-round access to sources that currently have seasonal use restrictions.

A healthier Wales – a society in which people’s physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.

Welsh Government recognise that there are a wide range of benefits, both mental and physical, to be had from encouraging access to water. They also want to ensure that everyone in Wales has access to clean, wholesome drinking water.

We will be reviewing our impoundment reservoirs over the next couple of planning periods, both to see what can be done at source to improve water quality, so reducing potential for taste and odour issues and reduce treatment costs, but also to assess potential for recreational use opportunities.

Environment (Wales) Act 2016 & the biodiversity duty

In 2016, the Welsh Government have introduced a new piece of environmental legislation - the Environment (Wales) Act. The Act aims to provide significant economic, social and environmental benefits for Wales. It has been carefully designed to support and complement the Welsh Government’s work to help secure Wales’ long-term well-being, so that current and future generations benefit from a prosperous economy, a healthy and resilient environment and vibrant, cohesive communities.

Section 6 of the Act introduces a duty on public authorities operating in Wales to “*maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions*”. The definition of public authority in this instance includes water and wastewater companies.

We recognise that we have the potential to have a significant impact on a wide range of ecosystems in Wales, and to ensure that we maintain and enhance biodiversity and promote the resilience of ecosystems in the exercise of our functions we will:

- Be a responsible environmental steward by minimising the impact of our activities, ensure we have robust environmental control systems and work within our catchments to reduce risk to quality and enhance ecosystems.
- Maintain and enhance biodiversity, and promote the resilience of ecosystems through our investment programmes and responsible management of our land assets.
- Ensure all employees are aware of the impact of their activities on biodiversity and ecosystems through the development and implementation of relevant training.
- Develop plans for asset improvement based on robust environmental impact assessments and ecological surveys to identify any potential impact on biodiversity. Where potential impact is identified, we will seek to introduce ways of working that minimise the impact as well as seeking opportunities to enhance the resilience of the local ecosystems through the asset improvements.
- Have regard to the Welsh Government’s National Natural Resources Policy, which sets out their priorities in relation to the management of natural resources in Wales.
- Develop a robust biodiversity improvements and catchment management programme which will take account of findings set out in Natural Resources Wales’ State of Natural

Resources Report (SoNaRR)⁴ and the subsequent Area Statements. We will also refer to the Welsh Government's Nature Recovery Plan for Wales⁵ to identify any actions that we can help to deliver while enhancing the quality of our water resource assets.

- Continue to work closely with industry partners to identify opportunities for increasing our resilience, and that of the ecosystems we work in, to the effect of climate change.
- Seek opportunities for working with partners and local communities to maintain and enhance the biodiversity at our publicly accessible sites. We will also consider whether any of our sites which are not currently accessible could be made so, to increase their value to the local community as well as providing opportunities for better maintaining the resilience of their ecosystems.

Sustainable management of natural resources

The Environment (Wales) Act 2016 introduced a new approach to managing the essential natural resources of Wales – *sustainable management of natural resources (SMNR)*. The SMNR approach is designed to ensure that the use of and the impacts on our natural resources do not result in their long term decline. The aim is to sustainably manage natural resources in a way and at a rate that meets the needs of the present generation without compromising the needs of future generations, while contributing to the seven well-being goals. Figure 3 illustrates the framework which supports the delivery of this approach.

The State of Natural Resources Report (SoNaRR) – NRW produced a report assessing natural resources and how well they are being managed in a sustainable way, first published in September 2016. Provides evidence base for the NNRP.

National Natural Resources Policy (NNRP) - Welsh Government published their national policy setting out the priorities, risks and opportunities for managing Wales' natural resources sustainably in August 2017.

Area Statements – NRW will produce a local evidence base, which helps to implement the priorities, risks and opportunities identified in the National Policy and how NRW intends to address these.

Figure 3 - Welsh Government / NRW's framework for delivering SMNR

While the SoNaRR sets out the Wales-wide baseline for the current state of natural resources, Area Statements will form the main evidence base that we can feed into and refer to when developing our future investment programmes. We will need to work closely with NRW and other key stakeholders to understand what the Area Statements might mean for us; the key

⁴ <https://naturalresources.wales/evidence-and-data/research-and-reports/the-state-of-natural-resources-report-assessment-of-the-sustainable-management-of-natural-resources/?lang=en>

⁵ <http://gov.wales/topics/environmentcountryside/consmanagement/conservationbiodiversity/?lang=en>

risks and issues, and associated mitigating actions that water companies can have an impact on.

We will need to continue to work closely with key stakeholders and our Customer Challenge Group to help engage with our customers to ensure they understand and accept solutions that may be more costly but will deliver wider, long term social, economic and environmental benefits.

4 Our approach to water resources planning

Our WRMP explains our long term plans to accommodate the impacts of population growth, drought, our environmental obligations and climate change uncertainty in order to balance supply and demand.

We began working on this WRMP in 2016 to understand new and emerging future water supply / demand challenges, and to explore the options available to us. We have used our in-house expertise in hydrology, hydrogeology, ecology, engineering and economics to define and quantify risks and future supply / demand scenarios. We have also called on a number of specialist consultants and partners to help us develop the recommendations set out in our WRMP. Throughout the development of this plan, we have shared our emerging thinking with technical specialists at Natural Resources Wales, the Environment Agency, and other expert stakeholders to understand their views.

Forecasting our supply

Our forecast of supply is based on how much water we can take from our sources, and how much of this water can then be put into the supply network for our customers. The majority of our water comes from the River Dee, with additional water taken from our nine impoundment reservoirs, a spring source and groundwater sources in Powys.

The amount that can be taken ('abstracted') from each source is set out in abstraction licences issued by Natural Resources Wales (NRW). Using modelling carried out by NRW, we applied reductions to our abstraction limits based on possible impact of climate change over the planning period. This gives us a value called the deployable output; we then add any imports from neighbouring water companies, deduct any exports and water used at treatment works, to give us a value referred to as Water Available For Use (WAFU). This is the maximum amount of water that can be put into the network to meet demand.

Forecasting our demand requirements

Our forecast of demand is based on predictions of population and housing growth, changes in water use behaviour, as well as commercial and industrial demand we think will have to be supplied, and the amount of water that will be lost through leakage.

We project the rate of population growth using statistics produced by Welsh Government's Statistics for Wales department and the local authorities covering our supply area. We forecast the amount of water used by the population based on current per household usage and how we think this will change over time due to increasing awareness of water use and more efficient appliances (washing machines, dishwashers, toilets etc.). For our commercial customers, we consider growth trends based on previous years' demand compared with how the economy is expected to perform over the next few years. We also discuss possible developments with the local authorities and build additional demand into the forecast where we know that significant developments are likely during the planning period – for example, a

new power station is due to come on line in the next couple of years, and a new prison opened in Wrexham in 2017.

Customers and stakeholders in Wales have given clear messages about their desire to see reductions in leakage. In the customer deliberative workshops some customers expressed a view that Hafren Dyfrdwy should do more to reduce leakage, and while this view was expressed without any insight into the costs/economics of leakage reduction, we know that simply holding it flat or a nominal reduction will not meet their expectations. At the same time Welsh Government, NRW and Ofwat want us to be ambitious, with Ofwat setting an expectation for leakage reduction of at least 15% in AMP7.

We have listened to stakeholders, customers and policy makers and have included a 15% reduction in leakage in AMP7, which is an incredibly stretching target. The additional investment we are making in telemetry and instrumentation during AMP6 will assist us in targeting improvements in a cost effective way. The target will be achieved by the end of the AMP7 period with a straight line glide path as we need to integrate leakage activity into our business as usual approaches to maximise cost efficient delivery.

Allowing for uncertainty

Once we have determined how much water will be needed, we add on a buffer – known as ‘headroom’ – to allow for any unusual events which can’t be planned for. Headroom is derived using an industry best practice method to ensure all contributing factors are considered, including the possible impact of climate change on supply and demand.

The supply-demand balance

The final stage of the process is to compare the amount of water that can be supplied with the expected amount of demand required plus the headroom. This gives us a value called the ‘supply-demand balance’; from this we determine whether there is a deficit or surplus of water across the planning period.

If we were seeing a deficit at any point in the forecast, our WRMP19 would have to include solutions as to how we would close this gap in the supply-demand balance. This could include looking for new sources of water; entering into water trading agreements with other water suppliers; increasing our investment to reduce leakage; increasing demand management work with our customers.

Based on the supply and demand projections set out in this WRMP19, we believe that we will remain in surplus for the planning period and therefore are not considering any ‘supply side options’ (i.e. new sources or water trading). However, Welsh Government and NRW have indicated in their guidance that, even if there is no deficit, we should consider options to improve our service to customers, provide long-term best value, benefit the environment or collaborate with other water companies on strategic options. We have therefore considered options for:

- reducing leakage on our network,
- increasing our demand management work with current and future customers,

- improving the resilience of our impoundment reservoirs and reduce our reliance on the River Dee abstractions, and
- expanding our current catchment management programme to protect the quality of our water sources.

Assessing our impact on the environment

As a water company based wholly in Wales, there is a mandatory requirement to undertake a Strategic Environmental Assessment (SEA) for our WRMP. This is a formal process for assessing the effect of a plan or programme on the environment, the aim of which is to provide a high level of protection to the environment and to promote sustainable development by the integration of environmental considerations into the preparation and adoption of plans or programmes.

This is the first WRMP for Hafren Dyfrdwy; there have also been a number of significant legislative changes in Wales since the last round of WRMPs were published in 2014, including the introduction of the Water Act 2014, Well-being for Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016. In recognition of these factors a thorough SEA review was required for this latest WRMP, and we carried out an initial scoping assessment to determine whether a full SEA was required. In addition, as the River Dee is designated as a Special Area of Conservation (SAC) under the EC Habitats Directive, we undertook a Habitats Regulations Assessment. This is a formal assessment required for any new plans or projects with potential for affecting the designated interest features of European Sites. No significant concerns or issues were identified. Copies of these reports will be published alongside this WRMP.

Links to other planning processes

The WRMP forms part of our wider business planning process, which runs in five yearly asset management planning (AMP) cycles. The investment which will take place during each of these AMP periods is determined through a periodic review (PR) of our business plan and assessed by our economic regulator Ofwat. We are currently in AMP6 (2015-2020) and our draft PR19 business plan – which will span the AMP7 period, running from 2020 to 2025 – was submitted to the economic regulator in September 2018, with an updated draft being submitted in April 2019. Figure 4 shows how the two processes fit together.

In addition to the fundamental duties referred to earlier, the Water Industry Act 1991 also sets out a duty for water companies to prepare and maintain a drought plan. This is a plan for how we will continue, during a period of drought, to discharge our duties to supply adequate quantities of wholesome water, with as little recourse as reasonably possible to drought orders or drought permits⁶. Our plan maintains our ability to ensure that we should not need to impose temporary usage bans on our customers any more frequently than once every 40 years, which is the equivalent of a 2.5% annual risk over the next 25 years.

⁶ Drought Orders and Permits are a means by which further action can be taken to mitigate the impact of a drought by either increasing water supply or further restricting water use.

We are required to review and publish a revised Drought Plan every three years and we are currently going through this process. For WRMP19, Welsh Government and NRW have indicated that they want to see evidence that we have based our supply forecast on an appropriate design drought, and a drought resilience statement which reflects the hydrological risks that drought imposes on our supply system. This will mean that there is a much clearer link between the WRMP and Drought Plan than in previous planning cycles.

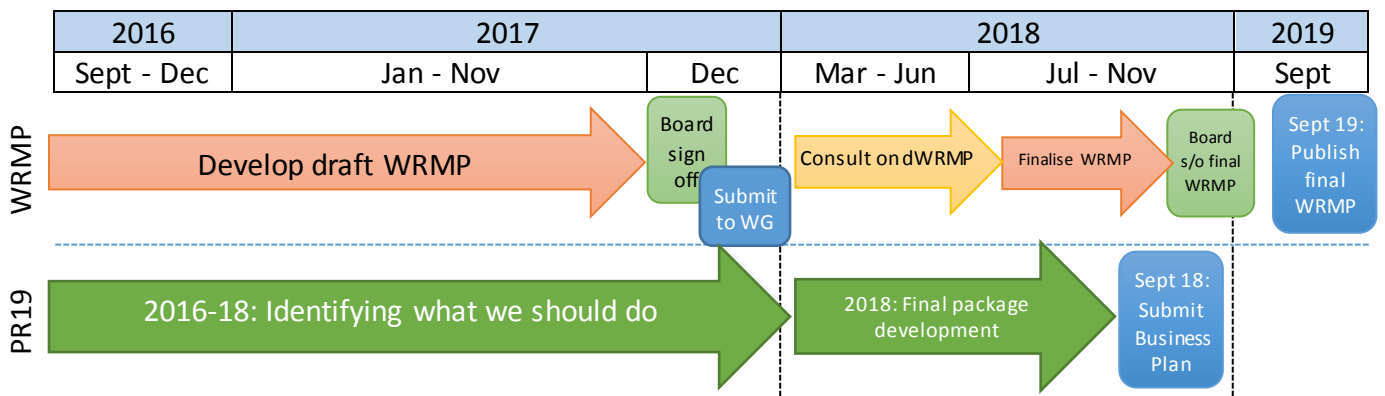


Figure 4 - WRMP / PR19 timelines

5 Our long term water resources strategy

This is the first published WRMP for Hafren Dyfrdwy, but the outlook for water supply and demand remains consistent with previous plans published by Dee Valley Water and Severn Trent for the relevant supply areas. Our best estimates of the future demand for water and the risks to our water supplies tell us that we expect to maintain a supply surplus over at least the next 25 years. As a result, we do not foresee any need to develop new sources of water supply. Our long term strategy is, therefore, to focus on reducing leakage, increase the use of demand management and to protect our sustainable sources of supply.

When developing the proposals in this WRMP, we have sought to strike a balance between the economic case for supply / demand investment, and meeting the expectations of our customers and stakeholders. Because we do not expect a supply / demand shortfall, there is no compelling need to invest in further improving the supply / demand balance. However, we know that customers and stakeholders want us to be more ambitious in our leakage and demand management thinking, and we believe that going forward we can better meet these expectations in an affordable way by embracing innovations and achieving synergies with other investment activities.

Below, we explain how we propose to achieve our long term strategy. Supporting details on how we have derived the recommendations in our WRMP can be found in the accompanying technical appendices.

Reducing leakage on our network

Leakage currently makes up 15% of the total amount of water we put into supply. Our draft WRMP proposed a much more ambitious leakage reduction target than those set at WRMP14. While there is no supply / demand driven need to reduce leakage, we want to do so in recognition of the views expressed by our customers and stakeholders. Throughout our draft WRMP and PR19 consultation processes, we have heard that leakage is a key concern and that we should do more to reduce it. At the same time, Ofwat and other key stakeholders have given a clear message to the water industry that they expect to see ambitious and innovative leakage reduction programmes in PR19. Despite our business plan including an extremely challenging performance commitment to reduce leakage by 15%, we have committed to delivering this step change in performance without any additional enhancement expenditure.

The performance commitment proposed is stretching and significantly beyond the sustainable economic level of leakage. All of the Hafren Dyfrdwy water resources zones are projected to remain in supply / demand balance surplus during the current water resources planning horizon, even without further leakage reduction. Furthermore, current performance compares well relative to the rest of the industry when analysed on both per km of pipeline (main) and per property basis. This is illustrated by the 2017/18 leakage performance in Figure 5.

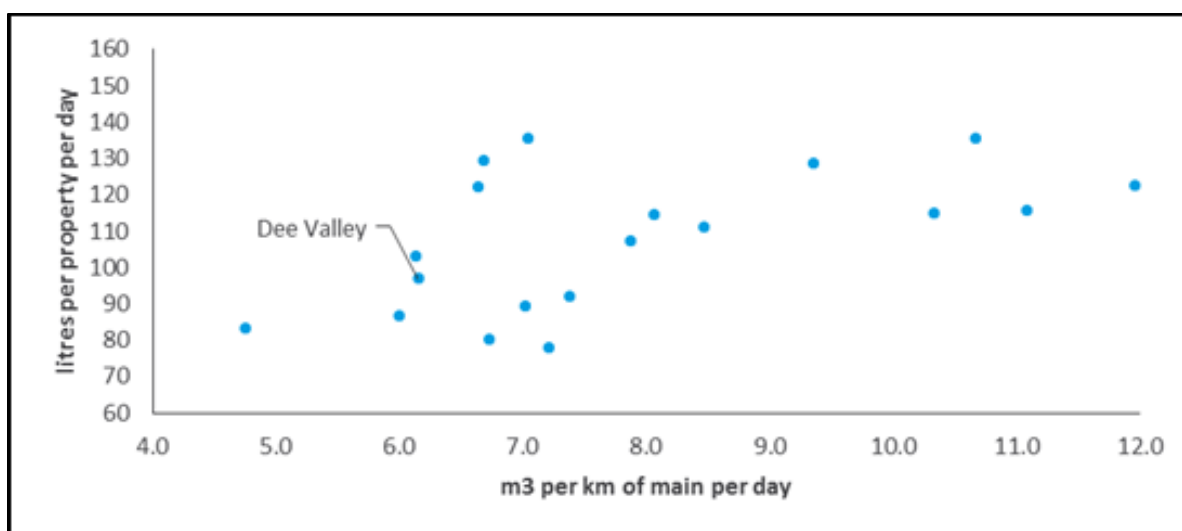


Figure 5 - Comparative leakage performance (2017/18 shadow reporting data, TMS removed as an outlier)

Given our favourable supply / demand balance position and leakage performance, we did not consider it appropriate to mirror Ofwat’s expectation of a 15% leakage reduction in our draft WRMP but instead proposed a performance commitment to reduce leakage by 7.5% in AMP7 and 15% by the end of AMP8.

The acceptability of this level of performance was tested with our customers. In our PR19 research we found that 71% of household customers, and 69% of non-household customers, found our proposed target acceptable. Our Willingness to Pay (WTP) research indicated that whilst reducing leakage was a priority for improvement for household customers there was limited willingness to pay more for that leakage reduction. Some customers in our qualitative research discussions suggested that the target level may still be too high irrespective of our good comparative performance.

Ofwat and NRW provided comments on our draft WRMP that included a request to reconsider whether our initial target was stretching enough. Consequently we have listened carefully to stakeholders, customers and policy makers and have included a 15% reduction in leakage over the five years of AMP7 without proposing an increase in overall expenditure.

We consider that this is an incredibly stretching target given our relatively low levels of leakage compared to the rest of the industry and that this is additional activity that is not required to meet the supply demand balance. We have calculated that the attainment and maintenance of a 15% reduction in leakage performance using our existing technology and process is likely to cost a minimum of £0.1 M in additional opex each year (based on our leakage cost curves). We will strive to optimise the existing investment we are making in telemetry and instrumentation during AMP6 to deliver even greater benefits than originally envisaged. We will also need to do more to integrate leakage into our business as usual activities. We will be looking for ways to derive multiple benefits from other investment areas. For example, the programme to meet a tighter lead standard means we can target leakage on customer supply pipes, additional instrumentation (flow and pressure loggers) needed to report against the standard definition will help us target leakage and as part of achieving our target reduction in drinking water quality complaints we will be doing a programme of air valve inspection and maintenance and we will be aligning this work with

the proactive leakage programme. We expect this will provide opportunities for more efficient deployment of our leakage programmes. The leakage reduction targets proposed in this WRMP are shown in Table 1.

WRZ	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Saltney	0.30	0.29	0.28	0.27	0.26	0.25	0.24	0.24	0.23	0.22
Wrexham	6.60	6.40	6.19	5.99	5.78	5.61	5.44	5.26	5.09	4.92
Llanfyllin	2.56	2.48	2.40	2.32	2.24	2.18	2.11	2.04	1.98	1.91
Llandinam & Llanwrin	4.62	4.47	4.33	4.19	4.05	3.92	3.80	3.68	3.56	3.44
Total	14.08	13.64	13.21	12.77	12.33	11.96	11.59	11.22	10.85	10.48

Table 1 - Hafren Dyfrdwy proposed leakage reduction profile (Ml/d)

Water efficiency and demand management

For AMP7, we will increase our baseline water efficiency programme. This will ensure we meet our on-going statutory water efficiency duty as well as helping customers reduce their demand for water.

In line with our wider water efficiency programme and our understanding of customers', regulators' and Government's expectations, we will offer a range of water efficiency services to our customers. We expect the key metrics to deliver on our statutory duty will be:

- Provide information to all consumers on how to save water. This includes maintaining our provision of direct engagement with schools and adult groups and providing information for non-household customers.
- Provide a range of water saving products which are free to customers on request.
- Provide discounted higher value water saving products (e.g. water butts, water efficient showerheads etc).
- Develop links with third parties to form partnerships – internal and external - to take advantage of scheduled visits to promote water efficiency and to retrofit water efficient devices.
- Provide water efficiency advice and access to free water saving devices as part of our free meter optant programme (FrOpt).

Over time the balance between free products, product installation, and education may change in response to the available opportunities and customer expectations.

In developing our proposals, we have made reference to:

- Environment Agency (EA) / Natural Resources Wales (NRW) Final Water Resource Planning Guidance.
- Defra Guiding Principles for water resource planning
- Water Strategy for Wales
- Waterwise Evidence Base Reports and National Strategy
- Market Transformation Programme
- Waterwise Water Efficiency Strategy for the UK

- Our own water efficiency programme and, consumption modelling forecasting analysis

To inform our WRMP, we have assessed the viability of a range of potential additional water efficiency options building on insight gained from Severn Trent's programme. We have identified the following options to be appropriate for inclusion in the baseline programme:

- **Free and paid water efficiency products:** We will increase the range of free and paid for water efficiency products offered to customers. The improved product offers will align to our service offered to customers in the Severn Trent region.
- **Home Water Efficiency Audits:** We will carry out proactive water efficiency audits and install water efficient products in our customers' homes (HVEC).
- **Customer education:** We will continue to engage and educate customers on how to use water wisely. Over time, opportunities to retrofit water efficient devices will reduce. Engagement and education to promote behaviour change will become increasingly important to help customers reduce their demand for water.

The size of the programme is constrained by the number of household customers and assumed uptake rates. Our proposed approach has been successfully trialled during AMP6 with an uptake rate of approximately 20% which we expect to be maintained.

Metering

Our draft WRMP proposed continuing the Dee Valley Water approach to household metering of allowing it to be led by customer demand for the free meter option. Following challenge from various stakeholders about how our metering strategy would tie in with our demand management ambitions, we have reviewed and adjusted this position.

We see metering as key to delivering the long term demand reduction and lower Per Capita Consumption (PCC) ambition set out in the Welsh Government's Water Strategy for Wales and UK Government's 25 Year Environment Plan, as well as the ambition of our stakeholders and customers to use water wisely. As a result, we are including the introduction of proactive metering in our final WRMP for Hafren Dyfrdwy to align to the plans for the Severn Trent region. However, we are also mindful that, while Welsh Government recognise the role that metering has to play in encouraging reduction in consumption, they are also clear that any approach to metering would need to be delivered in conjunction with innovative charging structures in order to ensure that households with affordability issues are protected. We will need to work with them and other interested parties to develop a metering and demand management package that benefits and protects our customers while delivering reductions in water use.

Therefore, our current plan is for proactive metering to commence in late AMP8 in the new Llanfyllin WRZ and AMP9 in the remainder the Hafren Dyfrdwy area. When assessing the benefits of a persuaded optant strategy (implementing metering through engagement and collaboration with householders), we have taken a precautionary approach to the demand management impact of an average 10% demand reduction. Our current thinking is that to secure the full benefits would require us to adopt an external metering policy and combine this with a policy of helping customers tackle supply pipe leakage at their properties.

Catchment management

Following publication of Dee Valley Water's 2014 WRMP and in preparation for PR14, risk assessments were carried out in relation to the presence of pesticides – namely MCPA and metaldehyde – in the River Dee catchment, and their potential impact on water treatment works. Dee Valley Water and United Utilities proposed a jointly funded programme of catchment management activities to reduce the usage of the pesticides by local landowners and avoid the installation of costly removal treatment.

This proposal was supported by the Drinking Water Inspectorate and the programme was put in place in November 2015 - a partnership between Dee Valley Water, United Utilities and the Welsh Dee Trust.

The programme funded two Catchment Advisors (CAs) - employed by the Welsh Dee Trust – to cover the Middle Dee and the Upper Dee catchments. Initially their key role was to engage with landowners, farmers and local pesticide suppliers with the aim of reducing the use of metaldehyde and other problematic pesticides in the catchment. They managed and promoted a number of initiatives to meet this aim, including:

- Active monitoring programme through fortnightly distribution of 'chemcatchers'⁷ across the catchment.
- Subsidised MOTs for sprayers and weed wipers
- Free weed wiper hire
- Free pesticide collection and disposal service
- Subsidised ferric phosphate slug pellets to encourage use of these as an alternative to metaldehyde pellets
- Accredited sprayer and weed wiper operation training
- Farm 'health check' audits to look for improvements to practices which could reduce pollution risk – for example, slurry storage; site drainage; fencing of fields running adjacent to water bodies to reduce bank damage by cattle.

The CAs developed a good working relationship with farmers across the catchment and ran several reed / pasture management events which enabled the demonstration and sharing of best practice. In addition, the CAs regularly attended local agricultural shows and events to raise awareness of the programme and developed a good network of contacts with local suppliers, agronomists and special interest groups within the farming community to share the messages.

In addition to the main Catchment Management Programme, we are also members of the Middle Dee Catchment Partnership, and the Dee Catchment Protection Group, a working group of the Dee Steering Committee which oversees the water quality monitoring programme for the River Dee. Set up in May 2017, the group consists of representatives from Hafren Dyfrdwy, Severn Trent, United Utilities, Dwr Cymru Welsh Water, Natural Resources Wales and Environment Agency. The aim of the group is to coordinate catchment activities in

⁷ Chemcatchers are small metal cylinders which contain absorbent discs. These are placed in flow of the water body for two week periods and the discs absorb any pesticides that might be in the water. The discs are sent away for analysis, with particular focus on checking for presence of acid herbicides and metaldehyde.

supporting the objectives of the Dee Steering Committee with specific objectives to provide intelligence from catchment teams regarding potential risks to abstraction which require monitoring; coordinate catchment activities in response to abstraction risks highlighted through incidents and routine sampling undertaken, and coordinate promotion of the River Dee as a drinking water source and some of the challenges to quality from activities within the catchment.

In spring 2019, United Utilities confirmed that they had secured agreement to take the Dee advisor posts in-house, and that they would be ending the agreement with the Welsh Dee Trust in September 2019. We recognise the significant benefits that can be gained from the catchment management approach, both in terms of environmental improvements such as contributing to meeting Water Framework Directive (WFD) objectives, and in water treatment cost savings that can be passed on to our customers. Hafren Dyfrdwy will continue to work with United Utilities and the Welsh Dee Trust for the remainder of the current AMP (until 2020) to support the work of the Middle Dee Catchment Partnership, and lead the Dee Catchment Protection Group. In the next AMP (2020-2025), we are proposing to extend our investment in catchment management activities in the Welsh part of the Dee catchment, building on the previous partnership with United Utilities were appropriate, as well as looking for new opportunities in our Powys supply area.

Natural Capital

As a company we look for solutions which are the most environmentally beneficial. Incorporating natural and social capital into our decision making processes will allow us to quantify and compare the environmental and social benefits of each scheme. We will consider how to incorporate this approach while contributing to the delivery of sustainable management of natural resources and the Welsh Government's well-being goals.

The working group for the UKWIR Implementing Ecosystem Service and Social Capital Accounting Approaches project, led by the consultant eftec, created a tool intended for water companies to incorporate Natural and Social Capital into PR19 business decisions and beyond. Severn Trent have commissioned eftec and Stantec, as experts in this area, to work with them on a number of case studies to investigate the practicality of this tool when applied to both PR19 and wider business decisions; we will work with our Severn Trent colleagues to identify any suitable Welsh case studies.

We are working closely with Natural Resources Wales and other key stakeholders to feed into the development of Area Statements which will provide localised evidence bases to enable us to prioritise our biodiversity activities during AMP7 and beyond. Where there are synergies to the natural capital approach, we will work with colleagues in Severn Trent to achieve common goals.

6 Understanding our customers' and stakeholders' views

A vital part of long-term planning is engagement with our customers and stakeholders, including regulators, neighbouring water companies, non-governmental organisations (NGOs) such as wildlife trusts, and representative bodies such as farmer's unions. We are legally required to carry out 'pre-consultation' discussions with certain statutory consultees, namely NRW, Ofwat and any licensed water suppliers that supply water to premises in our area through our supply system.



Figure 6 - WRMP engagement activities

Stakeholder engagement

One of the key engagement activities in the development of the WRMP19 has been the technical stakeholder forum. We held two sessions in June – one in Newtown, Powys and one in Wrexham – at which we provided an overview to our approach for developing the WRMP and our PR19 business plan. As part of the forums we encouraged open discussions about a number of topics and collated the resulting feedback. Some common themes came out of these discussions including the need to explore more opportunities for collaborative working with NGOs and local authorities, particularly in relation to the biodiversity duty; communications relating to leakage and demand management need improving to bring customers on board; our approach to WRMP19 and wider strategic planning needs to clearly link to Welsh Government policy and objectives.

We held our final pre-consultation forum in September, in Wrexham, where we presented a more detailed view of our findings and what the draft plan was likely to include. We focused particularly on the supply-demand balance findings and drought resilience. We also had a more detailed discussion about the proposed demand management approach. The group discussion sessions in this forum yielded some interesting thoughts on future catchment work

– for example, the need to better understand future risks to water quality from potential changes in land use in the Dee catchment.

There were some great suggestions as to how we could better engage with schools, including looking at possible joint water company campaigns and working with Welsh Government to have these worked into the national science curriculum. There were also some suggestions about how partnership working could be an effective way of securing the supply demand balance from other hazards (not just drought), such as the risk from flooding.

The feedback from these forums has been invaluable for developing, not only this WRMP, but also our thinking around catchment management approaches for our Welsh areas and better future engagement with our customers and key stakeholders in Wales.

Customer engagement

Since our draft WRMP was published we have continued our customer engagement programme, and the evidence we included in our PR19 submission is much more extensive than that included in our draft WRMP. Our customer engagement approach for our WRMP has been tailored taking into consideration the fact that, based on the supply and demand projections set out in this WRMP, we believe that we will remain in supply surplus for the planning period. As such, we are not considering any ‘supply-side options’ (i.e. new sources or water trading). Therefore we have been proportionate with our customers’ money and have not done research on topics such as supply-side options.

We have explored customer views on aspects of the WRMP, including leakage, resilience and water efficiency using a range of insight sources. We have used research techniques ranging from deliberative research, co-creation, depth interviews with customers in vulnerable circumstances, quantitative research including stated preference research and our regular customer tracker. We have also reviewed complaints data as many of the service issues in this outcome are amongst the top causes of complaints, including leakage. We’ve used a range of insight to understand our customers’ views as detailed in section E2 of Appendix E.

7 Governance and assurance

Throughout the development of this WRMP, we have engaged with the Severn Trent and Hafren Dyfrdwy Executive team (STEC), the Hafren Dyfrdwy Board and with our PR19 Water Forum. We have used this ongoing engagement to agree the strategic decisions set out in this WRMP.

Our decision making and recommendations are supported by a robust assurance framework. We use an established three lines of defence model for our regulatory submissions, employing third line assurance in areas of greatest risk. Where that assurance requires specialist engineering, financial or regulatory knowledge, we use external parties to undertake that assurance. This WRMP submission has been reviewed through our established governance and controls framework.

Given the importance of this submission, we have employed third line assurance, delivered by expert external parties for those areas of greatest risk. Black & Veatch, our established independent technical assessor, has undertaken a two stage approach to assurance that included both desk-top reviews and face-to-face interviews.

Phase one focussed on the proposed WRMP including:

- Review of process documentation and methodology
- Test and challenge the robustness of our approach to forecasting
- Review the sufficiency of our stakeholder involvement in the development of our plan
- Review the methodology, process and controls to demand, supply, trading and third party solutions. Specifically the range of solutions considered and how the final solutions were selected
- Integration with Drought Plan, PR19 plan and Ofwat methodology
- Test and challenge the plan is a cost effective and sustainable proposal

Phase two provided a review of the accompanying data tables to confirm accuracy and completeness of the data.

We were pleased that in its feedback on our draft WRMP, Ofwat recognised our independent assurance of the draft WRMP and the engagement between the Severn Trent and Hafren Dyfrdwy Executive teams and the Hafren Dyfrdwy Board during the plan development and its approval. We have continued this approach to assurance in production of the Statement of Response and the final WRMP. Having reviewed the WRMP, the supporting assurance and having taken Black and Veatch's conclusions into account, the Hafren Dyfrdwy Board makes the following statement:

- The Board is satisfied the plan represents best value in meeting the needs of our customers, the environment and wider statutory / Welsh Government policies and objectives.
- The Board is satisfied that while the final solutions within the plan may not be the least cost option, the impacts of all options have been transparently appraised.
- The Board is satisfied the plan represents the most cost effective and sustainable long term solution.